University of Pennsylvania

Philadelphia, Pennsylvania
Reports on Federal Awards in
Accordance with OMB Uniform Guidance
June 30, 2019
Federal Entity Identification
Number 23-1352685

University of Pennsylvania
Reports on Federal Awards in
Accordance with OMB Uniform Guidance
Index
June 30, 2019

Page(s)

I. Financial

Report of Independent Auditors ..... i–ii

Consolidated Financial Statements 1–3

Notes to Consolidated Financial Statements 4–37

Schedule of Expenditures of Federal Awards 38-133

Notes to Schedule of Expenditures of Federal Awards 134

II. Internal Control and Compliance

Report of Independent Auditors on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards* 135-136

Report of Independent Auditors on Compliance with Requirements That Could Have a Direct and Material Effect on Each Major Program and on Internal Control over Compliance in Accordance with the Uniform Guidance 137-139

III. Findings

Schedule of Findings and Questioned Costs 140–146

Summary Schedule of Prior Audit Findings 147-156

Management's View and Corrective Action Plan 157–160

I. Financial

Report of Independent Auditors

To the Trustees of the University of Pennsylvania:

Report on the Consolidated Financial Statements

We have audited the accompanying consolidated financial statements of the University of Pennsylvania (the "University"), which comprise the consolidated statements of financial position as of June 30, 2019 and 2018, and the related consolidated statements of activities and of cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on the consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the University's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of the University of Pennsylvania as of June 30, 2019 and 2018, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 1 to the consolidated financial statements, the University changed the manner in which it presents net assets and reports certain aspects of its financial statements as a not-for-profit entity in 2019. Our opinion is not modified with respect to this matter.

Other Matters

Other Information

Our audit was conducted for the purpose of forming an opinion on the consolidated financial statements as a whole. The accompanying schedule of expenditures of federal awards for the year ended June 30, 2019 is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) and is not a required part of the consolidated financial statements. The information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the consolidated financial statements as a whole.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated September 26, 2019 on our consideration of the University's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters for the year ended June 30, 2019. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the University's internal control over financial reporting and compliance.

September 26, 2019
Philadelphia, Pennsylvania

Consolidated Statements of Financial Position

University of Pennsylvania
(in thousands)

	June 30, 2019	June 30, 2018
Assets		
Cash and cash equivalents	$ 1,375,469	$ 1,431,172
Accounts receivable, net	398,058	451,936
Patient receivables, net	830,935	758,472
Contributions receivable, net	488,450	280,634
Loans receivable, net	72,362	79,360
Other assets	385,798	360,640
Investments, at fair value	16,499,386	15,733,881
Property, plant and equipment, net	8,028,992	7,318,619
Total assets	$ 28,079,450	$ 26,414,714
Liabilities		
Accounts payable	$ 346,986	$ 289,096
Accrued expenses and other liabilities	2,495,808	2,290,303
Deferred income	192,302	206,436
Deposits, advances and agency funds	190,078	170,728
Federal student loan advances	71,265	68,686
Accrued retirement benefits	1,651,685	1,241,307
Debt obligations	3,706,493	3,574,192
Total liabilities	8,654,617	7,840,748
Net assets		
Without donor restrictions	11,392,252	11,152,992
With donor restrictions	8,032,581	7,420,974
Total net assets	19,424,833	18,573,966
Total liabilities and net assets	$ 28,079,450	$ 26,414,714

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Activities

University of Pennsylvania
for the years ended June 30, 2019 and 2018
(in thousands)

	2019	2018
Without donor restrictions		
Revenue and other support:		
Tuition and fees, net	$ 1,155,894	$ 1,096,249
Commonwealth appropriations	34,518	33,606
Sponsored programs	1,022,338	1,005,570
Contributions and donor support	188,805	267,450
Investment income	675,865	578,700
Net patient service revenue	6,932,160	6,245,081
Other income	931,484	789,890
Independent operations	77,047	77,385
	11,018,111	10,093,931
Expenses:		
Compensation and benefits	5,991,191	5,496,929
Depreciation and amortization	540,235	509,921
Interest on indebtedness	94,810	90,476
Other operating expenses	3,872,702	3,463,693
	10,498,938	9,561,019
Increase in net assets from operations	**519,173**	**532,912**
Nonoperating revenue, net gains, reclassifications and other:		
Return on investments, net of amounts classified as operating revenue	103,711	507,321
Pension, OPEB and other, net	(426,535)	201,838
Contributions and donor support for capital related activities	42,911	444,383
Total nonoperating revenue, net gains, reclassifications and other	(279,913)	1,153,542
Increase in net assets without donor restrictions	239,260	1,686,454
With donor restrictions		
Contributions	598,622	397,271
Return on investments, net	464,755	753,550
Net assets released from restrictions	(451,770)	(510,742)
Increase in net assets with donor restrictions	611,607	640,079
Increase in total net assets	**850,867**	**2,326,533**
Net assets, beginning of year	18,573,966	16,247,433
Net assets, end of year	$ 19,424,833	$ 18,573,966

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows

University of Pennsylvania
for the years ended June 30, 2019 and 2018
(in thousands)

	2019	2018
Cash flows from operating activities:		
Increase in net assets	$ 850,867	$ 2,326,533
Adjustment to reconcile increase in net assets to net cash provided by operating activities:		
Depreciation and amortization	521,795	495,430
Provision for bad debts	8,040	7,907
Gain on investments, net	(739,519)	(1,383,213)
(Gain) loss on disposal of plant, property and equipment	(10,915)	680
Donated equipment	(531)	(2,057)
Proceeds from split-interest agreements designated for operations	-	82,844
Receipt of contributed securities	(75,188)	(53,070)
Proceeds from contributed securities	22,816	18,456
Receipt of contributions designated for the acquisition of long-lived assets and long-term investment	(213,867)	(612,028)
Pension, OPEB and other, net	426,535	(201,838)
Changes in operating assets and liabilities:		
Patient, accounts and loans receivable	(17,451)	(78,702)
Contributions receivable	(209,992)	(38,520)
Other assets	(27,718)	(36,867)
Accounts payable, accrued expenses and accrued retirement benefits	118,862	124,264
Deposits, advances and agency funds	19,167	20,034
Deferred income	(14,134)	(9,177)
Net cash provided by operating activities	658,767	660,676
Cash flows from investing activities:		
Purchase of investments	(13,267,225)	(12,390,888)
Proceeds from sale of investments	13,369,735	12,487,507
Purchase of property, plant and equipment	(1,232,647)	(868,479)
Cash acquired in Princeton HealthCare System (PHCS) membership substitution	-	46,440
Net cash used by investing activities	(1,130,137)	(725,420)
Cash flows from financing activities:		
Proceeds from contributions received designated for the acquisition of long-lived assets and long-term investment	213,867	192,153
Proceeds from contributed securities received designated for the acquisition of long-lived assets and long-term investment	51,913	34,208
Federal student loan advances	2,579	(13,323)
Repayment of long-term debt	(139,692)	(60,245)
Proceeds from issuances of long-term debt	287,000	370,305
Net cash provided by financing activities	415,667	523,098
Net (decrease) increase in cash and cash equivalents	(55,703)	458,354
Cash and cash equivalents, beginning of year	1,431,172	972,818
Cash and cash equivalents, end of year	$ 1,375,469	$ 1,431,172
Supplemental disclosure of cash flow information:		
Cash paid for interest, net of amounts capitalized	$ 95,392	$ 90,727
Contributed securities received	75,188	53,070
Increase (decrease) in accrued plant, property and equipment	51,392	(63)
Assets acquired in PHCS membership substitution	-	843,745
Liabilities assumed in PHCS membership substitution	-	426,836
Contribution received in PHCS membership substitution	-	416,909

The accompanying notes are an integral part of these consolidated financial statements.

1. Significant Accounting Policies

Organization

The University of Pennsylvania (University), located in Philadelphia, Pennsylvania, is an independent, nonsectarian, not-for-profit institution of higher learning founded in 1740. The University Academic Component (Academic Component) provides educational services, primarily for students at the undergraduate, graduate, professional and postdoctoral levels and performs research, training and other services under grants, contracts and similar agreements with sponsoring organizations, primarily departments and agencies of the United States Government. The University also operates an integrated health care delivery system, the University of Pennsylvania Health System (UPHS). The University is a tax-exempt organization under Section 501(c) (3) of the Internal Revenue Code.

Basis of Presentation

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and include the accounts of the University and its subsidiaries over which the University has a controlling financial interest or exercises control. All material transactions between the University and its subsidiaries are eliminated in consolidation. Investments in subsidiaries over which the University has the ability to exercise significant influence are reported using the equity method of accounting. Other investments in subsidiaries are reported using the cost method of accounting.

The net assets of the University are classified and reported as follows:

Without donor restrictions – includes net assets that are not subject to donor-imposed restrictions.

With donor restrictions – includes net assets that are (i) subject to legal or donor-imposed restrictions that will be met by actions of the University and/or the passage of time, and (ii) the original values of donor restricted net assets, the use of which is limited to investment and can only be appropriated for expenditure by the University in accordance with the Pennsylvania Uniform Principal and Income Act (Pennsylvania Act).

Expenses are reported as a decrease in net assets without donor restrictions. Gains and losses on investments are reported as increases or decreases in net assets without donor restrictions unless their use is restricted by explicit donor stipulation or by law. Donor-restricted resources intended for the acquisition or construction of long-lived assets are initially reported as net assets with donor restrictions and released from restrictions to net assets without donor restrictions when the asset is placed in service or in accordance with donor-specified terms.

Expirations of restrictions on contributions and investment income, reported as Net assets released from restrictions, and the corresponding amounts are included in the Consolidated Statements of Activities as follows (in thousands):

Net Assets With Donor Restrictions	**2019**	**2018**
Net assets released from restrictions	$ (451,770)	$ (510,742)

Net Assets Without Donor Restrictions	**2019**	**2018**
Contributions and donor support	$ 118,068	$ 190,445
Investment income	290,791	274,407
Contributions and donor support for capital related activities	42,911	45,890
Net assets released from restrictions	$ 451,770	$ 510,742

Gains or losses associated with investment activities are included in Return on investments, net. Gains or losses associated with property, plant and equipment disposals are included in Other operating expenses. Gains or losses associated with all other activities, such as debt retirements and pension and postretirement plan actuarial valuation adjustments, are reported in Pension, Other post-retirement employee benefits (OPEB) and other, net.

Certain material reclassifications have been made to fiscal year 2018 reported amounts in the Consolidated Financial Statements to conform to the current presentation, including the reclassification of Room and board revenue (previously included in Sales and services of auxiliary enterprises) to Tuition and fees, net on the Consolidated Statements of Activities and the reclassification of UPHS bad debt provision for patient receivables to change in Patient, accounts and loans receivable on the Consolidated Statements of Cash Flow. Additionally, prior year amounts for Temporarily restricted and Permanently restricted net assets were combined as Net assets with donor restrictions.

Fair Value

The University values certain financial and non-financial assets and liabilities by applying the FASB pronouncement on Fair Value Measurements. The pronouncement defines fair value and establishes a framework for measuring fair value that includes a hierarchy that categorizes and prioritizes the sources used to measure and disclose fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). The hierarchy is broken down into three levels based on inputs that market participants would use in valuing the asset or liability and are developed based on market data obtained from sources independent of the University as follows:

Level 1: Unadjusted quoted market prices in active markets for identical assets or liabilities.

Level 2: Unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable.

Level 3: Unobservable inputs for the asset or liability.

Inputs broadly refer to the assumptions that market participants use to make valuation decisions, including assumptions about risk. Inputs may include price information, volatility statistics, specific and broad credit data, liquidity statistics and other factors. The University is required by the pronouncement to maximize the use of observable inputs (Levels 1 and 2) and minimize the use of unobservable inputs (Level 3). The University considers observable data to be that market data which is readily available, regularly distributed or updated, reliable and verifiable, not proprietary and provided by independent sources that are actively involved in the relevant market. The categorization of a financial instrument within the hierarchy is based upon the pricing transparency of the instrument and does not necessarily correspond to the University's perceived risk of that instrument.

Assets and liabilities are disclosed in the Consolidated Notes to Financial Statements within the hierarchy based on the lowest (or least observable) input that is significant to the measurement. The University's assessment of the significance of an input requires judgment, which may affect the valuation and categorization within the fair value hierarchy. The fair value of assets and liabilities using Level 3 inputs are generally determined by using pricing models or discounted cash flow methods, which all require significant management judgment or estimation.

As a practical expedient, the University is permitted to estimate the fair value of an investment in an investment company at the measurement date using the reported net asset value (NAV). Adjustment is required if the University expects to sell the investment at a value other than NAV or if the NAV is not calculated in accordance with U.S. GAAP. The University holds investments in its portfolio which are generally valued based on the most current NAV. This amount represents fair value of these investments at June 30, 2019 and 2018. Investments reported at NAV, as a practical expedient, are not included within levels 1, 2, or 3 in the fair value hierarchy.

The University performs additional procedures, including due diligence reviews, on its investments in investment companies and other procedures with respect to the capital account or NAV provided to ensure conformity with US GAAP. The University has assessed factors including, but not limited to, managers' compliance with the *Fair Value Measurement* standard, price transparency and valuation procedures in place.

Cash and Cash Equivalents

Cash equivalents include liquid investments available for current operations, excluding amounts reported as investments, with maturities of three months or less when purchased and are carried at cost which approximates fair value.

Investments, at Fair Value

The majority of the University's investments are held in the Associated Investments Fund (AIF). The AIF is invested in accordance with the investment policies set out by an Investment Board which has been appointed by the Trustees of the University of Pennsylvania (the Trustees). The Office of Investments is responsible for the day-to-day management of the AIF including identifying, selecting and monitoring a variety of external investment managers to implement the strategic asset allocation set forth by the Investment Board. The AIF may include marketable and not readily marketable securities that it intends to hold for an indefinite period of time. The University also holds other investments which are not invested in the AIF due to various restrictions. The majority of these investments are in highly liquid short-term and equity type investments. Changes in the fair value of investments are reported in Return on investments, net in the Consolidated Statements of Activities. The following is a summary of the investments held in the AIF by asset allocation as well as investment risk:

Short-Term

Short-term investments include cash equivalents and fixed income investments with maturities of less than one year. Short-term investments are valued using observable market data and are categorized as Level 1 based on quoted market prices in active markets. The majority of these short-term investments are held in a US Treasury money market account.

Equity

Equity investments consist of direct holdings of public securities in managed accounts as well as exchange traded funds and private funds. The securities held in managed accounts, along with exchange traded funds, are generally valued based on quoted market prices in active markets obtained from exchange or dealer markets for identical assets, and are accordingly categorized as Level 1. Private funds are valued at NAV.

Debt

Debt investments consist of direct holdings of securities in managed accounts and private funds. Securities such as US Treasuries, held in managed accounts, are valued based on quoted market prices in active markets and are categorized as Level 1. Securities such as corporate bonds, high yield bonds and bank loans, also held in managed accounts, are valued based on quoted market prices or dealer or broker quotations and are categorized as Level 2 or in the cases where inputs are unobservable as Level 3. Private funds are valued at NAV.

Absolute Return

Absolute return investments are made up of allocations to private funds. The fund managers of these private funds invest in a variety of securities, based on the strategy of the fund, which may or may not be quoted in an active market. Private funds are valued at NAV.

Real Estate

Investments in real estate are primarily in the form of private funds. The fund managers of these private funds primarily invest in investments for which there is no readily determinable market value. The fund managers may value the underlying investments based on an appraised value, discounted cash flow, industry comparables or some other method. Private funds are valued at NAV.

Private Equity

Investments in private equity are in the form of close-ended private funds. The fund managers primarily invest in investments for which there is no readily determinable market value. The fund managers may value the underlying private investments based on an appraised value, discounted cash flow, industry comparables or some other method. These private fund investments are valued at NAV.

Natural Resources

Investments in natural resources are made up of private funds and securities in managed accounts. The fund managers of these private funds primarily invest in investments for which there is no readily determinable market value. The fund managers may value the underlying investments based on an appraised value, discounted cash flow, industry comparables or some other method. Private funds are valued at NAV. The securities held in managed accounts are generally valued based on quoted market prices in active markets obtained from exchange or dealer markets for identical assets, and are accordingly categorized as Level 1.

Derivatives

The University, in the normal course of business, utilizes derivative financial instruments in connection with its investment activity. Derivatives utilized by the University include futures, options, swaps and forward currency contracts and are reflected at fair value following the definition of Level 1 and 2 assets and liabilities as previously described. Investments in derivative contracts are subject to foreign exchange and equity price risks that can result in a loss of all or part of an investment. In addition, the University is also subject to additional counterparty risk should its counterparties fail to meet the terms of their contracts.

Investment Risks

The University's investing activities expose it to a variety of risks including market, credit and liquidity risks. The University attempts to identify, measure and monitor risk through various mechanisms including risk management strategies and credit policies.

Market risk is the potential for changes in the fair value of the University's investment portfolio. Commonly used categories of market risk include currency risk (exposure to exchange rate differences between functional currency relative to other foreign currencies), interest rate risk (changes to prevailing interest rates or changes in expectations of futures rates) and price risk (changes in market value other than those related to currency or interest rate risk, including the use of NAV provided).

Credit risk is the risk that one party to a financial investment will cause a financial loss for the other party by failing to discharge an obligation (counterparty risk).

Liquidity risk is the risk that the University will not be able to meet its obligations associated with financial liabilities.

Endowment

The University's endowment consists of 6,682 donor-restricted endowment funds and 920 quasi-endowment funds established by management for a variety of purposes. The University reports all endowment investments at fair value. The majority of the endowment funds of the University have been pooled in the University's AIF. The endowment funds not pooled in the AIF are primarily invested in equities and bonds.

The Commonwealth of Pennsylvania has not adopted the Uniform Management of Institutional Funds Act (UMIFA) or the Uniform Prudent Management of Institutional Funds Act (UPMIFA). Rather, the Pennsylvania Act governs the investment, use and management of the University's endowment funds.

The Pennsylvania Act does not require the preservation of the fair value of a donor's original gift as of the gift date of a donor-restricted endowment fund, absent explicit donor stipulations to the contrary. However, based on its interpretation of the Pennsylvania Act and relevant accounting literature, the University classifies the following as net assets with donor restrictions for reporting purposes: (i) the original value of donated assets required to be invested in perpetuity; (ii) the original value of subsequent donated assets required to be invested in perpetuity; (iii) accumulations to the donated assets invested in perpetuity made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund; and (iv) donated assets and accumulations that are subject to legal or donor-imposed restrictions that will be met by actions of the University and/or the passage of time. The Pennsylvania Act allows a nonprofit to elect to appropriate for expenditure between 2% and 7% of the endowment fair value, determined at least annually and averaged over a period of three or more preceding years, including funds whose fair value is less than the original donated value.

In accordance with the Pennsylvania Act, the University has elected to adopt and follow an investment policy seeking a total return for the investments held by the AIF, whether the return is derived from appreciation of capital or earnings and distributions with respect to capital or both. The endowment spending policy which the Board of Trustees has elected to govern the expenditure of funds invested in the AIF, including funds whose fair value is less than the original donated value, is designed to manage annual spending levels and is independent of the cash yield and appreciation of investments for the year. For fiscal year 2019, the spending rule target payout was based on the sum of: (i) 70% of the prior fiscal year distribution adjusted by an inflation factor; and (ii) 30% of the prior fiscal year-end fair value of the AIF, lagged one year, multiplied by 5.0% for all funds. The payout or allocation to operations exceeded actual income, net of expenses, by $577,039,000 in 2019 and by $516,034,000 in 2018.

Property, Plant and Equipment

Property, plant and equipment (PPE) is reported net of related depreciation. Donated PPE is reported based on estimated fair value at the date of acquisition. Capital leases are categorized as buildings or equipment and are reflected at the lower of the net present value of the minimum lease payments or the fair value of the leased asset at the inception of the lease. All other PPE is reported at cost. Depreciation is computed on the straight-line method over the estimated useful lives of the assets or the shorter of the lease term or estimated useful life of the asset for capital lease assets. Contributions of library materials, as well as rare books and other collectibles, are not recorded for financial statement presentation, while purchases are recorded as Other operating expenses on the Consolidated Statement of Activities in the period acquired.

Split-Interest Agreements

The University's split-interest agreements with donors consist of irrevocable charitable remainder trusts, charitable gift annuities, pooled income funds, perpetual trusts and charitable lead trusts. Assets are invested and payments are made to donors and/or other beneficiaries in accordance with the respective agreements.

The University recognizes assets contributed to charitable remainder trusts, charitable gift annuities and pooled income funds, where it serves as trustee, at fair value, recognizes a liability to the beneficiaries based on the present value of the estimated future payments to beneficiaries to be made over the estimated remaining life of those beneficiaries using current market rates at the date of the contribution, and recognizes the difference as contribution revenue. Subsequently, the trust assets, invested in equity and debt securities, are measured at fair value at quoted market prices, and are categorized as Level 1, with the changes reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. Liabilities to beneficiaries are revalued based on current market rates, and are categorized as Level 2, with the changes reported as an adjustment to Accrued expense and other liabilities on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities.

Charitable remainder trust assets, where the University does not serve as trustee, are initially valued using the current fair value of the underlying assets, using observable market inputs based on its beneficial interest in the trust, discounted to a

single present value using current market rates at the date of the contribution. The initially contributed assets are categorized as Level 3, and reported as Investments, at fair value on the Consolidated Statements of Financial Position and Contribution revenue on the Consolidated Statements of Activities. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. The primary unobservable input used in the fair value measurement of the charitable remainder trust assets is the discount rate. Significant fluctuation in the discount rates utilized in this calculation could result in a material change in fair value.

Perpetual trust assets are initially valued at the current fair value of the underlying assets using observable market inputs based on its beneficial interest in the trust. The initially contributed assets are categorized as Level 3 and are reported as Investments, at fair value on the Consolidated Statements of Financial Position and as Contribution revenue on the Consolidated Statements of Activities. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. The primary unobservable inputs used in the fair value measurement of the perpetual trust assets are the underlying securities held by the trust. Significant fluctuation in the market value of these underlying securities could result in a material change in fair value.

The University reports charitable lead trust assets by discounting future cash flows using current market rates at the measurement date, matched to the payment period of the agreement. The initially contributed assets are categorized as Level 3, and reported as Investments, at fair value on the Consolidated Statements of Financial Position and as Contribution revenue on the Consolidated Statements of Activities. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. The primary unobservable input used in the fair value measurement of the charitable lead trust assets is the discount rate. Significant fluctuation in the discount rates utilized in this calculation could result in a material change in fair value.

Income Taxes

The University is a tax exempt organization under Section 501(c)(3) of the Internal Revenue Code. Most of its activities and income are related to its exempt purposes and are exempt from federal and state income taxes. None of its activities and income is subject to Pennsylvania income tax. Unrelated activities and income are subject to federal "Unrelated Business Income Tax."

The University regularly evaluates its tax position and does not believe it has any uncertain tax positions that require disclosure or adjustment to the consolidated financial statements.

Tuition and Fees

Tuition and fees includes tuition, room and board, and other student fees which are recognized as revenue over time during the fiscal year in which the related academic services are rendered. Tuition and fees received in advance of services to be rendered are reported as Deferred income on the Consolidated Statements of Financial Position. The University maintains a policy of offering qualified applicants admission to the University without regard to financial circumstance, as well as meeting in full the demonstrated financial need of those admitted. Tuition and fees have been reduced by certain grants and scholarships in the amount of $349,981,000 in 2019 and $339,568,000 in 2018.

Sponsored Programs

Sponsored programs includes revenue from exchange and conditional non-exchange agreements with governments, foundations and private sources generally for research activities. Revenue from exchange agreements is generally recognized at a point in time when performance obligations are met, and revenue from conditional non-exchange agreements is generally recognized as the related costs are incurred. Non-exchange agreements are considered conditional if the terms of the agreement include both a right of return/release of assets received/promised and a barrier. These agreements become unconditional as barriers are met. At June 30, 2019, the University has unrecorded conditional

agreements of $1,868,237,000. In 2019 and 2018, sponsored programs revenue earned from governmental sources totaled $753,118,000 and $730,368,000, respectively. Indirect costs recovered on federally-sponsored programs are generally based on predetermined reimbursement rates which are stated as a percentage and distributed based on the modified total direct costs incurred. The University negotiates its federal indirect rate with its cognizant federal agency. Indirect costs recovered on all other grants and contracts are based on rates negotiated with the respective sponsors. Funds received for sponsored research activity are subject to audit. Based upon information currently available, management believes that any liability resulting from such audits will not materially affect the financial position or operations of the University.

Contributions

Contributions are revenues from unconditional non-exchange agreements with private sources and foundations. Contributions are recognized in the period received and reported as increases in the appropriate net asset category based on the presence or absence of donor imposed restrictions. Non-exchange agreements are considered conditional if the terms of the agreement include both a right of return/release of assets received/promised and a barrier. These agreements become unconditional as barriers are met. Contributions and donor support without donor restrictions also includes net assets released as a result of corresponding expenditures which met donor imposed restrictions. Contributions designated for the acquisition of long-lived assets and long-term investment are reported in Nonoperating revenue, net gains, reclassifications and other.

The University reports unconditional pledges at fair value by discounting future cash flows using current market rates at the measurement date, ranging from 2.32% to 2.99%, matched to the payment period of the agreement, and accordingly categorizes these assets as Level 3. The primary unobservable input used in the fair value measurement of the University's Contributions receivable is the discount rate. Significant fluctuation in the discount rates utilized in this calculation could result in a material change.

Net Patient Service Revenue

Net patient service revenue is derived from contracts with patients of UPHS in which its performance obligation is to provide health care services. Net patient service revenue is recorded over time during the period these performance obligations are satisfied and at the determined transaction price, which represents the estimated net realizable amounts due from patients, third-party payers and others for health care services rendered. Estimated net realizable amounts represent amounts due, net of implicit and explicit price concessions. Implicit price concessions are based on management’s assessment of expected net collections considering economic conditions, historical experience, trends in health care coverage and other collection indicators. After satisfaction of amounts due from insurance and reasonable efforts to collect from patients have been exhausted, UPHS follows established guidelines for placing certain past-due patient balances with collection agencies, subject to terms of certain restrictions on collection efforts as determined by UPHS. Patient receivables are written off after collection efforts have been followed in accordance with UPHS’ policy. Certain revenue received from third-party payers is subject to audit and retroactive adjustment. Any changes in estimates under these contracts are recorded in operations currently.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

Recent Authoritative Pronouncements

Periodically, the Financial Accounting Standards Board (FASB) issues updates to the Accounting Standards Codification (ASC) which impacts the University's financial reporting and related disclosures. The paragraphs which follow summarize a number of relevant updates. Unless otherwise noted, the University is currently evaluating the impact that these updates will have on the consolidated financial statements.

In May 2014, the FASB issued a standard on Revenue from Contracts with Customers. This standard implements a single framework for recognition of all revenue earned from customers. This framework ensures that entities appropriately reflect the consideration to which they expect to be entitled in exchange for goods and services by allocating transaction price to identified performance obligations and recognizing revenue as performance obligations are satisfied. Qualitative and quantitative disclosures are required to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. The University adopted this standard for fiscal year 2019 using the modified retrospective method and elected the practical expedient to apply to contracts not yet completed as of the beginning of the fiscal year. The adoption of this standard did not materially impact the University's results of operations or financial position.

In June 2018, the FASB issued a standard entitled Clarifying the Scope and the Accounting Guidance for Contributions Received and Contributions Made. The new guidance explains how entities will determine whether to account for a transfer of assets as an exchange transaction or a contribution. The FASB also clarified that a contribution is conditional if the agreement includes both a barrier (as defined) and a right of return or release. The University adopted this standard for fiscal year 2019 on a modified prospective basis for contracts not yet completed as of, or entered into subsequent to, the beginning of the fiscal year. The adoption of this standard did not materially impact the University's results of operations or financial position.

In August 2016, the FASB issued a standard on the Presentation of Financial Statements of Not-for-Profit Entities. The new guidance requires that not-for-profit entities no longer distinguish between resources with temporary and permanent restrictions on the face of their financial statements, effectively presenting two classes of net assets instead of three. The guidance also changes how not-for-profit entities report certain expenses and provide information about their available resources and liquidity. The University adopted this standard for fiscal year 2019, on a retrospective basis.

In February 2016, the FASB issued a standard on Leases. This standard requires lessees to recognize assets and liabilities for the rights and obligations created by leases with terms in excess of 12 months. The recognition, measurement, and presentation of expenses and cash flows arising from a lease will primarily depend on its classification as a finance or operating lease. The accounting by lessors remains largely unchanged. The standard is effective for fiscal year 2020.

In November 2016, the FASB issued a standard on Restricted Cash. This standard requires that the Consolidated Statement of Cash Flows explain the change during the period in the total of cash, cash equivalents, restricted cash and restricted cash equivalents ("Total Cash"). Additionally, a disclosure describing the nature of the restrictions and a reconciliation of Total Cash to the amounts of Cash and cash equivalents presented on the Consolidated Statement of Financial Position is required. The standard is effective for fiscal year 2020.

2. University of Pennsylvania Health System - Summarized Financial and Related Information

The Trustees formed Penn Medicine, the governance structure which oversees the activities of UPHS and the University of Pennsylvania Perelman School of Medicine (PSOM). The governing body operates, oversees and coordinates the academic, research and clinical missions of Penn Medicine.

UPHS is comprised of the following operating entities: Clinical Practices of the University of Pennsylvania; Clinical Care Associates; Hospital of the University of Pennsylvania; Penn Presbyterian Medical Center; Pennsylvania Hospital of the University of Pennsylvania Health System; Chester County Hospital and Health System; Lancaster General Health (LGH); Wissahickon Hospice of the University of Pennsylvania Health System; Franklin Casualty Insurance Company, a wholly owned Risk Retention Group; and, Quaker Insurance Company Ltd., a wholly owned offshore captive insurance company, (collectively referred to as RRG/Captive). In January 2018, through a membership substitution, Princeton HealthCare System (PHCS) became a part of UPHS.

Throughout the year, certain transactions (primarily billings for allocations of common costs, physicians' salaries and benefits, certain purchased services and support for PSOM) are conducted between UPHS and the University. Nonoperating, net, as shown below, includes transfers from UPHS to the University of $234,722,000 and $198,394,000 in 2019 and 2018, respectively, to further the research and educational activities of PSOM and $5,671,000 and $4,874,000 in 2019 and 2018, respectively, for other activities. In addition, UPHS recognized operating expenses of $19,770,000 and $19,844,000 in 2019 and 2018, respectively, to support academic operating activities in the clinical departments of PSOM.

The effect of all these transactions is included in the following summarized financial information of UPHS as of and for the years ended June 30, 2019 and 2018 (in thousands):

	2019	2018
Net patient service revenue	$ 6,940,977	$ 6,252,911
Other revenue	653,071	529,240
Total expenses	(7,156,362)	(6,399,423)
Excess of revenue over expenses from operations	437,686	382,728
Nonoperating, net	(310,922)	728,454
Increase in net assets	$ 126,764	$ 1,111,182
Total current assets	$ 1,876,193	$ 1,992,168
Assets whose use is limited:		
Held by trustees	163,598	274,300
RRG/Captive	219,879	207,403
Donor restricted and other	678,137	648,104
Designated	2,731,038	2,584,262
Property and equipment, net	4,760,563	4,103,777
Investments and other assets	1,152,231	1,204,215
Total assets	$ 11,581,639	$ 11,014,229
Total current liabilities	$ 1,243,888	$ 1,110,380
Long-term debt, net of current portion	2,283,002	2,274,859
Other liabilities	2,132,973	1,833,978
Total liabilities	$ 5,659,863	$ 5,219,217
Net assets		
Without donor restrictions	$ 5,234,000	$ 5,137,511
With donor restrictions	687,776	657,501
Total net assets	$ 5,921,776	$ 5,795,012
Total liabilities and net assets	$ 11,581,639	$ 11,014,229

Net Patient Service Revenue

Net Patient Service Revenue (NPSR) for the years ended June 30, 2019 and 2018 is derived from the following payers:

	2019	2018
Medicare (including Managed Medicare)	34%	31%
Medicaid (including Managed Medicaid)	10%	11%
Managed Care	35%	37%
Independence Blue Cross (IBC)	16%	17%
Commercial	4%	3%
Self Pay	1%	1%
	100%	100%

UPHS has agreements with the following third-party payers that provide for payments at amounts that differ from its established rates:

Inpatient acute care services and outpatient services rendered to Medicare program beneficiaries are paid at prospectively determined rates. These rates vary according to a patient classification system that is based on clinical, diagnostic, and other factors. Inpatient psychiatric services and medical education costs related to Medicare beneficiaries are paid based on a cost reimbursement methodology. UPHS is reimbursed for cost reimbursable items at a tentative rate with final settlement determined after submission of annual cost reports by each hospital and audits thereof by the Medicare fiscal intermediary.

Inpatient and outpatient services rendered to Medicaid program beneficiaries are paid at prospectively determined rates. Additional amounts are allocated to each hospital for training residents and serving a disproportionate indigent population.

Laws and regulations governing the Medicare and Medicaid programs are extremely complex and subject to interpretation. As a result, there is at least a reasonable possibility that recorded estimates will change by a material amount in the near term.

During 2017, UPHS and IBC reached agreement on terms of a five-year agreement. Payments made for inpatient services provided to IBC traditional and managed care subscribers are effected on a per case rate basis for most services. Payment for outpatient services is principally based upon negotiated fee schedules. Hospital and physician rates also provide for annual inflationary increases. In addition, incentives are paid for high performance with regard to clinical outcomes and patient quality. The agreement continues unless terminated by the parties.

During 2015, UPHS and Aetna reached agreement on terms of a five-year agreement. The terms of the agreement provide payments for inpatient hospital services on a per case rate basis. Payments for outpatient services continue to be predominantly based upon negotiated fee schedules.

UPHS also has reimbursement agreements with other commercial insurance carriers, health maintenance organizations and preferred provider organizations. The basis for reimbursement under these agreements includes prospectively determined rates per discharge, discounts from established charges and prospectively determined per diem rates.

Charity Care

UPHS provides services to patients who meet certain criteria under its charity care policy without charge or at amounts less than UPHS' established rates. Because UPHS does not pursue collections, such amounts have been excluded from NPSR. UPHS estimates the costs of providing charity care services based on data derived from a combination of UPHS' cost accounting system and the ratio of costs to charges. Of the Total expenses reported above by UPHS, an estimated $24,968,000 and $19,189,000 were incurred as a result of providing services to charity patients for the years ended June 30, 2019 and 2018, respectively.

Medical Professional Liability Claims

The University is insured for medical professional liability claims through the combination of the Medical Care Availability and Reduction of Error Fund (Mcare), various commercial insurance companies and risk retention programs.

Mcare levies health care provider surcharges, as a percentage of the Pennsylvania Joint Underwriters Association rates for basic coverage, to pay claims and pay administrative expenses of Mcare participants. These surcharges are recognized as expenses in the period incurred. Mcare operates on a pay-as-you-go basis and no provision has been made for any future Mcare assessments in the accompanying financial statements, as the University's portion of the unfunded Mcare liability cannot be estimated.

Anticipated insurance recoveries and estimated liabilities for medical malpractice claims or similar contingent liabilities are presented separately on the Consolidated Statement of Financial Position in Accounts receivable, net of allowances and Accrued expenses and other liabilities, respectively. The University accrues for estimated risks arising from both asserted and unasserted medical professional liability claims. The estimate of the gross liability and corresponding receivable for unasserted claims arising from unreported incidents is based on analysis of historical claims data by an independent actuary, which is recorded utilizing a 2.25% to 3.50% discount rate as of June 30, 2019 and 2018. The gross liability recorded under this program is $732,389,000 and $734,383,000 at June 30, 2019 and 2018, respectively, with a corresponding receivable of $103,777,000 and $106,673,000 at June 30, 2019 and 2018, respectively.

PHCS Membership Substitution

Effective January 1, 2018, the University and PHCS entered into an affiliation agreement whereby the University became the sole corporate member of PHCS. PHCS is a comprehensive healthcare provider located in central New Jersey that principally includes the Medical Center of Princeton, a general acute care hospital facility in Plainsboro, New Jersey, with 319 inpatient beds (plus 24 newborn bassinets), and Princeton House Behavioral Health, which includes a 110 bed inpatient facility in Princeton, New Jersey, and four additional outpatient locations. PHCS includes approximately 1,200 physicians on staff and employs approximately 3,200 people.

No consideration was exchanged for the net assets contributed and acquisition costs are expensed as incurred. UPHS recorded non-operating contribution income of $398,493,000 in fiscal year 2018 reflecting the fair value of the contributed net assets without donor restrictions of PHCS on January 1, 2018. Additionally, contribution income of $18,416,000 was recorded in net assets with donor restrictions as of January 1, 2018.

Total fair value of assets, liabilities and net assets contributed by PHCS and its subsidiaries at January 1, 2018 were as follows (in thousands):

	January 1, 2018
Cash and cash equivalents	$ 46,440
Patients accounts receivable, net	43,895
Prepaid expenses and other current assets	17,533
Investments and assets limited as to use	213,460
Property, plant and equipment, net	491,877
Other assets	30,540
Total assets acquired	$ 843,745
Accounts payable and accrued expense	$ 75,954
Accrued compensation and related benefits	32,962
Estimated third-party settlements	7,099
Long-term debt	293,861
Other liabilities	16,960
Total liabilities assumed	$ 426,836
Without donor restrictions	$ 398,493
With donor restrictions	18,416
Total net assets	$ 416,909
Total liabilities and net assets	$ 843,745

A summary of the pro-forma combined financial results of UPHS and PHCS for the year ended June 30, 2018, as if the affiliation had occurred on July 1, 2017, is as follows (unaudited and in thousands):

	2018
Total operating revenue	$ 7,020,438
Total operating expense	6,636,843
Operating gain	$ 383,595
Nonoperating activity, net	275,329
Increase in net assets without donor restrictions	$ 658,924

3. Accounts Receivable

Accounts receivable are reported at their net realizable value. The major components of receivables, net of allowances for doubtful accounts of $22,086,000 and $20,363,000 at June 30, 2019 and 2018, respectively, are as follows (in thousands):

	2019	2018
Sponsored research	$ 130,161	$ 140,790
Malpractice	103,777	106,673
Student	18,614	25,298
Trade	60,949	96,181
Investment income	8,096	5,884
Other	76,461	77,110
Total Accounts receivable	$ 398,058	$ 451,936

4. Loans Receivable

Loans receivable, and related allowances for doubtful accounts, consist of the following at June 30, 2019 and 2018 (in thousands):

	2019		
	Receivable	Allowance	Net
Student Loans:			
Federally-sponsored	$ 50,509		$ 50,509
Other	14,406	$ 3,275	11,131
Total Student loans	$ 64,915	$ 3,275	$ 61,640
Other	10,964	242	10,722
Total	$ 75,879	$ 3,517	$ 72,362

	2018		
	Receivable	Allowance	Net
Student Loans:			
Federally-sponsored	$ 57,562		$ 57,562
Other	14,160	$ 3,300	10,860
Total Student loans	$ 71,722	$ 3,300	$ 68,422
Other	11,168	230	10,938
Total	$ 82,890	$ 3,530	$ 79,360

Loans receivable primarily consists of student loans. Student loans include federally-sponsored student loans and donor-restricted student loans with mandated interest rates and repayment terms. The federally-sponsored student loans represent amounts due from current and former students under various Federal Government funded loan programs offered to graduate and undergraduate students. Loans disbursed under these programs are able to be assigned to the Federal Government upon default by the borrower; therefore, no related allowance is considered necessary. Funding received under these programs is ultimately refundable to the Federal Government in the event the University no longer participates and accordingly is reported as a liability in Federal student loan advances in the Consolidated Statements of Financial Position. Determination of the fair value of student loans receivable is not practicable.

Loans receivable are reported at their net realizable value. The University regularly assesses the adequacy of the allowances for credit losses of its loans by performing ongoing evaluations, including such factors as aging, differing economic risks associated with each loan category, financial condition of specific borrowers, economic environment in which the borrowers operate, level of delinquent loans, value of collateral and existence of guarantees or indemnifications.

5. Contributions Receivable

A summary of contributions receivable at June 30, 2019 and 2018, is as follows (in thousands):

	2019	2018
Unconditional promises expected to be collected in:		
Less than one year	$ 171,791	$ 134,133
One year to five years	280,978	169,363
Over five years	117,343	29,896
	570,112	333,392
Less: Discount	(45,638)	(20,912)
Less: Allowances for doubtful amounts	(36,024)	(31,846)
Total Contributions receivable, net	$ 488,450	$ 280,634

At June 30, 2019 and 2018, the University has outstanding unrecorded conditional promises to give, including non-legally binding bequests, of $474,184,000 and $312,013,000, respectively. When conditional promises to give become unconditional or non-legally binding bequests cash payments are received, they will be recorded and generally will be restricted for operations, endowment and capital projects as stipulated by the donors.

6. Investments, at Fair Value

A summary of investments, including the AIF, measured at fair value in accordance with the *Fair Value Measurements* standard, as of June 30, 2019 and June 30, 2018 is as follows (in thousands):

Assets	Level 1	Level 2	Level 3	Investments at NAV	2019
Short-term	$ 1,188,571				$ 1,188,571
Equity:					
US equities	721,261			$ 1,077,918	1,799,179
International equities	190,694			1,055,871	1,246,565
Emerging market equities	153,435			1,091,866	1,245,301
Total Equity	1,065,390			3,225,655	4,291,045
Debt:					
US treasuries	1,716,743	$ 41,860			1,758,603
Corporate bonds	1,548	100,706		26,849	129,103
High yield				98	98
Total Debt	1,718,291	142,566		26,947	1,887,804
Split-interest agreements	86,492		$ 322,631		409,123
Absolute return				3,259,286	3,259,286
Real estate		59		804,620	804,679
Private equity			14,426	3,832,884	3,847,310
Natural resources	157,440			650,414	807,854
Derivative instruments		1,167			1,167
Other			2,547		2,547
Total assets	$ 4,216,184	$ 143,792	$ 339,604	$ 11,799,806	$ 16,499,386

Assets	Level 1	Level 2	Level 3	Investments at NAV	2018
Short-term	$ 996,590				$ 996,590
Equity:					
US equities	808,186			$ 998,766	1,806,952
International equities	353,369			1,027,747	1,381,116
Emerging market equities	163,933			960,603	1,124,536
Total Equity	1,325,488			2,987,116	4,312,604
Debt:					
US treasuries	1,668,642	$ 42,348			1,710,990
Corporate bonds	1,533	156,245		99,581	257,359
High yield				106	106
Total Debt	1,670,175	198,593		99,687	1,968,455
Split-interest agreements	77,817		$ 320,976		398,793
Absolute return				3,176,304	3,176,304
Real estate		59		687,727	687,786
Private equity			8,473	3,182,297	3,190,770
Natural resources	262,132			727,529	989,661
Derivative instruments		10,386			10,386
Other			2,532		2,532
Total assets	$ 4,332,202	$ 209,038	$ 331,981	$ 10,860,660	$ 15,733,881

Included in Short-term investments is $43,287,000 and $158,105,000 of amounts held by trustees under indenture and escrow agreements at June 30, 2019 and 2018, respectively.

At June 30, 2019 and 2018, Short-term investments include $85,301,000 and $70,708,000, respectively, of outstanding receivables from trading activities. At June 30, 2019 and 2018, Short-term investments include $49,929,000 and $50,961,000, respectively, of outstanding payables from trading activities.

As of June 30, 2019 and 2018 there were no transfers between Level 1 and 2.

Liabilities related to equity short positions of $362,826,000 and $289,977,000 at June 30, 2019 and 2018, respectively, are reported in Accrued expenses and other liabilities on the Consolidated Statements of Financial Position. These liabilities are valued using observable market data and are categorized as Level 1 based on quoted market prices in active markets.

The University has made investments in various long-lived partnerships and, in other cases, has entered into contractual agreements that may limit its ability to initiate redemptions due to notice periods, lock-ups and gates. The University has also made commitments to various limited partnerships. The University expects these funds to be called over the next 5 years. The total amount of unfunded commitments is $3,491,742,000 which represents 25.6% of the AIF value as of June 30, 2019.

Details on the fair value, remaining estimated life, outstanding commitments, current redemption terms and restrictions by strategy and type of investment are provided below (in thousands):

	Fair Value		Outstanding	Redemption	Redemption
Strategy	**June 30, 2019**	**June 30, 2018**	**Commitments**	**Terms**	**Restrictions**
Short-term	$ 1,188,571	$ 996,590		Daily	None
Equity					
Managed accounts	764,350	952,964		Daily and semi-annually with varying notice periods	None
Mutual funds	257,144	378,636		Daily	None
Private funds (1)	3,269,551	2,981,004	$ 93,300	Weekly to annually with varying notice periods	Lock-up provisions ranging from 0 to 5 years and side pocket investments (2)
Total Equity	4,291,045	4,312,604	93,300		
Debt					
Managed accounts	1,860,857	1,868,768		Daily	None
Private funds (1)	26,947	99,687		Daily	None; side pocket investments (2)
Total Debt	1,887,804	1,968,455			
Absolute return	3,259,286	3,176,304	408,877	Range from monthly to annually and close-ended funds not available for redemption	Lock-up provisions ranging from 0 to 5 years with earlier redemptions subject to redemption fee, close-ended funds not available for redemption, and side pocket investments (2)
Real estate	804,679	687,786	954,328	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Private equity	3,847,310	3,190,770	1,843,135	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Natural resources					
Managed accounts	149,433	222,670		Daily	None
Private funds (1)	658,421	766,991	192,102	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Total Natural Resources	807,854	989,661	192,102		
Totals	$ 16,086,549	$ 15,322,170	$ 3,491,742		

(1) Private funds consist of close-ended and open-ended funds generally in the form of limited partnerships. Close-ended funds have varying remaining fund terms between 1 to 15 years.

(2) Side pocket investments represents investments designated by a manager that are not available for liquidity in an otherwise liquid fund vehicle.

Included in Level 1 split-interest agreement investments above are readily marketable assets invested by the University separately from the AIF where the University serves as trustee with an aggregate fair value of $86,492,000 and $77,817,000 at June 30, 2019 and 2018, respectively. Included in these amounts are assets related to the University Academic Component charitable gift annuities totaling $42,158,000 and $41,147,000 at June 30, 2019 and 2018, respectively. Level 3 split-interest agreement investments are managed and invested outside of the University by external trustees.

Invested in the AIF with an aggregate fair value of $171,392,000 and $167,480,000 at June 30, 2019 and 2018, respectively, is a perpetual trust managed by an external trustee who has delegated investment decisions to the University. The University invests the assets of this trust in accordance with its endowment policy.

Included in split-interest agreements are amounts held to meet legally mandated annuity reserves of $27,323,000 and $28,326,000 as of June 30, 2019 and 2018, respectively, as required by the laws of the following states where certain individual donors reside: California, Maryland, New Jersey and New York.

A summary of Level 3 assets included in split-interest agreements, where the University is not trustee, measured at fair value, as of June 30, 2019 and 2018 is as follows (in thousands):

	2019	2018
Charitable remainder trusts	$ 18,511	$ 17,239
Charitable lead trusts	4,568	5,621
Perpetual trusts	299,552	298,116
Total	$ 322,631	$ 320,976

Changes to the reported amounts of split-interest agreements measured at fair value using unobservable (Level 3) inputs as of June 30, 2019 and 2018 are as follows (in thousands):

	Charitable Remainder Trusts	Charitable Lead Trusts	Perpetual Trusts	Total
June 30, 2018	$ 17,239	$ 5,621	$ 298,116	$ 320,976
Net realized gains			6,994	6,994
Net unrealized gains/(losses)	724	(1,023)	(4,055)	(4,354)
Acquisitions	1,191			1,191
Liquidations	(643)	(30)	(1,503)	(2,176)
June 30, 2019	$ 18,511	$ 4,568	$ 299,552	$ 322,631

	Charitable Remainder Trusts	Charitable Lead Trusts	Perpetual Trusts	Total
June 30, 2017	$ 15,991	$ 92,590	$ 287,448	$ 396,029
Net realized gains			2,346	2,346
Net unrealized gains/(losses)	670	(4,110)	8,322	4,882
Acquisitions	622			622
Liquidations	(44)	(82,859)		(82,903)
June 30, 2018	$ 17,239	$ 5,621	$ 298,116	$ 320,976

The following tables set forth the fair value, related gains (losses) and notional amounts of the University's derivative instruments by contract type as of June 30, 2019 and 2018 (in thousands):

	2019			
	Notional Amount	Gross Derivative Assets	Gross Derivative Liabilities	Derivative Gains
Foreign currency contracts	$ 121,124	$ 1,167	$ 33	$ 369
Futures contracts	(398,548)			3,210
Options contracts	(122,014)		627	
Total	$ (399,438)	$ 1,167	$ 660	$ 3,579

	2018			
	Notional Amount	Gross Derivative Assets	Gross Derivative Liabilities	Derivative Losses
Foreign currency contracts	$ 126,869	$ 302	$ 6,276	$ (29,513)
Futures contracts	(426,582)	10,084		(56,526)
Options contracts	(28,906)		153	
Total	$ (328,619)	$ 10,386	$ 6,429	$ (86,039)

The notional amount is representative of the volume and activity of the respective derivative type during the years ended June 30, 2019 and 2018.

Gross derivatives assets and liabilities are shown in Investments, at fair value and Accrued expenses and other liabilities on the Consolidated Statements of Financial Position, respectively. Derivative gains (losses) are shown in Return on investments, net on the Consolidated Statements of Activities, in the appropriate net asset classification.

A summary of the University's total investment return, net of external and direct internal investment expenses, for the years ended June 30, 2019 and 2018 is presented below (in thousands):

	2019	2018
AIF investment income	$ 90,494	$ 100,290
AIF realized and unrealized gains	793,459	1,349,913
Return on AIF	883,953	1,450,203
Other investment gains	69,588	114,961
Total Return on investments, net	$ 953,541	$ 1,565,164

7. Endowment

The composition and changes to the amount of the University's endowment at June 30, 2019 are as follows (in thousands):

	Without Donor Restrictions	With Donor Restrictions	Total
Donor-restricted endowment funds		$ 7,397,533	$ 7,397,533
Quasi-endowment funds	$ 7,252,228		7,252,228
June 30, 2019	$ 7,252,228	$ 7,397,533	$ 14,649,761

	Without Donor Restrictions	With Donor Restrictions	Total
Net assets, June 30, 2018	$ 6,828,370	$ 6,949,071	$ 13,777,441
Investment return	414,032	400,565	814,597
New gifts	6,999	357,012	364,011
Allocation of endowment assets for expenditure	(577,039)		(577,039)
Other investment allocation	(3,793)		(3,793)
Transfers to create board designated funds	288,291		288,291
Other transfers	3,634	(17,381)	(13,747)
Released from restriction	291,734	(291,734)	
Net assets, June 30, 2019	$ 7,252,228	$ 7,397,533	$ 14,649,761

The composition and changes to the amount of the University's endowment as of June 30, 2018 are as follows (in thousands):

	Without Donor Restrictions	With Donor Restrictions	Total
Donor-restricted endowment funds		$ 6,949,071	$ 6,949,071
Quasi-endowment funds	$ 6,828,370		6,828,370
June 30, 2018	$ 6,828,370	$ 6,949,071	$ 13,777,441

	Without Donor Restrictions	With Donor Restrictions	Total
Net assets, June 30, 2017	$ 5,931,351	$ 6,281,856	$ 12,213,207
Investment return	768,231	744,741	1,512,972
New gifts	13,786	167,893	181,679
Allocation of endowment assets for expenditure	(516,034)		(516,034)
Other investment allocation	(5,871)		(5,871)
Transfers to create board designated funds	198,535		198,535
Other transfers	(3,354)	14,865	11,511
PHCS membership substitution	163,024	18,418	181,442
Released from restriction	278,702	(278,702)	
Net assets, June 30, 2018	$ 6,828,370	$ 6,949,071	$ 13,777,441

The University has no endowment funds with donor restrictions for which the fair value at June 30, 2019 and 2018 is less than the original donated value.

8. Property, Plant and Equipment, net

The components of PPE at June 30, 2019 and 2018 are as follows (in thousands):

	Estimated Useful Life in years	2019	2018
Land and land improvements	N/A to 20	$ 438,885	$ 431,440
Buildings and fixed equipment	5 to 50	10,032,085	9,357,800
Moveable equipment and other	4 to 20	2,013,160	1,935,319
Construction-in-progress		1,354,708	929,115
		13,838,838	12,653,674
Less: Accumulated depreciation		(5,809,846)	(5,335,055)
Property, plant and equipment, net		$ 8,028,992	$ 7,318,619

The University recorded $539,372,000 and $507,890,000 of depreciation expense for the years ended June 30, 2019 and 2018, respectively.

The University capitalized $35,748,000 and $19,027,000 of interest costs for the years ended June 30, 2019 and 2018, respectively.

The University has conditional asset retirement obligations of $16,320,000 and $20,364,000 as of June 30, 2019 and 2018, respectively, which primarily relate to asbestos contained in buildings and underground steam distribution piping and are included within Accrued expenses and other liabilities in the Consolidated Statements of Financial Position.

9. Split-Interest Agreements

Changes in the value of assets, liabilities and net assets pursuant to split-interest agreements as of June 30, 2019 and 2018 are as follows (in thousands):

2019	Assets	Liabilities	Net Assets
June 30, 2018	$ 398,793	$ (46,965)	$ 351,828
New contributions	8,552	(8,898)	(346)
Investment income	1,882	(1,545)	337
Realized and unrealized gain, net	7,787		7,787
Payments and settlements	(7,891)	8,593	702
Actuarial adjustment		(1,496)	(1,496)
Net change	10,330	(3,346)	6,984
June 30, 2019	$ 409,123	$ (50,311)	$ 358,812

2018	Assets	Liabilities	Net Assets
June 30, 2017	$ 470,498	$ (47,511)	$ 422,987
New contributions	3,682	(3,770)	(88)
Investment income	2,255	(1,388)	867
Realized and unrealized gain, net	10,920		10,920
Payments and settlements	(88,562)	6,972	(81,590)
Actuarial adjustment		(1,268)	(1,268)
Net change	(71,705)	546	(71,159)
June 30, 2018	$ 398,793	$ (46,965)	$ 351,828

10. Contingencies, Guarantees and Commitments

The University offers various loan programs for students and families to pay tuition, fees and other costs. Certain loans issued by private lending institutions are guaranteed by the University totaling $27,979,000 and $37,613,000 at June 30, 2019 and 2018, respectively. Upon default by the borrower, the University is required to pay all or a portion of the outstanding loan balance. The University recognizes a liability for the greater of the fair value of the guarantee or defaults in the portfolio of guaranteed loans. The recognized liability is $3,182,000 and $3,299,000 at June 30, 2019 and 2018, respectively and reflects the fair value of the guarantee on these outstanding loan balances.

Various lawsuits, claims and other contingent liabilities arise in the ordinary course of the University's education and health care activities. Based upon information currently available, management believes that any liability resulting therefrom will not materially affect the financial position or operations of the University.

The University is currently involved in various projects that have resulted in capital and property acquisition commitments from the University. As of June 30, 2019, approximately $669,913,000 has been committed by the University.

11. Pension and Other Postretirement Benefit Costs

Retirement benefits are principally provided to employees through contributory defined contribution plans. The Academic Component's policy with respect to its contribution is to provide up to 9% of eligible employees' salaries, while the UPHS contribution can be up to 6.5%. The University's contributions to these plans amounted to $212,316,000 and $194,597,000 as of June 30, 2019 and 2018, respectively.

The University also has non-contributory defined benefit pension plans. Benefits under the plans generally are based on the employee's years of service and compensation during the years preceding retirement. Contributions to the plans are made in amounts necessary to at least satisfy the minimum required contributions as specified in the Internal Revenue Service Code and related regulations. The Academic Component's plan was frozen to new full-time entrants effective July 1, 2000 and part-time entrants effective July 1, 2018. UPHS' primary plan was frozen to new entrants effective July 1, 2010; the benefit accruals for all participants of the LGH and PHCS plans were frozen effective June 30, 2013 and December 31, 2011, respectively.

During the year ended June 30, 2018, certain terminated vested participants in the UPHS and LGH defined benefits plans were fully paid out their pension benefits as part of a one-time vested termination cashout offering (VTCO). The PBO and ABO as of June 30, 2018 reflect the pay-out of benefits for these participants. The total lump sum payments from the VTCO were $156,928,000.

Additionally, the University provides certain healthcare and life insurance benefits (OPEB) for retired employees. Only a limited number of employees may become eligible for such benefits if they reach retirement age while working for the University. These and similar benefits for active and certain retired employees are provided through insurance contracts.

The University uses a measurement date of June 30 for its defined benefit pension and OPEB plans.

Change in Plan Assets/ Obligation and Funded Status

The funded status of the plans is measured as the difference between the plan assets at fair value and the projected benefit obligation (PBO) for Pension Benefits or accumulated postretirement benefit obligation (APBO) for Other Postretirement Benefits. The resulting net liability is recorded in Accrued retirement benefits on the Statements of Financial Position. The following shows changes in the benefit obligation, plan assets and funded status (in thousands):

2019	Pension Benefits	Other Postretirement Benefits	Total
Change in Plan Assets			
Fair value of plan assets, beginning of year	$ 2,590,798	$ 505,340	$ 3,096,138
University contributions	87,634	32,244	119,878
Plan participants' contributions	159	6,419	6,578
Actual return on plan assets	120,702	13,198	133,900
Benefits paid	(102,553)	(34,836)	(137,389)
Fair value of plan assets, end of year	$ 2,696,740	$ 522,365	$ 3,219,105

Change in Benefit Obligation			
Benefit obligation, beginning of year (PBO/APBO)	$ 3,319,649	$ 916,367	$ 4,236,016
Service cost	68,923	30,269	99,192
Interest cost	139,344	38,741	178,085
Plan participants' contributions	159	6,419	6,578
Net actuarial (gain)/loss	324,954	57,368	382,322
Benefits paid	(102,553)	(34,836)	(137,389)
Benefit obligation, end of year (PBO/APBO)	$ 3,750,476	$ 1,014,328	$ 4,764,804
Funded status, end of year	**$ 1,053,736**	**$ 491,963**	**$ 1,545,699**
Other retirement programs			105,986
Accrued retirement benefits			$ 1,651,685

2018	Pension Benefits	Other Postretirement Benefits	Total
Change in Plan Assets			
Fair value of plan assets, beginning of year	$ 2,371,317	$ 444,723	$ 2,816,040
University contributions	109,568	35,614	145,182
Plan participants' contributions	158	7,873	8,031
Actual return on plan assets	216,840	51,673	268,513
Acquisition	139,791		139,791
Benefits paid	(246,876)	(34,543)	(281,419)
Fair value of plan assets, end of year	$ 2,590,798	$ 505,340	$ 3,096,138
Change in Benefit Obligation			
Benefit obligation, beginning of year (PBO/APBO)	$ 3,262,668	$ 913,685	$ 4,176,353
Service cost	70,041	30,240	100,281
Interest cost	137,472	36,044	173,516
Plan participants' contributions	158	7,873	8,031
Acquisition	167,552		167,552
Net actuarial (gain)/loss	(71,366)	(36,932)	(108,298)
Benefits paid	(246,876)	(34,543)	(281,419)
Benefit obligation, end of year (PBO/APBO)	$ 3,319,649	$ 916,367	$ 4,236,016
Funded status, end of year	**$ 728,851**	**$ 411,027**	**$ 1,139,878**
Other retirement programs			101,429
Accrued retirement benefits			$ 1,241,307

The Accumulated Benefit Obligation for the Pension Benefits was $3,354,141,000 and $2,975,984,000 at June 30, 2019 and 2018, respectively.

Net Periodic Benefit Cost

The components of net periodic benefit cost for pension benefits and other postretirement benefits are detailed below (in thousands). In the Consolidated Statements of Activities, service cost is reported as Compensation and benefits while the remaining components of net periodic benefit cost are reported as Pension, OPEB and other, net.

2019	Pension Benefits	Other Postretirement Benefits	Total
Net Periodic Cost			
Service cost	$ 68,923	$ 30,269	$ 99,192
Interest cost	139,344	38,741	178,085
Expected return on plan assets	(169,595)	(37,969)	(207,564)
Amortization of:			
Net prior service cost		(386)	(386)
Net losses	30,968	2,447	33,415
Net periodic benefit cost	$ 69,640	$ 33,102	$ 102,742

2018	Pension Benefits	Other Postretirement Benefits	Total
Net Periodic Cost			
Service cost	$ 70,041	$ 30,240	$ 100,281
Interest cost	137,472	36,044	173,516
Expected return on plan assets	(176,009)	(32,726)	(208,735)
Amortization of:			
Net prior service cost		(323)	(323)
Net losses	40,827	5,971	46,798
Net periodic benefit cost	$ 72,331	$ 39,206	$ 111,537

Net Assets Without Donor Restrictions

The University recorded the following year-end valuation adjustments to its Pension and Other Postretirement Benefit Plans in Pension, OPEB and Other, net in the Consolidated Statements of Activities (in thousands):

2019	Pension Benefits	Other Postretirement Benefits	Total
Net Assets Without Donor Restrictions			
Net actuarial loss	$ 928,685	$ 195,165	$ 1,123,850
Net prior service cost/(credit)		(2,759)	(2,759)
Total	$ 928,685	$ 192,406	$ 1,121,091
Adjustment to net assets without donor restrictions (gain)/loss	$ 342,879	$ 80,077	$ 422,956

2018	Pension Benefits	Other Postretirement Benefits	Total
Net Assets Without Donor Restrictions			
Net actuarial loss	$ 585,806	$ 115,475	$ 701,281
Net prior service cost/(credit)		(3,146)	(3,146)
Total	$ 585,806	$ 112,329	$ 698,135
Adjustment to net assets without donor restrictions (gain)/loss	$ (153,023)	$ (61,924)	$ (214,947)

The estimated amount that will be amortized from Net assets without donor restrictions into net periodic benefit cost in 2020 is as follows (in thousands):

	Pension Benefits	Other Postretirement Benefits
Amortization of prior service credit		$ (387)
Amortization of net losses	$ 53,548	6,992

Actuarial Assumptions

The expected long-term rate of return on plan assets is management's best estimate of the average investment return expected to be received on the assets invested in the plan over the benefit period. The expected long-term rate of return on plan assets has been established by considering historical and future expected returns of the asset classes invested in by the pension trust, and the allocation strategy currently in place among those classes.

	Pension Benefits		Other Postretirement Benefits	
Weighted-Average Assumptions Used to Determine Benefit Obligations at Year End	**2019**	**2018**	**2019**	**2018**
Discount rate	3.72%	4.28%	3.81%	4.29%
Salary increase	3.92%	3.03%	N/A	N/A
Weighted-Average Assumptions Used to Determine Net Periodic Benefit Cost				
Discount rate	4.26%	4.24%	4.29%	4.00%
Expected long-term return on plan assets	7.30%	7.46%	7.50%	7.50%
Salary increase	3.80%	3.99%	N/A	N/A
Assumed Health Care Cost Trend Rates				
Initial trend rate	N/A	N/A	6.28%	6.54%
Ultimate trend rate	N/A	N/A	4.71%	4.71%
Fiscal year end that ultimate trend rate is reached	N/A	N/A	2037	2037

Assumed health care cost trend rates have a significant effect on the amounts reported for the Other postretirement benefits. A one-percentage-point change in assumed health care trend rates would have the following effects on Other postretirement benefits (in thousands):

	1-Percentage Point Increase	1-Percentage Point Decrease
2019		
Effect on total of service and interest cost	$ 17,240	$ (12,884)
Effect on APBO	194,519	(151,248)

Expected Contributions

The University expects to contribute $128,772,000 and $31,204,000 for pension benefits and other postretirement benefits, respectively, during the fiscal year ending June 30, 2020.

Expected Benefits Payments (in thousands):

Expected benefit payments for the year ending:	Pension Benefits	Other Postretirement Benefits before Medicare Part D Subsidy	Impact of Medicare Part D Subsidy
June 30, 2020	$ 125,108	$ 27,638	$ 157
June 30, 2021	129,259	30,006	162
June 30, 2022	137,218	32,093	167
June 30, 2023	145,783	34,344	170
June 30, 2024	154,636	36,512	173
June 30, 2025 to June 30, 2029	893,644	213,693	900

Plan Assets and Allocations

The principal investment objectives for the pension and other postretirement benefits plans are to ensure the availability of funds to pay pension benefits as they become due under a broad range of future economic scenarios, to maximize long-term investment returns with an acceptable level of risk based on the pension obligations, and to invest the pension trust in a diversified manner.

The University's Office of Investments is responsible for the day-to-day management of the majority of the investments of the pension and other postretirement benefits. The investments are made in accordance with policies set out by the Investment Board which has been appointed by the Trustees. The pension and other postretirement benefit investments are similar in nature to those investments discussed in Notes 1 and 6 – Investments, at Fair Value. However, the actual allocations to specific investments within each asset class may vary due to certain restrictions imposed by investment managers and ERISA regulations.

A summary of plan assets, measured at fair value, as of June 30, 2019 and 2018, is as follows (in thousands):

Pension Benefits:

Assets	Level 1	Level 2	Level 3	Investments at NAV	2019
Short-term	$ 68,135				$ 68,135
Equity:					
US equities	224,330	$ 459		$ 165,882	390,671
International equities	126,403			234,903	361,306
Emerging market equities	191			163,689	163,880
Debt:					
US treasuries	358,601	7,699		1,301	367,601
Corporate bonds	85,863	79,915		188,261	354,039
Absolute return				547,478	547,478
Real estate				60,890	60,890
Private equity	2,611			221,968	224,579
Natural resources	68,499			89,928	158,427
Total assets	$ 934,633	$ 88,073	$ -	$ 1,674,300	$ 2,697,006

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2019
Derivative instruments		$ 266			$ 266
Total liabilities	$ -	$ 266	$ -	$ -	$ 266

Assets	Level 1	Level 2	Level 3	Investments at NAV	2018
Short-term	$ 63,769				$ 63,769
Equity:					
US equities	307,663	$ 328		$ 150,046	458,037
International equities	142,875			250,654	393,529
Emerging market equities	6,395			141,825	148,220
Debt:					
US treasuries	288,406	8,400			296,806
Corporate bonds	36,829	79,764		154,097	270,690
Absolute return	13,335			520,465	533,800
Real estate				45,198	45,198
Private equity	3,868			179,116	182,984
Natural resources	105,564	1,210		91,116	197,890
Derivative instruments:					
Forward currency contracts		65			65
Total assets	$ 968,704	$ 89,767	$ -	$ 1,532,517	$ 2,590,988

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2018
Derivative instruments		$ 190			$ 190
Total liabilities	$ -	$ 190	$ -	$ -	$ 190

Other Postretirement Benefits:

Assets	Level 1	Level 2	Level 3	Investments at NAV	2019
Short-term	$ 25,184				$ 25,184
Equity:					
US equities				$ 62,356	62,356
International equities				79,723	79,723
Emerging market equities	4,409			48,233	52,642
Debt:					
US treasuries	22,771				22,771
Corporate bonds				10,702	10,702
Absolute return				165,196	165,196
Real estate				24,102	24,102
Private equity				47,373	47,373
Natural resources	22,752			9,629	32,381
Total	$ 75,116	$ -	$ -	$ 447,314	$ 522,430

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2019
Derivative instruments		$ 65			$ 65
Total	$ -	$ 65	$ -	$ -	$ 65

Assets	Level 1	Level 2	Level 3	Investments at NAV	2018
Short-term	$ 26,269				$ 26,269
Equity:					
US equities	6,123			$ 57,429	63,552
International equities	6,878			83,354	90,232
Emerging market equities	3,240			40,349	43,589
Debt:					
US treasuries	25,351				25,351
Corporate bonds		$ 282		10,165	10,447
Absolute return				154,140	154,140
Real estate				14,337	14,337
Private equity				34,457	34,457
Natural resources	34,928	526		7,535	42,989
Derivative instruments:					
Forward currency contracts		34			34
Total	$ 102,789	$ 842	$ -	$ 401,766	$ 505,397

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2018
Derivative instruments		$ 57			$ 57
Total	$ -	$ 57	$ -	$ -	$ 57

As of June 30, 2019, the University has unfunded commitments to limited partnerships totaling $407,514,000, which are expected to be called over the next 5 years.

Transfers between leveled assets are based on the actual date of the event which caused the transfer. As of June 30, 2019 and 2018 there were no transfers between Level 1 and 2.

Plan asset allocations by category are as follows:

2019	Pension Benefits		Other Postretirement Benefits	
Allocation of Plan Assets	Target	Actual	Target	Actual
Short-term	0.0%	2.5%	0.0%	4.8%
Equity:				
US equities	12.7%	14.5%	10.0%	11.9%
International equities	13.4%	13.4%	16.0%	15.3%
Emerging markets equities	6.1%	6.1%	10.0%	10.1%
Debt:				
US treasuries	24.0%	13.6%	7.0%	4.4%
Corporate bonds	3.2%	13.1%	0.0%	2.0%
Absolute return	22.2%	20.3%	34.0%	31.6%
Real estate	2.1%	2.3%	4.0%	4.6%
Private equity	8.3%	8.3%	9.0%	9.1%
Natural resources	8.0%	5.9%	10.0%	6.2%
Total	100.0%	100.0%	100.0%	100.0%

12. Debt Obligations

Debt obligations at June 30, 2019 and 2018 are as follows (in thousands):

	Final Maturity	Effective Interest Rate at June 30, 2019	2019	2018
Academic Component:				
Fixed rate debt obligations:				
The Trustees of the University of Pennsylvania				
Series 2012 Taxable Bonds	09/2112	4.67%	$ 300,000	$ 300,000
Pennsylvania Higher Educational Facilities Authority (PHEFA)				
Series A of 2018 revenue bonds	08/2048	2.08% - 3.76%	183,145	
Series A of 2017 revenue bonds	08/2046	2.26% - 3.72%	178,395	178,395
Series A of 2016 revenue bonds	08/2041	0.91% - 2.93%	167,435	168,565
Series A of 2015 revenue bonds	10/2045	1.17% - 2.99%	191,090	196,110
Series B of 2015 revenue bonds	10/2038	1.17% - 3.38%	160,950	162,395
Series C of 2015 revenue bonds	10/2035	3.68%	8,020	8,020
Series A of 2011 revenue bonds	09/2021	3.49% - 3.68%	7,590	11,125
Series of 2010 revenue bonds	09/2033	3.99% - 4.15%	16,935	16,935
Series B of 2009 revenue bonds	09/2020	3.70% - 3.99%	4,435	6,545
Series C of 2009 revenue bonds	09/2019	3.70%	4,095	7,970
Other loans	05/2031	1.00% - 4.50%	12,774	12,663
Variable rate debt obligations:				
PHEFA Series of 1990 revenue bonds	12/2020	2.13%	6,500	6,500
Washington County Authority Series of 2004	07/2034	1.50%	51,200	53,400
Total Academic Component outstanding bonds payable			1,292,564	1,128,623
Unamortized issuance costs, premiums and discounts, net			83,910	73,032
Total Academic Component debt obligations			$ 1,376,474	$ 1,201,655
UPHS:				
Fixed rate debt obligations:				
Lancaster County Hospital Authority (LCHA)				
Series A of 2016 revenue bonds	08/2042	1.04% - 3.52%	$ 160,590	$ 164,540
Series B of 2016 revenue bonds	08/2046	1.43% - 3.58%	128,050	128,050
PHEFA				
Series A of 2017 revenue bonds	08/2047	2.60% - 3.68%	400,000	400,000
Series C of 2016 revenue bonds	08/2041	0.76% - 3.08%	128,730	129,015
Series A of 2015 revenue bonds	08/2045	1.38% - 4.00%	278,975	300,445
Series A of 2012 revenue bonds	08/2042	1.99% - 4.08%	136,360	136,950
Series A of 2009 revenue bonds	08/2021	4.37% - 4.67%	22,780	33,005
Series B of 2008 revenue bonds	08/2037			52,000
New Jersey Health Care Facilities Financing Authority (NJHCFFA)				
Princeton Healthcare System Series A of 2016	07/2045	1.51% - 3.88%	178,670	183,440
University of Pennsylvania Health System Taxable Note	08/2047	4.01%	200,000	200,000
Lancaster General Hospital 2015 Taxable Note	08/2022	2.66%	70,335	72,805
Build to suit lease, net of related interest	Various	N/A	75,094	122,860
Line of credit, outstanding balance	04/2022	2.85%	87,000	-
Mortgages, notes and capital leases	Various	Various	76,312	25,986
Variable rate debt obligations:				
PHEFA Series A of 2014 revenue bonds	08/2045	2.03%	100,000	100,000
PHEFA Series A of 2008 revenue bonds	08/2037	1.90%	69,995	69,995
NJHCFFA Princeton Healthcare System Series B of 2016	07/2045	2.30%	65,000	65,000
NJHCFFA Princeton Healthcare System Series C of 2016	07/2045	2.30%	20,000	20,000
LCHA Series A of 2012 revenue bonds	08/2041			22,775
Total UPHS outstanding bonds payable			2,197,891	2,226,866
Unamortized issuance costs, premiums and discounts, net			132,128	145,671
Total UPHS debt obligations			2,330,019	2,372,537
Total University debt obligations			$ 3,706,493	$ 3,574,192

Contractual maturities of debt obligations and build-to-suit lease payments are as follows (in thousands):

	Academic Component	UPHS			University
Fiscal Year	Bond and Other Loan Obligations	Bond and Other Loan Obligations	Build-to-Suit Lease Payments	Total	Total
2020	$ 16,731	$ 47,017	$ 6,487	$ 53,504	$ 70,235
2021	27,698	49,035	6,649	55,684	83,382
2022	25,308	143,550	6,815	150,365	175,673
2023	26,365	112,616	6,986	119,602	145,967
2024	27,646	54,586	7,160	61,746	89,392
Thereafter	1,168,816	1,715,993	83,758	1,799,751	2,968,567
Total Principal	1,292,564	2,122,797	117,855	2,240,652	3,533,216
Unamortized issuance costs, premiums and discounts, net	83,910	132,128		132,128	216,038
Build-to-suit lease related interest			(42,761)	(42,761)	(42,761)
Total debt obligation	$ 1,376,474	$ 2,254,925	$ 75,094	(a) $ 2,330,019	$ 3,706,493

(a) Present value of future lease payments

The University has letters of credit with various financial institutions to secure certain self-insured liabilities in the amount of $15,540,000 and $10,556,000 at June 30, 2019 and 2018, respectively. These letters of credit have evergreen provisions for automatic renewal. There have been no draws under these letters of credit.

Academic Component

On October 18, 2018, Pennsylvania Higher Educational Facilities Authority (PHEFA) issued Series A of 2018 revenue bonds (PHEFA 2018A bonds) with an aggregate principal amount of $183,145,000. The proceeds were used to fund or reimburse the University for the cost of various capital projects. Interest on the PHEFA 2018A bonds is fixed with coupons ranging between 3.25% to 5.00%.

The University has variable rate debt in the amount of $57,700,000 which is subject to optional tender by the holders upon seven days' notice. These bonds are reflected in the table above based on original scheduled maturities. In the event that the University receives notice of any optional tender on its variable rate demand bonds, the purchase price will be repaid from the remarketing of the bonds. However, in the event that the entire remarketing effort were to fail, the University would have the general obligation to purchase the bonds.

On June 14, 2016, the University entered into a five year agreement with a financial institution, whereby the institution has agreed to provide a line of credit in the amount of $100,000,000 for general purposes of the University. The University pays a fee annually on the unused amount of the line of credit. As of June 30, 2019, there have been no draws under the agreement.

UPHS

The PHEFA Revenue Bonds, Lancaster County Hospital Authority (LCHA) Revenue Bonds and New Jersey Health Care Facilities Financing Authority (NJHCFFA) Revenue Bonds are secured by master notes issued under the UPHS Master Trust Indenture (MTI). The MTI and related agreements contain certain restrictive covenants which limit the issuance of additional indebtedness, and among other things, require UPHS to meet an annual debt service coverage requirement of "income available for debt service" (excess of revenue over expenses plus depreciation, amortization, interest expense and extraordinary items) at an amount equal to 110% of the annual debt service requirements. If the coverage requirement for a particular year is not met, within six months of the close of that fiscal year, UPHS must retain the services of a consultant to make recommendations to improve the coverage requirement. UPHS must also implement the recommendations of the consultant to the extent that they can be feasibly implemented. UPHS will not be considered to

be in default of the provisions of the MTI so long as UPHS has sufficient cash flow to pay total operating expenses and debt service for the fiscal year. In both 2019 and 2018, UPHS met its debt service coverage requirement under the MTI. Additionally, UPHS has pledged its gross revenues to secure its obligation under the MTI.

The NJHCFFA PHCS Series A, B and C of 2016 were issued on January 20, 2016 for the purpose of refinancing a majority of the outstanding PHCS debt through bond issuance and direct placement obligations.

On December 13, 2017, PHEFA issued Series A of 2017 Health System revenue bonds (PHEFA UPHS 2017A bonds) with an aggregate principal amount of $400,000,000. Proceeds of $171,600,000 were used to fund or reimburse the Health System for the cost of various capital projects. The remaining proceeds of $269,200,000, including the issuance premium, were deposited in a capital project fund held by trustee to be drawn upon for future capital expenditures. This portion of the financing is reflected as a noncash transaction in the Statement of Cash Flows. Future reimbursements from the capital project fund will be accounted for as a cash inflow from investing activities in the Statement of Cash Flows. Interest on the PHEFA UPHS 2017A bonds is fixed with coupons ranging between 3.125% to 5.00%.

On December 13, 2017, The Trustees of the University of Pennsylvania issued 4.008% Taxable Health System Bonds. (UPHS Taxable 2017 bonds) with an aggregate principal amount of $200,000,000. The proceeds were used to fund or reimburse the Health System for the cost of various capital projects. Interest on the PHEFA UPHS 2017A bonds is fixed with coupon of 4.008%.

UPHS has variable rate debt in the amount of $69,995,000 which is subject to optional tender by the holders upon seven days' notice. These bonds are reflected in the debt obligations maturity table above based on original scheduled maturities. In the event that UPHS receives notice of any optional tender on its variable rate demand bonds, the purchase price will be repaid from the remarketing of the bonds. However, in the event that the entire remarketing effort were to fail, UPHS has in place a renewable direct pay letter of credit issued by Bank of America with an expiration date of April 15, 2023. In the event that the letter of credit cannot be drawn upon, UPHS would have the general obligation to purchase the bonds.

UPHS secured an $82,132,000 loan on December 21, 2019 for the sole purpose of funding the development of a new ambulatory building. As of June 30, 2019, $51.6 million has been deposited in an escrow account held by trustee, and is reflected as a noncash transaction in the Statement of Cash Flows. The remaining $30.5 million of the loan will be deposited in the escrow account in scheduled increments through April, 2020. As of June 30, 2019, $27.8 million has been drawn down to reimburse construction costs incurred by UPHS and is accounted for as a cash inflow from investing activities in the Statement of Cash Flows.

In June of 2019, UPHS purchased a building that was originally financed as a build-to-suit lease. The result of the purchase reduced the build-to-suit leases liability by $47,272,000.

UPHS maintains a $100,000,000 line of credit to supplement liquidity and issue letters of credit to cover balances due on construction projects and reinsurance agreements. As of June 30, 2019, there were outstanding balances of $87,000,000 and a zero balance as of June 30, 2018. Letters of credit issued under the line are noted in contingencies and commitments.

Interest Rate Swap Agreements

The University enters into interest rate swap agreements to synthetically modify the interest rate terms of its long term debt portfolio. These agreements are not entered into for trading or speculative purposes. Fair value of these agreements is determined by obtaining quotes from Goldman Sachs Mitsui Marine Derivative Products, L.P. (GSMMDP) and Merrill Lynch, respectively, which are based on the income approach, using observable market data to discount future net payment streams and accordingly considers this to be a Level 2 measurement. The quotes provided also represent the amount the University would accept or be required to pay to transfer the agreement to GSMMDP and Merrill Lynch, respectively, or exit price as defined by the Fair Value Measurements standard. The University also takes into account

the risk of nonperformance. On January 1, 2018 UPHS exercised its option to terminate early the $69,995,000 notional value swap resulting in a market value adjustment gain of $164,000.

The following table summarizes the terms of the University's remaining interest rate swap agreements (in thousands):

	Academic Component	UPHS		
Notional Amounts	$ 101,950	$ 22,175	$ 17,950	$ 17,950
Trade Date	11/6/2007	7/28/2006	7/15/2009	1/7/2010
Maturity Date	7/1/2034	7/1/2041	8/15/2023	8/15/2023
Rates:				
Receive	67% of 1-Month LIBOR	70% of 1-month LIBOR	3.184%	2.902%
Pay	3.573%	3.980%	SIFMA index	SIFMA index

The following tables summarize the fair value of the interest rate swap agreements, not designated as hedging instruments, as of June 30, 2019 and 2018, and the related gains/(losses) on the interest rate swap agreements, both realized and unrealized, for the years ended June 30, 2019 and 2018 (in thousands):

Consolidated Statements of Financial Position	**Line Item**	**2019**	**2018**
Asset interest rate swaps			
UPHS	Other assets	$ 1,469	$ 1,292
Total Asset interest rate swaps		$ 1,469	$ 1,292
Liability interest rate swaps			
Academic Component	Accrued expenses and other liabilities	$ 21,379	$ 15,922
UPHS	Accrued expenses and other liabilities	6,371	4,799
Total Liability interest rate swaps		$ 27,750	$ 20,721

Consolidated Statements of Activities	**Line Item**	**2019**	**2018**
Academic Component	Return on investments, net	$ (7,497)	$ 3,175
UPHS	Return on investments, net	737	(323)
Total		$ (6,760)	$ 2,852

13. Net Assets

The major components of net assets at June 30, 2019 and 2018 are as follows (in thousands):

2019	Without donor restrictions	With donor restrictions	Total
General operating	$ 4,085,420	$ 449,779	$ 4,535,199
Sponsored programs	44,217		44,217
Capital		133,693	133,693
Student loans	10,387		10,387
Planned giving agreements		51,576	51,576
Quasi-endowment	7,252,228		7,252,228
Endowment, subject to spending rule		3,203,289	3,203,289
Endowment, held in perpetuity		4,194,244	4,194,244
Total	$ 11,392,252	$ 8,032,581	$ 19,424,833

2018	Without donor restrictions	With donor restrictions	Total
General operating	$ 4,259,171	$ 306,506	$ 4,565,677
Sponsored programs	57,502		57,502
Capital		118,493	118,493
Student loans	7,949		7,949
Planned giving agreements		46,904	46,904
Quasi-endowment	6,828,370		6,828,370
Endowment, subject to spending rule		3,099,924	3,099,924
Endowment, held in perpetuity		3,849,147	3,849,147
Total	$ 11,152,992	$ 7,420,974	$ 18,573,966

14. Operating Leases

The University leases research labs, office space and equipment under operating leases expiring through December 2043. Rental expense for the years ended June 30, 2019 and 2018 totaling $120,960,000 and $114,060,000, respectively, is included in the accompanying Consolidated Statements of Activities.

At June 30, 2019, future minimum lease payments under existing operating leases were as follows (in thousands):

2020	$ 101,735
2021	88,750
2022	78,748
2023	67,668
2024	63,082
Thereafter	310,212
Total Minimum lease payments	$ 710,195

15. Functional Classification of Expenditures

Expenses for the years ended June 30, 2019 and 2018 are categorized on a functional basis as follows (in thousands):

	2019					2018
	Compensation and benefits	Depreciation and amortization	Interest on indebtedness	Other operating expense	Total	Total
Instruction	$ 944,222	$ 69,925	$ 7,013	$ 480,426	$ 1,501,586	$ 1,409,552
Research	466,938	43,898	23,665	347,405	881,906	839,632
Hospital and physician practices	4,026,781	332,813	54,492	2,727,834	7,141,920	6,377,578
Auxiliary enterprises	37,797	36,079	7,695	82,497	164,068	164,284
Other educational activities	149,674	15,397	703	40,493	206,267	203,006
Student services	59,309	-	136	46,620	106,065	98,630
Academic support	40,544	16,726	640	37,043	94,953	91,933
Management and general	257,576	20,147	296	44,087	322,106	304,083
Independent operations	8,350	5,250	170	66,297	80,067	72,321
Total	$ 5,991,191	$ 540,235	$ 94,810	$ 3,872,702	$ 10,498,938	$ 9,561,019

Operation and maintenance of PPE and depreciation are allocated to functional classifications based on square footage. Interest expense is allocated to the functional classifications of the activity that directly benefited from the proceeds of the debt.

16. Liquidity and Availability

As of June 30, 2019, financial assets and liquidity resources available within one year for general expenditure, such as operating expenses, scheduled principal payments on debt and capital construction costs not financed with debt, were as follows (in thousands):

Financial assets:	
Cash & cash equivalents	$ 1,375,469
Receivables, net	1,217,065
Pledge payments available for operations	75,598
Investments	7,958,710
Total financial assets available within one year	10,626,842
Liquidity resources:	
Bank lines of credit	113,000
Total financial assets and liquidity resources available within one year	$ 10,739,842

The University's cash flows have seasonal variations during the year attributable to tuition billing, patient service reimbursement and a concentration of contributions received at calendar and fiscal year-end. To manage liquidity, the University maintains lines of credit with several banks that are drawn upon as needed during the year to manage cash flows. Management has the discretion to utilize the full amount of quasi-endowment funds for general expenditures.

17. Subsequent Events

The University has evaluated subsequent events for the period from June 30, 2019 through September 26, 2019, the date the consolidated financial statements were issued.

On August 6, 2019, the University issued Series A of 2019 Taxable Bonds (Taxable 2019A Bonds) with an aggregate principal amount of $300,000,000. The proceeds of the Taxable 2019A Bonds will be used by the University for its general corporate purposes, including the financing or refinancing of capital projects and the payment of the costs of issuing the Taxable 2019A Bonds. The Taxable 2019A Bonds have a fixed interest rate of 3.610% and a single maturity in 2119.

On August 14, 2019, Pennsylvania Higher Educational Facilities Authority (PHEFA) issued Taxable Refunding Revenue Bonds, Series B of 2019 (PHEFA 2019B Bonds), in the aggregate principal amount of $213,585,000. The proceeds were used to fund an escrow, which will be used to refund $16,935,000 from the PHEFA Series of 2010, $136,745,000 from the PHEFA Series A of 2015 Bonds, and $45,570,000 from the PHEFA Series A of 2016 Bonds. The refunded bonds were legally defeased, and as such, will no longer be included among the University's reported liabilities in Fiscal Year 2020. The PHEFA 2019B Bonds have fixed interest rates ranging from 2.395% to 2.972% and maturities ranging from 2029 to 2045.

Schedule of Expenditures of Federal Awards

UNIVERSITY OF PENNSYLVANIA
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
Fiscal Period 7/1/2018 - 6/30/2019

Federal Awarding Agency/Program Title	*Federal CFDA Number*	*Additional Award Identification (Optional)*	*Name of Funder Pass-Through Entity*	*Identifying Number Assigned By Funder Pass-Through Entity*	*Total Amount Provided to Sub-Recipients*	*Federal Expenditures*	*Federal Program Total*	*Cluster Name*	*Cluster Total*
DEPARTMENT OF AGRICULTURE									
MICROBIAL CULTURE STUDIES TO DEVELOP A STABLE HUMAN MICROBIOTA COMMUNI	10.001	58-8072-6-027				$90,782	$90,782	RESEARCH AND DEVELOPMENT	$706,379,077
MAINTENANCE OF MEMBERSHIP LABORATORY REQUIREMENTS	10.025	AP18VSNVSL00C025				$134,179	$134,179	RESEARCH AND DEVELOPMENT	$706,379,077
PENV FORMULA CIP GRANT FY16	10.207	2016-36100-05148				-$13,022	$13,563	RESEARCH AND DEVELOPMENT	$706,379,077
DETECTION OF M. AVIUM PARATUBERCULOSIS IN BOVINE FECES USING A RAPID A	10.207	NI17AHDRXXXXG063				$23,571	$13,563	RESEARCH AND DEVELOPMENT	$706,379,077
PENV-TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA CAPACITY PROGRAM GRANT	10.207	NL18AHDRXXXXG067				$3,014	$13,563	RESEARCH AND DEVELOPMENT	$706,379,077
ASSESING THE IMPACT OF ORGANIC FARMING PRACTICES AND TILLAGE ON BUILDI	*10.215*		*UNIVERSITY OF VERMONT*	*20173864026915*		*$13,314*	*$13,314*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FOOD RETAILERS' RESPONSE TO SNAP	10.250	58-4000-5-0092-0				$12,045	$12,045	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING HONEY BEE QUEEN QUALITY USING IN VITRO ARTIFICIAL SELECTION	10.310	2014-67013-21725				$90,731	$822,002	RESEARCH AND DEVELOPMENT	$706,379,077
ROBOT SWARMS AND HUMAN SCOUTS FOR PERSISTENT MONITORING OF SPECIALTY C	10.310	2015-67021-23857			$219,040	$313,979	$822,002	RESEARCH AND DEVELOPMENT	$706,379,077
FISH MUCOSAL CD4+ T CELLS AND THEIR ASSOCIATION WITH B CELLS: IMPLICAT	10.310	2017-67015-26910				$137,223	$822,002	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING CELLULOSE NANOMATERIALS WITH HIGH TOUGHNESS	10.310	20176702126601			$13,410	$147,669	$822,002	RESEARCH AND DEVELOPMENT	$706,379,077
DECIPHERING THE CROSSTALK BETWEEN BACTERIA-ARCHAEA INTERACTIONS IN THE	10.310	2018-67015-27494			$79,565	$130,860	$822,002	RESEARCH AND DEVELOPMENT	$706,379,077
NANOSTRUCTURE-ENHANCED SOLUTION-PHASE NANOPLASMONIC BIOSENSING DEVICES	*10.310*		*UNIVERSITY OF NEVADA, LAS VEGAS*	*2017-67022-26608*		*$1,540*	*$822,002*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PA NUTRITION EDUCATION TRACKS PROGRAM (PANEP 18)	*10.561*		*PENNSYLVANIA STATE UNIVERSITY*	*4100069151*		*$261,558*	*$1,051,480*	*SNAP CLUSTER*	*$1,051,480*
PA SNAP-ED (2018/2019)	*10.561*		*PENNSYLVANIA STATE UNIVERSITY*	*4100069151*		*$789,922*	*$1,051,480*	*SNAP CLUSTER*	*$1,051,480*
EVALUATING NUTRIENT CYCLING IN THE URBAN ENVIRONMENT: A COLLABORATIVE	10.679	14-JV-11242308-138				$40,741	$40,741	RESEARCH AND DEVELOPMENT	$706,379,077
TOTAL DEPARTMENT OF AGRICULTURE					$312,015	$2,178,106			
DEPARTMENT OF COMMERCE									
RESEARCH AT THE CENTER FOR STATISTICS AND APPLICATIONS IN FORENSIC EVI	*11.619*		*CARNEGIE MELLON UNIVERSITY*	*70NANB15H176*		*$54,863*	*$115,880*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NOVEL PERFUSION-BASED 3D BIOREACTOR FOR EFFECTIVE SELECTION, ACTIVAT	*11.619*		*UNIVERSITY OF DELAWARE*	*70NANB17H002*		*$20,948*	*$115,880*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NATIONAL INSTITUTE FOR INNOVATION IN MANUFACTURING BIOPHARMACEUTICALS	*11.619*		*UNIVERSITY OF DELAWARE*	*70NANB17H002*		*-$459*	*$115,880*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF COURSE MODULES FOR CERTIFICATES AND PROFESSIONAL MASTER	*11.619*		*UNIVERSITY OF DELAWARE*	*SUB TO 70NANB17H002*		*$40,528*	*$115,880*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NATASHA SARIN RESEARCH WITH CFPB ECONOMISTS	11.RD	IPA NATASHA SARIN				$14,204	$14,204	RESEARCH AND DEVELOPMENT	$706,379,077
TOTAL DEPARTMENT OF COMMERCE						$130,084			
DEPARTMENT OF DEFENSE									
SOUTHEAST PENNSYLVANIA PROCUREMENT TECHNICAL ASSISTANCE PROGRAM (PTAP)	12.002	SP4800-17-2-1736			$47,543	$52,931	$52,931	OTHER PROGRAMS	$14,438,000
DEEP LIFELONG REINFORCEMENT LEARNING FOR RESILIENT CONTROL AND COORDIN	12.300	FA8750-16-1-0109				$69,397	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
NEW PARADIGMS FOR SCALABLE ONLINE DECENTRALIZED OPTIMIZATION	12.300	N00014-12-1-0997			$45,374	$45,374	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
NEW PARADIGMS FOR SCALABLE ONLINE DECENTRALIZED OPTIMIZATION	12.300	N00014-12-1-0997				-$1,411	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
PROBALOGICAL HYBRID DEFENSE (PHD): A NEW APPROACH TO AUTOMATED REASONI	12.300	N00014-15-1-2006				$529,865	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
MATERIALS FOR EXTREME MANIPULATION OF LIGHT, SOUND AND HEAT	12.300	N00014-15-1-2029				$598,447	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
CYBER PROTOCOLS IN THE PHYSICAL ENVIRONMENT	12.300	N00014-15-1-2047				$64,857	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
COGNITIVE COMPUTATIONS: A NETWORK PERSPECTIVE	12.300	N00014-15-1-2516				$33,932	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
DYNAMIC, REAL-TIME VIRTUALIZATION AND CLOUD COMPUTING	12.300	N00014-16-1-2195				$165,785	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
DEFECT ENGINEERING OF PHASE CHANGE MATERIALS FOR ULTRA-LOW POWER DEVIC	12.300	N00014-16-1-2350				$60,607	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
TOP-DOWN AND BOTTOM-UP PROCESSES IN AUDITORY PRECEPTION	12.300	N00014-16-1-2539				$292,777	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
ROBOTICS: TOWARD THE NEW SCIENCE OF PROGRAMMABLE WORK	12.300	N00014-16-1-2817				$340,119	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
HOMOGENIZATION MODELS FOR THE RHEOLOGY AND MICROSTRUCTURE EVOLUTION OF	12.300	N00014-17-01-2076				$108,113	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF CONTROL-AWARE CYBER TECHNIQUES FOR ATTACK-RESILIENT IND	12.300	N00014-17-1-2012			$356,511	$773,072	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
ACTIVE SEMANTIC DISTRIBUTED PERCEPTION	12.300	N00014-17-1-2093				$160,863	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
S5: SMALL, SAFE, SMART, SPEEDY, SWARMS OF AERIAL ROBOTS	12.300	N00014-17-1-2437				$86,007	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
FIRST-PRINCIPLES AND MULTI-SCALE MODELING OF DYNAMIC IONIC AND ELECTRO	12.300	N00014-17-1-2574				$119,577	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
MITOCHONDRIAL STRESS AND CELLULAR PROTECTION IN UNDERSEA MEDICINE	12.300	N00014-17-1-2643				$177,643	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
NEW PHASE CHANGE MATERIALS FOR PHOTONICS: FROM IN-SILICO DESIGN TO NOV	12.300	N00014-17-1-2661			$1,025,552	$1,398,526	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
TOWARDS LEARNING ANALYTICS ON US NAVY TRAINING DATA	12.300	N00014-17-1-2662				$51,785	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
SYNCHRONOUS RENDEZVOUS FOR HETEROGENEOUS ROBOTIC SENSOR NETWORKS IN GE	12.300	N00014-17-1-2690			$99,413	$328,504	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
REVOLVER: RECURRENT EVOLUTION AND VERIFICATION OF ENCAPSULATED RIGHTS	12.300	N00014-17-1-2930			$11,907	$164,527	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
ASPIRE: AUTOMATICALLY SUBSETTING PROTOCOL IMPLEMENTATIONS RELIABLY AND	12.300	N00014-18-1-2021				$273,097	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
BLUEPRINT FOR DESIGN AND ASSEMBLY OF MULTIFUNCTIONAL, ADAPTIVE MATERIA	12.300	N00014-18-1-2497			$280,604	$649,817	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
POSTDOCS: PROBALOGICAL OPTIMIZATION, SCALABILITY, AND TRANSFER IN DYNA	12.300	N00014-18-1-2557				$28,930	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
MIXED REALITY EXPERIMENTAL PATTERN FORMATION OF COMMUNICATING UNMANNED	12.300	N00014-18-1-2580				$21,418	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
ACCOUNTABLE PROTOCOL CUSTOMIZATION	12.300	N00014-18-1-2618				$144,867	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
LOCAL-TO-GLOBAL: ALGEBRAIC TOPOLOGY FOR DATA, NETWORKS, AND SYSTEMS	12.300	N00015-16-1-2010				$328,502	$8,058,312	RESEARCH AND DEVELOPMENT	$706,379,077
ROBOT ECOLOGIES: BIOLOGICALLY INSPIRED HETEROGENEOUS TEAMS	*12.300*		*GEORGIA INSTITUTE OF TECHNOLOGY*	*RF683-G1*		*$104,110*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ANYTIME RESOURCE OPTIMIZATION WITH SLIDING PERFORMANCE FOR MISSION PLA	*12.300*		*CARNEGIE MELLON UNIVERSITY*	*1141265-356580*		*$75,106*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SYNCRYPT: AUTOMATED SYNTHESIS OF CRYPTOGRAPHIC CONSTRUCTIONS	*12.300*		*STANFORD UNIVERSITY*	*61127466-107-484*		*$285,526*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SYNTHESIZING DATA WRANGLERS	*12.300*		*PRINCETON UNIVERSITY*	*FA8750-17-2-0028*		*$8,739*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A MULTISCALE THEORETICAL AND EXPERIMENTAL PLATFORM FOR UNDERSTANDING C	*12.300*		*UNIVERSITY OF MASSACHUSETTS-AMHERST*	*17-009730 A 00*		*$83,650*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PETABLOX: LARGE-SCALE SOFTWARE ANALYSIS AND ANALYTICS USING DATALOG	*12.300*		*GEORGIA INSTITUTE OF TECHNOLOGY*	*FA8750-17-2-0009*		*$396,109*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHYSICAL UNDERSTANDING AND PREDICTIVE MODELING OF HIGH REYNOLDS NUMBER	*12.300*		*STANFORD UNIVERSITY*	*N00014-17-1-2310*		*$82,343*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREDICTING PREBIOTIC EFFECTS ON HUMAN MICROBIOTA, BEHAVIOR AND COGNITI	*12.300*		*DUKE UNIVERSITY*	*SUB TO ONR ADV ACCT*		*$7,732*	*$8,058,312*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NF110152: CHEMOSENSORY FUNCTION IN NEUROFIBROMATOSIS	12.420	1305199				-$1,686	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
IMPLEMENTATION OF PROLONGED EXPOSURE IN THE ARMY: IS CONSULTATION NECE	12.420	W81XWH-12-2-0116			$175,130	$401,514	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
PT110785: TAU ACCUMULATION IN TBI: MECHANISMS AND TREATMENT	12.420	W81XWH-13-1-0052				$8,259	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
BC123187: ORGANTROPIC METASTATIC SECRETOMES AND EXOSOMES IN BREAST CAN	12.420	W81XWH-13-1-0426				$46,296	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
WEB-PE: INTERNET-DELIVERED PROLONGED EXPOSURE THERAPY FOR PTSD	12.420	W81XWH-14-1-0008			$139,164	$200,172	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
PREVENTING RISKY DRINKING IN VETERANS TREATED WITH PRESCRIPTION OPIOID	12.420	W81XWH-14-1-0060			$20,812	$601,924	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
YY1 CONTROL OF AID-DEPENDENT LYMPHOMAGENESIS	12.420	W81XWH1410171				$378	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
DISCOVERY OF HOST FACTORS AND PATHWAYS UTILIZED IN HANTAVIRAL INFECTIO	12.420	W81XWH-14-1-0204				$171,242	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING ANTI-VIRAL AND NOTCH3 PATHWAYS TO INHIBIT STROMA-MEDIATED TR	12.420	W81XWH-14-1-0450				$36,136	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED RE-POLARIZATION OF TUMOR-ASSOCIATED MACROPHAGES IN LUNG CANCE	12.420	W81XWH-15-1-0362				$24,074	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF HMGB1 IN TRANSFUSION-MEDIATED LUNG INFLAMMATION	12.420	W81XWH-15-1-0363				$313,703	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
MELANOPSIN-SPECIFIC CONTRIBUTIONS TO PHOTOPHOBIA IN BRAIN TRAUMA	12.420	W81XWH-15-1-0447			-$70	$297,913	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
TISSUE-ENGINEERED NERVE GRAFTS FOR REPAIR OF CURRENTLY UNTREATABLE PER	12.420	W81XWH-15-1-0466				-$4,093	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
PT140178-THE EFFICACY OF 90-MINUTE VS 60-MINUTE SESSIONS OF PROLONGED	12.420	W81XWH-15-1-0555			$408,216	$598,419	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
THE MYC REGULATED LONG NON-CODING RNA DANCR IN PROSTATE CANCER	12.420	W81XWH-15-1-0630				-$12,305	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
NADPH-GENERATING ENZYMES AS POTENTIAL TARGETS FOR PROSTATE CANCER THER	12.420	W81XWH-15-1-0678				$90,709	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
TUMOR-ASSOCIATED NEUTROPHILS IN HUMAN LUNG CANCER	12.420	W81XWH-15-1-0717				$12,828	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL BIOCOMPATIBLE WOUND DRESSINGS FOR CHRONIC PAIN MANAGEMENT	12.420	W81XWH-15-2-0013				$187,561	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ROLE OF UROKINASE-TYPE PLASMINOGEN ACTIVATOR (UPA) IN PROGRESSION OF T	12.420	W81XWH-16-1-0187				$32,096	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
OVERCOMING PARP INHIBITOR RESISTANCE BY TARGETING THE ATR-CHK1 PATHWAY	12.420	W81XWH-16-1-0399				$193,016	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
DIFFUSE AND FOCAL BRAIN INJURY IN A LARGE ANIMAL MODEL OF PTE: MECHANI	12.420	W81XWH-16-1-0675				$226,519	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING ISCHEMIA REPERFUSION INJURY IN VASCULARIZED COMPOSITE TISSUE	12.420	W81XWH-16-1-0780			$14,000	$187,356	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
TISSUE ENGINEERING STRATEGIES TO MAINTAIN DISTAL TARGET EFFICACY AND P	12.420	W81XWH-16-1-0796			$73,853	$411,170	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATION OF A NOVEL PARP INHIBITOR PET TRACER IN OVARIAN CARCINOM	12.420	W81XWH-17-1-0092				$190,014	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
SMALL-MOLECULE ENHANCERS OF THE HUMAN PROTEIN-DISAGGREGASE MACHINERY F	12.420	W81XWH-17-1-0237				$301,498	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
COMBINATORIAL STRATEGIES TO OVERCOME RESISTANCE TO IMMUNE CHECKPOINT B	12.420	W81XWH-17-1-0264				$588,088	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE MOLECULAR MECHANISMS OF ACQUIRED RESISTANCE TO BET B	12.420	W81XWH-17-1-0404				$139,342	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
DYNAMIC RESPONSE OF DISSEMINATED TUMOR CELLS AND CIRCULATING TUMOR MAR	12.420	W81XWH-17-1-0594				$402,520	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
DYNAMIC RESPONSE OF DISSEMINATED TUMOR CELLS AND CIRCULATING TUMOR MAR	12.420	W81XWH-17-1-0595				$96,585	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
DESIGN OF A 3D MAMMOGRAPHY SYSTEM IN THE AGE OF PERSONALIZED MEDICINE	12.420	W81XWH1810082				$164,365	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF RAC-GEFS IN PROSTATE CANCER METASTASIS	12.420	W81XWH1810274				$141,678	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
EXOSOMAL PD-L1 MEDIATES TUMOR IMMUNOSUPPRESSION	12.420	W81XWH1810289				$260,144	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL GENETICS OF PERIPARTUM CARDIOMYOPATHY	12.420	W81XWH1810503				$335,000	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE FOR ABNORMAL GENE EXPRESSION FROM THE INACTIVE X IN FEMALE-BIASED	12.420	W81XWH1810635				$130,373	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC UNSILENCING OF MECP2 AS NOVEL THERAPEUTIC APPROACH FOR RETT SY	12.420	W81XWH1810734				$76,156	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
RECONSTRUCTIVE VASCULARIZED COMPOSITE ALLOTRANSPLANTATION: QUALITATIVE	12.420	W81XWH1820067				$37,168	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
DECISION SUPPORT FOR DAMAGE CONTROL RESUSCITATION: HEMORRHAGE HELPER	12.420	W81XWH18C0163			$61,379	$131,573	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF RECOMBINANT VIRAL VACCINES FOR HFRS-CAUSING HANTAVIRUSE	12.420	W81XWH1910137				$32,396	$8,178,478	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROPATHOLOGICAL MECHANISMS OF EPILEPTOGENESIS IN POST-TRAUMATIC EPIL	*12.420*		*CITIZENS UNITED FOR RESEARCH IN EPILEPSY*	*W81XWH1520069*	*$13,623*	*$190,645*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFFECTS OF TRAUMATIC BRAIN INJURY (TBI) AND POST TRAUMATIC STRESS DISO	*12.420*		*NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION*	*1686*		*$1*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CYCLIN E1 AS A THERAPEUTIC TARGET IN WOMEN WITH HIGH-GRADE SERIOUS OVA	*12.420*		*UNIVERSITY OF MELBOURNE*	*W81XWH-15-1-0160*		*$922*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROSTATE CANCER RESEARCH PROGRAM, SYNERGISTIC IDEA DEVELOPMENT AWARD	*12.420*		*THOMAS JEFFERSON UNIVERSITY*	*W81XWH1510693*		*$57,282*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
POSITIONING VASCULARIZED COMPOSITE ALLOTRANSPLANTATION IN THE SPECTRUM	*12.420*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*321113 / PO #960955RSUB*		*$24,419*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFFECTS OF TRAUMATIC BRAIN INJURY AND POST-TRAUMATIC STRESS DISORDER A	*12.420*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*W81XWH-14-1-0462*		*$11,685*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE STRONG STAR CONSORTIUM IN ALLEVIATE PTSD: CAP-PROJECT REMISSION:	*12.420*		*UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO*	*W81XWH1320065*		*$105,767*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PERITRANSPLANT TREG-BASED IMMUNOMODULATION TO IMPROVE VCA OUTCOMES	*12.420*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*W81XWH-16-1-0755*		*$13,000*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BC150998 - CORRECTING THE ANTI-HER-2 CD4 TH1 RESPONSE IN BREAST CANCER	*12.420*		*MOFFITT CANCER CTR*	*W81XWH-16-1-0385*		*$18,555*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RESCUE HEMATOPOIETIC STEM AND PROGENITOR CELL FUNCTIONS IN BONE MARROW	*12.420*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*W81XWH-17-1-0079*		*$21,813*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMPARATIVE EFFECTIVENESS OF ACUPUNCTURE FOR CHRONIC PAIN AND COMORBID	*12.420*		*SLOAN-KETTERING INSTITUTE FOR CANCER RESEARCH*	*W81XWH-15-1-0245*		*$3,120*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFFECTS OF TRAUMATIC BRAIN INJURY AND POSTTRAUMATIC STRESS DISORDERS O	*12.420*		*NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION*	*1820*		*$24,560*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNDERSTANDING THE IMMUNE-BIOLOGY OF CHECKPOINT INHIBITORS TO DEVELOP N	*12.420*		*WISTAR INSTITUTE*	*W81XWH-16-1-0119*		*$3,022*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATHOGENESIS OF MYOPATHIES CAUSED BY NOVEL MITOCHONDRIAL PHOSPHATE CAR	*12.420*		*THOMAS JEFFERSON UNIVERSITY*	*W81XWH-17-1-0203*		*$76,418*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TBI ENDPOINTS DEVELOPMENT (TED)	*12.420*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*W81XWH-14-2-0176*		*$42,758*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOWARDS PRECISION PREVENTION: TESTING A NOVEL RISK PREDICTION ALGORITH	*12.420*		*FOX CHASE CANCER CENTER*	*W81 XWH-17-1-0276*		*$24,595*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MILITARY SUICIDE RESEARCH CONSORTIUM DISSEMINATION AND IMPLEMENTATION	*12.420*		*UNIVERSITY OF WASHINGTON*	*W81XWH-16-2-004*		*$19,494*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE NCAA-DOD GRAND ALLIANCE: CONCUSSION ASSESSMENT, RESEARCH AND EDUCA	*12.420*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*W81XWHBAA141*		*-$433*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
SPREADING DEPOLARIZATIONS II (SDII): DEVELOPMENT AND VALIDATION OF SPR	*12.420*		*UNIVERSITY OF CINCINNATI*	*W81XWH-6-2-0020*		*$37,291*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TBI ENDPOINTS DEVELOPMENT (TED)	*12.420*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*W81XWH-14-2-0176*		*$156,240*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
VITAMIN D DEFICIENCY LEADS TO INCREASED INTRA-PROSTATIC HORMONES IN AF	*12.420*		*UNIVERSITY OF ILLINOIS AT CHICAGO*	*W81XWH1810317*		*$48,980*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BC150998 - CORRECTING THE ANTI-HER-2 CD4 TH1 RESPONSE IN BREAST CANCER	*12.420*		*MOFFITT CANCER CTR*	*W81XWH-16-1-0385*		*$23,069*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE NCAA-DOD GRAND ALLIANCE: CONCUSSION ASSESSMENT, RESEARCH AND EDUCA	*12.420*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*W81XWH-BAA-14-A*		*$79,542*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNDERSTANDING THE IMMUNE-BIOLOGY OF CHECKPOINT INHIBITORS TO DEVELOP N	*12.420*		*WISTAR INSTITUTE*	*W81XWH-16-1-0119*		*$10,998*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CANCER ASSOCIATED MACROPHAGE-LIKE (CAML) CELLS TO ENHANCE DETECTION OF	*12.420*		*FOX CHASE CANCER CENTER*	*W81XWH1810196*		*$6,426*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PORTABLE DEVICE FOR ULTRA-SENSITIVE DETERMINATION OF HEAVY METALS IN W	*12.420*		*UNIVERSITY OF MASSACHUSETTS*	*W81XWH-19-1-0006*		*$40,104*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MILITARY SUICIDE RESEARCH CONSORTIUM DISSEMINATION AND IMPLEMENTATION	*12.420*		*UNIVERSITY OF WASHINGTON*	*W81XWH-16-2-004*		*$8,801*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SUICIDE RISK AND SLEEP IN TREATMENT: AN INTENSIVE DAILY SAMPLING STUDY	*12.420*		*DENVER RESEARCH INSTITUTE*	*W81XWH1620004*		*$46,465*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE MYC REGULATED LONG NON-CODING RNA DANCR IN PROSTATE CANCER	*12.420*		*WISTAR INSTITUTE*	*W81XM-15-01-0630*		*$12,661*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DOD/ARMY MEDICAL RESEARCH - CLOTT STUDY	*12.420*		*NATIONAL TRAUMA INSTITUTE*	*NTI-CLOTT17-04*		*$20,177*	*$8,178,478*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MACHINE LEARNING FOR NETWORK DATA WORKSHOP	12.431	W911NF-19-1-0096				$17,814	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING AND DEVELOPMENT OF SUB-WAVELENGTH NANOWIRE OPTICAL WAVEG	12.431	W911NF-09-1-0477 P0005				-$4,282	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
EVOLUTION OF CULTURAL NORMS AND DYNAMICS OF SOCIO-POLITICAL CHANGE	12.431	W911NF-12-1-0509			$614,104	$614,104	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
RAPID SCREENING OF NEW PRECISE COPOLYMERS: MORPHOLOGY AND IONIC CONDUC	12.431	W911NF-13-1-0363				$2,188	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
RAPID AB ISOLATION AND DELIVERY BY RECOMBINANT AAV TECHNOLOGY (RAID-RA	12.431	W911NF1320036				-$6,526	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING A BETTER CANINE WARRIOR: PERFORMANCE ASSESSMENT, ASSOCIATED	12.431	W911NF-14-1-0574				-$2,744	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING A BETTER CANINE WARRIOR: PERFORMANCE ASSESSMENT, ASSOCIATED	12.431	W911NF-14-1-0574				-$7,560	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
DYNAMIC NETWORK NEUROSCIENCE: PROBING ADAPTATION OF LARGE-SCALE NEURAL	12.431	W911NF-14-1-0679				$51,228	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
QUANTUM CONTROL AND ENGINEERING OF DEFECTS IN BORON NITRIDE	12.431	W911NF-15-1-0589				$25,124	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
II, A, 2, 9.1: CURVATURE DIRECTED ASSEMBLY OF PARTICLES INTO RECONFIGU	12.431	W911NF-16-1-0288				$172,566	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
THE PHYSICS OF MUD	12.431	W911NF-16-1-0290				$182,933	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
4.1 NANO- AND BIO-ELECTRONICS: STRAIN ENGINEERED TOPOLOGICAL PHASES OF	12.431	W911NF-16-1-0447				$68,977	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
W911NF-12-R-0012-03: A GENERAL THEORY OF SOCIAL STRUCTURE INTEGRATING	12.431	W911NF-17-1-0017				$116,311	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
W911NF-12-R-0012-04 ARO MATHEMATICS TOPIC 3.3.1 (FUNDAMENTAL LAWS OF B	12.431	W911NF-17-1-0083				$74,225	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
TOPIC 1.3 MORPHOLOGICAL COMPUTING IN MACHINES AND ANIMALS	12.431	W911NF-17-1-0229			$103,867	$176,874	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
ARO TOPIC 4.1: ENGINEERING THE PROPERTIES OF ORBITRONIC NANOMATERIAL	12.431	W911NF-17-1-0436				$59,630	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
GEOMETRIC AND GRAPH STRUCTURES IN INFORMATION CHARACTERIZATION AND EXT	12.431	W911NF-17-1-0438			$86,120	$243,976	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
BROADBAND LIGHT SOURCE AND DETECTOR TO STUDY OPTICAL MODULATION PROPER	12.431	W911NF1810192				$113,962	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
QUANTUM OPTICAL SPECTROSCOPY SYSTEM FOR MATERIALS IN EXTREME ENVIRONME	12.431	W911NF1810224				$250,916	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
MULTISCALE INTEGRATION OF NEURAL, SOCIAL, AND NETWORK THEORY TO UNDERS	12.431	W911NF1810244			$276,767	$856,218	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
SCIENCE OF EMBODIED INNOVATION, LEARNING AND CONTROL	12.431	W911NF1810327			$354,766	$625,294	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
ENERGY-EFFICIENT OPTOELECTRONICS ENABLED BY NOVEL NANOPHOTONIC RESONAN	12.431	W911NF1910087				$5,010	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
DISCOVERY OF NOVEL PHOTONIC PHENOMENA IN MIXED-DIMENSIONAL HETEROSTRUC	12.431	W911NF1910109				$1,703	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
II.A.B.III.(2) QUANTITATIVE PREDICTION AND OBSERVATION OF GRAIN BOUNDA	12.431	W911NF1910263				$30,592	$4,455,576	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL FOUNDATIONS OF EXPERTISE BASED ON OPTIMAL DECISION-MAKING, PHYS	*12.431*		*UNIVERSITY OF CALIFORNIA, SANTA BARBARA*	*KK1711*		*$102,768*	*$4,455,576*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ARO: 2D MATERIAL-BASED ELECTRO-OPTIC MODULATION ON A SILICON PLATFORM	*12.431*		*GEORGE WASHINGTON UNIVERSITY*	*38850-1-CCNS21590F*		*$85,292*	*$4,455,576*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTEGRATING EDX, GIFT, AND CTAT	*12.431*		*CARNEGIE MELLON UNIVERSITY*	*W911NF-16-2-0122*		*$58,517*	*$4,455,576*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NONLINEARITY BEATS DAMPING: A NEW CLASS OF SOFT ACTIVE METAMATERIALS F	*12.431*		*CALIFORNIA INSTITUTE OF TECHNOLOGY*	*W911NF-17-1-0147*		*$1,837*	*$4,455,576*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
COGNITIVELY COHERENT HUMAN-COMPUTER COMMUNICATION	*12.431*		*UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN*	*W911NF-15-1-0461*		*$473,074*	*$4,455,576*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SUPERSYMMETRY IN LINEAR AND NONLINEAR OPTICS	*12.431*		*STATE UNIVERSITY OF NEW YORK, BUFFALO*	*W911NF-17-1-0400*		*-$29,100*	*$4,455,576*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GIANT NONLINEAR RESPONSE OF ENZ METASTRUCTURES	*12.431*		*UNIVERSITY OF ROCHESTER*	*W911NF-18-0369*		*$94,655*	*$4,455,576*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ARCHES: AUTONOMOUS RESILIENT COGNITIVE HETEROGENEOUS SWARMS	12.630	W911NF-17-2-0181			$27,262	$42,512	$4,582,587	RESEARCH AND DEVELOPMENT	$706,379,077
ARCHES: AUTONOMOUS RESILIENT COGNITIVE HETEROGENEOUS SWARMS	12.630	W911NF-17-2-0181			$105,000	$105,000	$4,582,587	RESEARCH AND DEVELOPMENT	$706,379,077
ARCHES: AUTONOMOUS RESILIENT COGNITIVE HETEROGENEOUS SWARMS	12.630	W911NF-17-2-0181			$129,479	$144,729	$4,582,587	RESEARCH AND DEVELOPMENT	$706,379,077
ARCHES: AUTONOMOUS RESILIENT COGNITIVE HETEROGENEOUS SWARMS	12.630	W911NF-17-2-0181			$143,941	$143,941	$4,582,587	RESEARCH AND DEVELOPMENT	$706,379,077
ARCHES: AUTONOMOUS RESILIENT COGNITIVE HETEROGENEOUS SWARMS	12.630	W911NF-17-2-0181			$2,482,131	$4,003,975	$4,582,587	RESEARCH AND DEVELOPMENT	$706,379,077
ARCHES: AUTONOMOUS RESILIENT COGNITIVE HETEROGENEOUS SWARMS	12.630	W911NF-17-2-0181				$15,345	$4,582,587	RESEARCH AND DEVELOPMENT	$706,379,077
SEMANTIC INFORMATION TECHNOLOGIES	*12.630*		*BBN SYSTEMS AND TECHNOLOGIES*	*W911NF-09-2-0053*		*$127,085*	*$4,582,587*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INVESTIGATING THE NEUROLOGIC EFFECTS OF TRAINING ASSOCIATED BLAST (I-T	*12.750*		*HENRY M. JACKSON FOUNDATION*	*HU0001-14-1-0022*		*$53,277*	*$53,277*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ULTRASTRONG CARBON THIN FILMS FROM DIAMOND TO GRAPHENE UNDER EXTREME C	12.800	FA2386-15-1-4109				$687	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
VARIABLE TOPOLOGY TRUSS FOR ROBOTIC HUMANITARIAN MISSIONS	12.800	FA2386-17-1-4656				$275,894	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
ADHESION MECHANICS OF VAN DER WAALS INTERFACES: FUNDAMENTAL NANOSCALE	12.800	FA2386-18-1-4083			$16,588	$105,000	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
ELECTRON AND ENERGY TRANSFER DYNAMICS IN HOMOGENEOUS AND INHOMOGENEOUS	12.800	FA9550-13-1-0157				-$21	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
ATOMIC FORCE MICROSCOPY AND SURFACE SPECTROSCOPY INSTRUMENTATION TO EN	12.800	FA9550-16-1-0525				$64,782	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
NON-HERMITIAN TOPOLOGICAL PHOTONICS	12.800	FA9550-18-1-0133				$161,993	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
THE DISRUPTIVE EFFECTS OF AUTONOMY: ETHICS, TRUST, AND ORGANIZATIONAL	12.800	FA9550-18-1-0194			$39,704	$90,641	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR DYNAMICS NEAR METAL SURFACES	12.800	FA9550-18-1-0497				$92,586	$1,854,377	RESEARCH AND DEVELOPMENT	$706,379,077
QUANTUM METAPHOTONICS AND METAMATERIALS: FROM SINGLE EMMITERS TO STRON	*12.800*		*BROWN UNIVERSITY*	*00000555/PO #P280816*		*$2,088*	*$1,854,377*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEURAL BASES OF PERSUASION AND SOCIAL INFLUENCE IN THE U.S. AND THE MI	*12.800*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*FA95501410172*		*$28,943*	*$1,854,377*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ACTIVE METASURFACES FOR ADVANCED WAVEFRONT ENGINEERING AND WAVEGUIDE	*12.800*		*HARVARD UNIVERSITY*	*123885-5079398*		*$129,252*	*$1,854,377*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SEMANTICS, FORMAL REASONING, AND TOOL SUPPORT FOR QUANTUM PROGRAMMING	*12.800*		*TULANE UNIVERSITY*	*FA95501610082*		*$78,182*	*$1,854,377*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THREE APPROACHES TO THE CONTROL OF INTELLIGENT SENSING	*12.800*		*WRIGHT STATE UNIVERSITY*	*669737-1*		*$407,201*	*$1,854,377*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ULTRALOW POWER, ULTRAFAST, INTEGRATED NANO-OPTOELECTRONICS	*12.800*		*UNIVERSITY OF TEXAS AT AUSTIN*	*FA95501710002*		*$284,157*	*$1,854,377*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MURI: MOLECULAR LEVEL STUDIES OF SOLID-LIQUID INTERFACES IN ELECTROCH	*12.800*		*EMORY UNIVERSITY*	*FA9550-18-1-0420*		*$132,992*	*$1,854,377*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STARTALK-PENN CHINESE LANGUAGE TEACHER ADVANCEMENT PROGRAM	12.900	H98230-L 9- L -0 164				$20,150	$20,150	OTHER PROGRAMS	$14,438,000
2019 GRADUATE STUDENT COMBINATORICS CONFERENCE	12.901	H98230-19-1-0004				$17,823	$17,823	OTHER PROGRAMS	$14,438,000
THE STATISTICAL MECHANICS OF CROWDS - TOOLS FOR PREDICTIVE MODELING IN	12.910	D17AC00005			$227,929	$494,742	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
THE STATISTICAL MECHANICS OF CROWDS - TOOLS FOR PREDICTIVE MODELING IN	12.910	D17AC00005			$291,400	$681,923	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
LEARNING APPLICATIONS IN BIOLOGICAL DYNAMICS	12.910	D17AP00003				$95,659	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
OPTICAL PHASED ARRAYS WITH SUB-WAVELENGTH ELEMENT SIZE AND SPACING (OP	12.910	FA8650-18-1-7828				$250,408	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
GOCHOP: GEOMETRIC OPTIMIZATION & COMBINATORIAL-HOMOLOGICAL PROGRAMMING	12.910	FA8650-18-2-7840			$106,694	$335,017	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
REORIENT: RESOURCES FOR OPERATIONALLY RELEVANT INFORMATION EXTRACTION	12.910	FA8750-13-2-0045			$5,349	$9,449	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
LIFELONG LEARNING OF PERCEPTION AND ACTION IN AUTONOMOUS SYSTEMS	12.910	FA8750-18-2-0117			$492,457	$777,217	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
EXPLOITING QUANTITATIVE UNIVERSALS FOR UNSUPERVISED ACQUISITION OF LAN	12.910	HR0011-15-2-0023				$328,288	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
WEAK SUPERVISION FOR INFORMATION EXTRACTION FROM LOW RESOURCE LANGUAGE	12.910	HR00111820052				$132,401	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
PLUTO: PENNSYLVANIA LABORATORY FOR UNDERGROUND TUNNEL OPERATIONS	12.910	HR0011-18-2-0053			$510,400	$968,076	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
PSEUDO MARKETS WITH COMPLEX CONSTRAINTS AND UNCERTAINTY	12.910	HR00111820056				$112,020	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
PHOTONIC ASSISTED INTEGRATED ULTRA-LOW PHASE NOISE CLOCK (PI-UPNC)	12.910	HR0011-19-2-0013				$34,990	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
FALCON: FAST, AGGRESSIVE, LIGHTWEIGHT FLIGHT IN CONSTRAINED ENVIRONMEN	12.910	HR0011516626			$302,066	$384,214	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
MEMORY ENHANCEMENT WITH MODELING, ELECTROPHYSIOLOGY, AND STIMULATION (	12.910	N66001-14-2-4032			$482,985	$1,414,625	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
IMMEDIATE AND PERSISTENT E-DNA PROTECTION AGAINST DENGUE	12.910	W31P4Q-13-1-0003			$437,264	$437,264	$7,720,177	RESEARCH AND DEVELOPMENT	$706,379,077
PHASE I, OPEN-LABEL, STUDY TO EVALUATE THE SAFETY, TOLERABILITY , AND	*12.910*		*INOVIO PHARMACEUTICALS, INC.*	*W31P4Q1510003*		*$1,511*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE PROTEOHMIC SMART-PATCH: TRANSCUTANEOUS MONITORING OF MOLECULAR LEV	*12.910*		*RUTGERS UNIVERSITY*	*5911*		*$176,218*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THUNDER: TOLERANT HOSTS USING NOVEL DRUG-ENHANCED RESILIENCE	*12.910*		*COLUMBIA UNIVERSITY*	*1(GG010681-01)*		*$129,044*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DUKE DARPA PANDEMIC PREVENTION PLATFORM (P3)	*12.910*		*DUKE UNIVERSITY*	*HR0011-17-2-0069*		*$750,955*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INCIDENTAL SUPERVISION FOR INFORMATION EXTRACTION IN LOW RESOURCE LANG	*12.910*		*UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN*	*077822-16726*		*-$16,988*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENGINEERING THERAPIES THAT EVOLVE TO AUTONOMOUSLY CONTROL EPIDEMICS	*12.910*		*GLADSTONE INSTITUTES*	*D17AC00009*		*$220,575*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHYSICS-INFORMED LEARNING FOR MULTISCALE SYSTEMS (PILGRIMS)	*12.910*		*UNIVERSITY OF NOTRE DAME*	*HR00111890034*		*$1,836*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN ENRICHED DATASET OF SOCIAL-BEHAVIORAL PAPERS, CLAIMS, REPLICATIONS,	*12.910*		*CENTER FOR OPEN SCIENCE*	*HR001118S0047*		*$733*	*$7,720,177*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HETEROGENEOUSLY INTEGRATED OPTICAL SYNTHESIZER (HIOS)	*12.RD*	*00008779*	*UNIVERSITY OF CALIFORNIA, BERKELEY*	*HR0011-15-C-0057*		*$15,566*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANSFORMING RESEARCH AND CLINICAL KNOWLEDGE IN TBI (TRACK-TBI) HIGH	*12.RD*	*0043845-11*	*UNIVERSITY OF PITTSBURGH*	*W911QY-14-C-0070*		*$129,843*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LINKING INVESTIGATIONS IN TRAUMA AND EMERGENCY SERVICES (LITES)	*12.RD*	*0058514-2*	*UNIVERSITY OF PITTSBURGH*	*W81XWH16D00240002*		*$129,602*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FUEL-EFFICIENT NANO FLUID GEAR OIL	*12.RD*	*10053480*	*PIXELLIGENT TECHNOLOGIES*	*W56HZV-18-C-0025*		*$193,184*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FOCUS - FORECASTING COUNTERFACTUALS IN UNCONTROLLED SETTINGS	12.RD	140D0419C0049				$425,072	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
FOCUS - FORECASTING COUNTERFACTUALS IN UNCONTROLLED SETTINGS	12.RD	140D0419C0049				$12,464	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
TAMBA: TESTING AND MODELING OF BRANDEIS ARTIFACTS	*12.RD*	*2015-016*	*GALOIS, INC.*	*BAA-15-29*		*$95,646*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INSIGHT: A SILICON NEURAL PROBE VISUAL PROSTHESIS	*12.RD*	*2017-PENN-001*	*SCIENTIFIC AND BIOMEDICAL MICROSYSTEMS, LLC*	*2017-606-001*		*$83,658*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IBIS: IMPLANTABLE BIOLUMINESCENCE INTERFACE SYSTEM FOR AN ALL-OPTICAL	*12.RD*	*275-F*	*PIERCE (JOHN B.) LABORATORY*	*N66001-17-C-4012*		*-$1,704*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IBIS: IMPLANTABLE BIOLUMINESCENCE INTERFACE SYSTEM FOR AN ALL-OPTICAL	*12.RD*	*275-F*	*PIERCE (JOHN B.) LABORATORY*	*N66001-17-C-4012*		*$66,867*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LIMB COOLING DEVICE TO PRESERVE ISCHEMIC EXTREMITY FOR PROLONGED FIELD	*12.RD*	*35115*	*ADVANCED COOLING TECHNOLOGIES, INC*	*W81XWH19C0036*		*$11,844*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EXPLOITING LANGUAGE INFORMATION FOR SITUATIONAL AWARENEESS (ELISA)	*12.RD*	*67104157*	*UNIVERSITY OF SOUTHERN CALIFORNIA*	*HR0011-15-C-0115*		*$225,562*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRASS	*12.RD*	*921073*	*BAE SYSTEMS*	*FA8750-16-C-007*		*$99,857*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISTINGUISHING BRAIN STATES AND RESOLVING STATE TRANSITIONS	*12.RD*	*APX02-0006 - TASK ORDER 001*	*DCS CORPORATION*	*W911NF-10-2-0022*		*$247,966*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISTINGUISHING BRAIN STATES AND RESOLVING STATE TRANSITIONS	*12.RD*	*APX02-0006 - TASK ORDER 001*	*DCS CORPORATION*	*W911NF-10-2-0022*		*-$3,001*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISTINGUISHING BRAIN STATES AND RESOLVING STATE TRANSITIONS	*12.RD*	*APX02-0006 - TASK ORDER 001*	*DCS CORPORATION*	*W911NF-10-2-0022*		*$387,223*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPECIFICATION AND CORRECT-BY-CONSTRUCTION SYNTHESIS OF CONTROLPROTOC	12.RD	FA8650-15-C-2546			$197,381	$272,155	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
CAUSAL HYPOTHESES FROM ANALYSIS OF OBSCURE SYSTEMS (CHAOS)	*12.RD*	*FA8750-17-C-0231-03*	*TWO SIX LABS, LLC*	*FA8750-17-C-0231*		*$38,235*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CAIRO-MS: CONFLICTING ACCOUNT INFORMATION RESOURCES IN OMNIVOROUS MEDI	12.RD	FA8750-18-C-0013			$309,754	$1,824,229	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
CAIRO-MS: CONFLICTING ACCOUNT INFORMATION RESOURCES IN OMNIVOROUS MEDI	12.RD	FA8750-18-C-0013				$185,961	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATED STATIC AND DYNAMIC APPROACHES TO HIGH-ASSURANCE FOR LEARNIN	12.RD	FA8750-18-C-0090			$94,648	$690,651	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
HUMAN SYSTEMS INTEGRATION SUPPORT SERVICES	*12.RD*	*G42871-N01-046-UPENN*	*STRATEGIC ANALYSIS INC.*	*N00173-18-F-0046*		*$36,916*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROGRESSIVE MODEL GENERATION FOR ADAPTIVE RESILIENT SYSTEM SOFTWARE	*12.RD*	*GT S14-04*	*GRAMMATECH*	*N00014-15-C-0126*		*$219,741*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SONICVIPER	12.RD	H98230-15-C-0825				$51,293	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				-$31,023	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				-$1,669	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$273,054	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$21,217	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				-$10,970	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$155,507	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$248,431	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$8,269	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$50,000	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$50,000	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$93,431	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$46,526	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$144,322	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
SONICVIPER	12.RD	H98230-15-C-0825				$9,672	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$13,264	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$9,828	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SONICVIPER	12.RD	H98230-15-C-0825				$5,957	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
NEW ANTIBOTICS TARGETING THE BIOENERGENTICS OF CATEGORY A AND B BACTER	12.RD	HDTRA1-10-C-0043				$123	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
RAPID QUANTITATIVE IN-SITU PROTEIN AND GENE EXPRESSION PLATFORM TECHNO	*12.RD*	*HDTRA114-AMD3-CBA-01-2-0061-UPENN*	*OPTICAL BIOSYSTEMS INC*	*HDTRA114-AMD3-CBA-01-2-0061*		*$106,267*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHASE II: VECTOR - AAV EXPRESSED CHEMICAL THREAT PROTECTOR	12.RD	HDTRA1-15-C-0023				-$14,876	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SIREN-IL: SPECIALIZED INTRA/INTERLINGUAL RESOURCES FOR EMERGENT NEWS -	12.RD	HR0011-15-C-0123			$4,497	$305,830	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SIREN-IL: SPECIALIZED INTRA/INTERLINGUAL RESOURCES FOR EMERGENT NEWS -	12.RD	HR0011-15-C-0123			$50,603	$288,587	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SIREN-IL: SPECIALIZED INTRA/INTERLINGUAL RESOURCES FOR EMERGENT NEWS -	12.RD	HR0011-15-C-0123			$53,362	$720,715	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SIREN-IL: SPECIALIZED INTRA/INTERLINGUAL RESOURCES FOR EMERGENT NEWS -	12.RD	HR0011-15-C-0123			$85,815	$106,299	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SIREN-IL: SPECIALIZED INTRA/INTERLINGUAL RESOURCES FOR EMERGENT NEWS -	12.RD	HR0011-15-C-0123				-$1,480	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SIREN-IL: SPECIALIZED INTRA/INTERLINGUAL RESOURCES FOR EMERGENT NEWS -	12.RD	HR0011-15-C-0123				$217,454	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
DEDOS: DECLARATIVE DISPERSION-ORIENTED SOFTWARE	12.RD	HR0011-16-C-0056			$1,247,178	$1,882,702	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATED HIGH VOLTAGE BATTERY AND MAGNETIC CONVERSION MICROPOWER SYS	12.RD	HR001119C0039				$72,849	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
UNO: UNDERACTUATED NATURALLY-STABILIZED ONE-MOTOR ROBOT	12.RD	HR001119C0052				$87,957	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
ELECTROCHEMICAL DEPOSITION OF THICK AND CONTINUOUS ELECTRODES FOR HIGH	12.RD	HR001119C0056			$89,848	$169,851	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
SQUAD-X	*12.RD*	*K001306-00-S03*	*KITWARE, INC.*	*W911NF-16-C-0003*		*-$1*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INFRASCAN 3000: NEAR-INFRARED SPECTROSCOPY (MODEL 3000) IN SEVERE BRAI	*12.RD*	*KALANURIA - 827947*	*INFRASCAN, INC.*	*W911QY-14-C-0082*		*$28,956*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SCENARIO-BASED DESIGN AND VERIFICATION OF RESILIENT CYBER-PHYSICAL SYS	12.RD	N6600118C4007				$718,373	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
ROBOTIC PERCEPTION, INTELLIGENCE, AND DEXTEROUS MANIPULATION & UNIQUE	*12.RD*	*PO #40228149*	*GENERAL DYNAMICS ROBOTIC SYSTEMS*	*W911NF-10-2-0016*		*-$319,182*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ROBOTIC PERCEPTION, INTELLIGENCE, AND DEXTEROUS MANIPULATION & UNIQUE	*12.RD*	*PO #40228149*	*GENERAL DYNAMICS ROBOTIC SYSTEMS*	*W911NF-10-2-0016*		*$1,220,497*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISTRIBUTED ENCLAVE DEFENSE USING CONFIGURABLE EDGES (DEDUCE)	*12.RD*	*PO-0004103*	*APPLIED COMMUNICATION SCIENCE*	*BAA-15-10*		*-$6,739*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LOW OVERHEAD OBSERVATIONS KEEPING OPERATIONAL UNDER THREATS (LOOKOUT)	*12.RD*	*PO-0008421*	*APPLIED COMMUNICATION SCIENCE*	*HR0011-16-C-0061*		*$75,394*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DCOMP	*12.RD*	*PO-0011396*	*APPLIED COMMUNICATION SCIENCE*	*HR0011-17-C-0047*		*$411,142*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEURAL SIGNALS OF MESSAGE EFFECTIVENESS	*12.RD*	*POINT-1001*	*NEXT CENTURY CORPORATION*	*FA8650-17-C-7712*		*$275,242*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTELLIGENT AGENT SUPPORT FOR INTERACTION WITH REMOTE DEVICES AND CYBE	*12.RD*	*SC-GS35F-009BA-300*	*GLOBAL INFOTEK, INC.*	*N00173-18-F-0095*		*$17,544*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTI-SOURCE ACTIVITY GRAPH LATENT UNCOVERING & MERGING (MAGNUM)	*12.RD*	*SUB TO FA8750-17-C-0157*	*LOCKHEED MARTIN CORPORATION*	*FA8750-17-C-0157*		*$55,392*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INCIDENTAL SUPERVISION FOR INFORMATION EXTRACTION IN LOW RESOURCE LANG	*12.RD*	*SUB TO HR0011-15-C-0113*	*BBN SYSTEMS AND TECHNOLOGIES*	*HR0011-15-C-0113*		*$124,641*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INCIDENTAL SUPERVISION FOR INFORMATION EXTRACTION IN LOW RESOURCE LANG	*12.RD*	*SUB TO HR0011-15-C-0113*	*BBN SYSTEMS AND TECHNOLOGIES*	*HR0011-15-C-0113*		*$308,626*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SYSTEM SECURITY INTEGRATED THROUGH HARDWARE AND FIRMWARE (SSITH)	*12.RD*	*SUB TO HR001118C0011*	*DRAPER LABORATORY*	*HR001118C0011*		*$128,545*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
2500: EVALUATION OF INFRASCANNER MODEL 2500	*12.RD*	*SUB TO W81XWH-17-C-0244*	*INFRASCAN, INC.*	*SUB TO W81XWH-17-C-0244*		*$60,946*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
APPLYING NOVEL MATERIALS AND FABRICATION TECHNIQUES TO HIGH EFFICIENCY	*12.RD*	*SUB TO W911NF18C0057*	*SPARK THERMIONICS*	*W911NF18C0057*		*$74,918*	*$13,685,445*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WARETOWN WIND TUNNEL IMPROVEMENTS FOR DUNE ECOGEOMORPHOLOGY RESEARCH &	12.RD	W912HZ 18P0090				$44,227	$13,685,445	RESEARCH AND DEVELOPMENT	$706,379,077
DARPA IPA #0246 J.M. SMITH	12.U03	0246				$217,380	$217,380	OTHER PROGRAMS	$14,438,000
TOTAL DEPARTMENT OF DEFENSE					$12,142,370	$48,896,513			
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT									
HUD HMIS 16 COMMUNITY COMPASS TECHNICAL ASSISTANCE AND CAPACITY	*14.259*		*ABT ASSOCIATES INC.*	*N-16-5A-MA-0001*		*-$3,499*	*-$3,499*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
2018 ANNUAL HOMELESS ASSESSMENT REPORT TO CONGRESS PART 2	*14.261*		*ABT ASSOCIATES INC.*	*H-17-TA-MA-0001*		*$54,796*	*$54,796*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CONTINUUM OF CARE PROGRAM	14.267	N/A				$1,502,096	$1,502,096	OTHER PROGRAMS	$14,438,000
TOTAL DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT						$1,553,393			
DEPARTMENT OF THE INTERIOR									

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	*Federal CFDA Number*	*Additional Award Identification (Optional)*	*Name of Funder Pass-Through Entity*	*Identifying Number Assigned By Funder Pass-Through Entity*	*Total Amount Provided to Sub-Recipients*	*Federal Expenditures*	*Federal Program Total*	*Cluster Name*	*Cluster Total*
IMMUNE REAGENT NETWORK FOR AQUACULTURED SPECIES	15.808	G16AC00332				$10,612	$10,612	RESEARCH AND DEVELOPMENT	$706,379,077
PROVIDE INTERNS WITH EXPERIENTIAL LEARNING OPPORTUNITIES IN HISTORIC P	15.945	P14AC00921				-$1,651	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
NPS KNOWLEDGE TRANSFER	15.945	P14AC00921				$25,477	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF A HISTORIC PRESERVATION TRAINING CURRICULUM AND FUNDAME	15.945	P15AC01523				$110	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
CONSERVATION OF INTERIOR SURFACE FINISHES IN MISSION SAN JOSE DE TUMA	15.945	P16AC00931				$27,076	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
CULTURAL LANDSCAPES INVENTORY & ETHNOGRAPHIC ASSESSMENT- DC SMALL PARK	15.945	P17AC00788				$35,952	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
WUPATKI NATIONAL MONUMENT PRESERVATION MORTAR PERFORMANCE STUDY	15.945	P17AC01226				$9,871	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
FULL SITE CONDITION ASSESSMENT AND TREATMENT PILOT PROGRAM FOR FORT UN	15.945	P17AC01226				$34,099	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
MONITORING PROTOCOLS 3- FORT UNION III	15.945	P17AC01710				$19,453	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
CONDITION ASSESSMENT AND HISTORIC PRESERVATION GUIDE FOR THE PECOS PUE	15.945	P17AC1226				$94,452	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
EXTERIOR STUCCO ASSESSMENT AND PILOT CONSERVATION TREATMENT FOR THE JO	15.945	P18AC00058				$22,862	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
PROVIDE EXPERIENTIAL LEARNING OPPORTUNITIES IN HISTORIC PRESERVATION T	15.945	P18AC00253				$4,873	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
CONDITION ASSESSMENT AND HISTORIC PRESERVATION GUIDE FOR SOAR VANISHIN	15.945	P18AC00666				$18,102	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
TEST AND APPLY STONE CONSERVATION METHODS TO STABILIZE DISINTEGRATING	15.945	P18AC00737				$7,084	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
GREAT FALLS OF THE PASSAIC/ S.U.M. NHL DISTRICT UPDATE	15.945	P18AC00782				$3,609	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
CULTURAL RESOURCES RESEARCH CONNECTING AND INTERPRETING STORIES OF SUF	15.945	P18AC01299				$23,302	$324,671	RESEARCH AND DEVELOPMENT	$706,379,077
2018-19 NWP NATIONAL PARK SERVICE COLLABORATION PROGRAM GRANT	*15.954*		*NATIONAL WRITING PROJECT*	*P14AC01415*		*$3,499*	*$3,499*	*OTHER PROGRAMS*	*$14,438,000*
LINGUISTIC RESOURCES FOR ROBUST AUTOMATIC TRANSCRIPTION OF SPEECH (RAT	15.RD	D10PC20016			-$217	-$217	-$217	RESEARCH AND DEVELOPMENT	$706,379,077
INDEPENDENCE NATIONAL PARK SERVICE 2018	15.U08	N/A				$900	$900	OTHER PROGRAMS	$14,438,000
TOTAL DEPARTMENT OF THE INTERIOR					-$217	$339,465			
DEPARTMENT OF JUSTICE									
SPACE-TIME STUDY OF YOUTH AND SCHOOL VIOLENCE	16.560	2014-CK-BX-0008			$116,537	$566,072	$1,431,765	RESEARCH AND DEVELOPMENT	$706,379,077
INSTILLING A CULTURE OF CONTINUOUS LEARNING FROM CRIMINAL JUSTICE SYST	16.560	2015-R2-CX-K040				$21,174	$1,431,765	RESEARCH AND DEVELOPMENT	$706,379,077
APPLYING PROMISING EVIDENCE TO NEW SETTINGS: AN EXPERIMENTAL EVALUATIO	16.560	2016-R2-CX-0049				$7,788	$1,431,765	RESEARCH AND DEVELOPMENT	$706,379,077
PBIS IN CHALLENGING CONTEXTS: EVALUATING A REPLICABLE IMPLEMENTATION A	16.560	2017-CK-BX-0016			$400,083	$749,172	$1,431,765	RESEARCH AND DEVELOPMENT	$706,379,077
A NATIONAL COORDINATOR FOR SENTINEL EVENT REVIEWS TO SUPPORT THE SENTI	16.560	2017-MU-MU-K021				$87,559	$1,431,765	RESEARCH AND DEVELOPMENT	$706,379,077
VICTIMS OF CRIME ACT (VOCA) - LANCASTER COUNTY CHILD VICTIMS PROGRAM ENHANCEMENT	16.575	2017-VF-05-28107				$28,906	$28,906	OTHER PROGRAMS	$14,438,000
PENN RESILIENCE PROGRAM FOR LAW ENFORCEMENT OFFICERS	*16.738*		*INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE*	*2017-VI-BX-K001*		*$454,537*	*$454,537*	*OTHER PROGRAMS*	*$14,438,000*
A NATIONAL TRAINING AND TECHNICAL ASSISTANCE PROVIDER FOR THE UPHOLDIN	16.746	2018-FA-BX-K003				$15,137	$15,137	RESEARCH AND DEVELOPMENT	$706,379,077
TOTAL DEPARTMENT OF JUSTICE					$516,620	$1,930,345			
DEPARTMENT OF STATE									
PRESERVING THE CULTURAL HERITAGE SITES OF MINORITY COMMUNITIES IN NORT	19.025	SNEAAC18CA0043			$32,797	$252,559	$252,559	OTHER PROGRAMS	$14,438,000
GORDION ARCHAEOLOGICAL PROJECT: EARLY PHRYGIAN CITADEL GATE	19.040	S-TU-150- 17-GR-039				$50,000	$50,000	RESEARCH AND DEVELOPMENT	$706,379,077
THE INTERNET POLICY OBSERVATORY: A MONITORING AND CIVIL SOCIETY CAPACI	19.345	S-LMAQM-13-GR-1052				-$502	-$502	RESEARCH AND DEVELOPMENT	$706,379,077
FULBRIGHT FOREIGN LANGUAGE TEACHING ASSISTANTS SUMMER ORIENTATION 2018	*19.418*		*INSTITUTE OF INTERNATIONAL EDUCATION*	*S-ECAGD-18-CA-1009*		*$66,611*	*$66,611*	*OTHER PROGRAMS*	*$14,438,000*
PROPOSAL FOR MASSIVE OPEN ONLINE COURSES (MOOCS) FOR ENGLISH LANGUAGE	*19.421*		*FHI 360*	*SECAGD14CA1167*		*-$65,705*	*-$65,705*	*OTHER PROGRAMS*	*$14,438,000*
TOTAL DEPARTMENT OF STATE					$32,797	$302,963			
DEPARTMENT OF TRANSPORTATION									
PILOT STUDY ON AIRCRAFT NOISE AND SLEEP DISTURBANCE	20.109	13C-AJFE-UPENN-4				$52,961	$52,961	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF ALTERNATIVE SMARTPHONE-BASED NUDGES TO RE	20.200	693JJ31750012			$39,650	$540,744	$540,744	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
DWIGHT DAVID EISENHOWER TRANSPORTATION FELLOWSHIP PROGRAM (DDETFP) GRA	20.215	693JJ31945037				$3,904	$22,904	RESEARCH AND DEVELOPMENT	$706,379,077
DWIGHT DAVID EISENHOWER TRANSPORTATION FELLOWSHIP PROGRAM GRANTS FOR R	20.215	693JJ31945273				$19,000	$22,904	RESEARCH AND DEVELOPMENT	$706,379,077
T-SET: TECHNOLOGIES FOR SAFE AND EFFICIENT TRANSPORTATION	*20.701*		*CARNEGIE MELLON UNIVERSITY*	*1080311-341328*		*-$25,781*	*$538,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNIVERSITY TRANSPORTATION CENTER(TIER 1: COOPERATIVE MOBILITY FOR COM	*20.701*		*UNIVERSITY OF TEXAS AT AUSTIN*	*69A3551747135*		*$149,778*	*$538,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOBILITY 21: A NATIONAL UNIVERSITY TRANSPORTATION CENTER FOR IMPROVING	*20.701*		*CARNEGIE MELLON UNIVERSITY*	*69A3551747111*		*$414,561*	*$538,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NATIONAL SLEEP STUDY TECHNICAL SUPPORT	*20.RD*	*SRAS002489-1*	*CSRA, INC.*	*DTFACT-15-D-00007/DO 0045*		*$354,958*	*$354,958*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL DEPARTMENT OF TRANSPORTATION					$39,650	$1,510,125			
DEPARTMENT OF TREASURY									
FEDERAL RESERVE FINANCIAL LITERACY PROJECT (FLP- YEAR 3)	21.RD	N/A				$46,456	$46,456	RESEARCH AND DEVELOPMENT	$706,379,077
TOTAL DEPARTMENT OF TREASURY						$46,456			
LIBRARY OF CONGRESS									
TEACHER INQUIRY: EXPLORING PRIMARY SOURCES THROUGH THE LENSES OF CIVIC	*42.007*		*WAYNESBURG UNIVERSITY*	*GA GA08C0016*		*$19,165*	*$31,831*	*OTHER PROGRAMS*	*$14,438,000*
THE LIFE OF FREE AFRICAN AMERICANS IN 19TH CENTURY PHILADELPHIA: USING	*42.007*		*WAYNESBURG UNIVERSITY*	*GA GA08C0016*		*$12,666*	*$31,831*	*OTHER PROGRAMS*	*$14,438,000*
TOTAL LIBRARY OF CONGRESS						$31,831			
NATIONAL AERONAUTICS & SPACE ADMINISTRATION									
THE BALLOON-BORNE LARGE AERTURE TELESCOPE FOR POLARIZATION - BLASTPOL	43.001	80NSSC18K0481			$190,499	$956,836	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
THE BALLOON-BORNE LARGE AERTURE TELESCOPE FOR POLARIZATION - BLASTPOL	43.001	80NSSC18K0481				$83,071	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
ASTROPHYSICAL IMPRINTS OF A RICHER DARK SECTOR	43.001	80NSSC18K0694				$90,765	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
HYPER.CAMPUS - EFFECTS OF ARTIFICIAL GRAVITY ON STRUCTURAL AND FUNCTIO	43.001	80NSSC18K0765				$188,214	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
BALLOON-BORNE LARGE APERTURE SUBMILLIMETER TELESCOPE - BLAST	43.001	NNX13AE50G			$12,892	$12,892	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
BALLOON-BORNE LARGE APERTURE SUBMILLIMETER TELESCOPE - BLAST	43.001	NNX13AE50G				-$106,654	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
A BALLOON-BORNE DOPPLER SPECTROMETER FOR DISCOVERING EARTH-LIKE PLANET	43.001	NNX13AI79G				$135,697	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
FLOOD REGIMES AND CARBON CYCLING IN ANTHROPOGENIC LANDSCAPES OF THE BO	43.001	NNX13AQ07G				$5,592	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
LABORATORY INVESTIGATIONS OF THE EFFECTS OF PARTICULATES ON THE FLOW O	43.001	NNX15AM69G			$20,202	$57,684	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
THE SPECTROSCOPIC TERAHERTZ AIRBORNE RECEIVER FOR FAR-INFRARED EXPLORA	43.001	NNX17AH24G				$25,559	$1,585,752	RESEARCH AND DEVELOPMENT	$706,379,077
DISCERNING THE DETAILS OF THE COSMIC DARK SECTOR	*43.001*		*CORNELL UNIVERSITY*	*71105-10295*		*-$584*	*$1,585,752*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RELIVING THE PAST: EXPERIMENTAL EVOLUTION OF MAJOR TRANSITIONS IN THE	*43.001*		*GEORGIA INSTITUTE OF TECHNOLOGY*	*NNA17BB05A*		*$44,757*	*$1,585,752*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STUDYING CO2 GLACIERS ON MARS WITH OBSERVATIONS AND LABORATORY EXPERIM	*43.001*		*PLANETARY SCIENCE INSTITUTE*	*80NSSC18K0001*		*$91,923*	*$1,585,752*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASSESSMENT OF WALL-MODELED LES IN NONEQUILIBRIUM FLOWS WITH EMPHASIS O	43.002	80NSSC18M0155				$28,366	$28,366	RESEARCH AND DEVELOPMENT	$706,379,077
NSCOR FOR EVALUATING RISK FACTORS AND BIOMARKERS FOR ADAPTATION AND RE	43.003	80NSSC17K0644				$924,420	$1,758,958	RESEARCH AND DEVELOPMENT	$706,379,077
HERO TWIN ASTRONAUT STUDY CONSORTIUM (TASC) PROJECT: COGNITION ON MONO	43.003	NNX14AH27G				-$1,038	$1,758,958	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROSTRUCTURAL, COGNITIVE, AND PHYSIOLOGIC CHANGES DURING A 1-YEAR AN	43.003	NNX14AM81G				-$3,742	$1,758,958	RESEARCH AND DEVELOPMENT	$706,379,077
STANDARDIZED BEHAVIORAL MEASURES FOR DETECTING BEHAVIORAL HEALTH RISKS	43.003	NNX15AK76G			$114,755	$215,267	$1,758,958	RESEARCH AND DEVELOPMENT	$706,379,077
LAPTOP CALIBRATION TOOL FOR SPEED PRECISE MEASUREMENTS IN SPACEFLIGHT	43.003	NNX16AI53G			$8,246	$84,213	$1,758,958	RESEARCH AND DEVELOPMENT	$706,379,077
HYBRID TRAINING - A SENSORY STIMULATION COUNTERMEASURE FOR LONG DURATI	43.003	NNX16AI53G				$306,868	$1,758,958	RESEARCH AND DEVELOPMENT	$706,379,077
EVALUATION OF SMARTSLEEP TECHNOLOGY FOR IMPROVING THE EFFICIENCY AND R	*43.003*		*BAYLOR COLLEGE OF MEDICINE*	*NNX16A069A*		*$146,146*	*$1,758,958*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADVANCED ALGORITHMS FOR THE PREDICTION OF ADVERSE COGNITIVE AND BEHAVI	*43.003*		*BAYLOR COLLEGE OF MEDICINE*	*NNX16A069A*		*$75,943*	*$1,758,958*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OASIS: OPTIMIZING AUDITORY STIMULATION TO IMPROVE COGNITIVE PERFORMANC	*43.003*		*BAYLOR COLLEGE OF MEDICINE*	*NNX16A069A*		*$10,881*	*$1,758,958*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	*Federal CFDA Number*	*Additional Award Identification (Optional)*	*Name of Funder Pass-Through Entity*	*Identifying Number Assigned By Funder Pass-Through Entity*	*Total Amount Provided to Sub-Recipients*	*Federal Expenditures*	*Federal Program Total*	*Cluster Name*	*Cluster Total*
CRYSTAL-TO-GLASS TRANSITIONS IN COLLOIDS (FLIGHT EXPERIMENT).	43.007	80NSSC19K0348				$32,252	$287,175	RESEARCH AND DEVELOPMENT	$706,379,077
FOAM OPTICS AND MECHANICS (FOAM) (THE MELTING OF AQUEOUS FOAMS)	43.007	80NSSC19K0599				$26,706	$287,175	RESEARCH AND DEVELOPMENT	$706,379,077
LOW VOLUME FRACTION ENTROPICALLY DRIVEN COLLOIDAL ASSEMBLY (PHASE 2)	43.007	NNX13AL27G				$43,009	$287,175	RESEARCH AND DEVELOPMENT	$706,379,077
FOAM: FOAM OPTICS AND MECHANICS (THE MELTING OF OPTIC FOAMS)	43.007	NNX14AM99G				-$14,704	$287,175	RESEARCH AND DEVELOPMENT	$706,379,077
BIOMARKERS AS PREDICTORS OF RESILIENCY AND SUSCEPTIBILITY TO STRESS IN	43.007	NNX14AN49G			$21,169	$199,912	$287,175	RESEARCH AND DEVELOPMENT	$706,379,077
MONOCULAR SLAM FOR SMART SPHERES	43.009	NNX14AM10H				$5,416	$773	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING KINETIC INDUCTANCE DETECTORS FOR THE BALLOONBOURNE LARGE A	43.009	NNX14AN63H				-$4,643	$773	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF INFLATION PROBE TECHNOLOGIES FOR THE ADVANCED ACT EXPER	43.012	NNX15AQ74H				-$17,156	-$17,156	RESEARCH AND DEVELOPMENT	$706,379,077
AN EXTREME PRECISION DOPPLER SPECTROMETER FOR THE US O/IR SYSTEM	*43.RD*	*5405-UP-JPL-7612*	*PENNSYLVANIA STATE UNIVERSITY*	*1547612*		*$190,260*	*$462,004*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REVEALING THE ENVIRONMENTAL DEPENDENCE IN SUPERLUMINOUS SUPERNOVAE DIV	*43.RD*	*HST-GO-15303.001-A*	*SPACE TELESCOPE SCIENCE INSTITUTE*	*NAS5-26555*		*$94,650*	*$462,004*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LGM2605 AS A MITIGATOR OF SPACE RADIATION-INDUCED VASCULAR DAMAGE	*43.RD*	*SUB TO LGM2605*	*LIGNAMED*	*80NSSC18C0089*		*$173,903*	*$462,004*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COGNITON SME FOR BHP STANDARD MEASURES	*43.RD*	*SUB TO NNJ1SHK11B*	*WYLE LABORATORIES, INC.*	*NNJ1SHK11B*		*$3,191*	*$462,004*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL NATIONAL AERONAUTICS & SPACE ADMINISTRATION					$367,763	$4,105,872			
INSTITUTE OF MUSEUM AND LIBRARY SERVICES OR NATIONAL ENDOWMENT FOR THE ARTS OR NATIONAL ENDOWMENT FOR THE HUMANITIES									
K-12 LEARNING PROGRAMS FOR NEW SIGNATURE GALLERIES OF THE MIDDLE EAST	45.024	17-4400-7129				$7,456	$30,287	OTHER PROGRAMS	$14,438,000
WORLD CAFE: LATIN ROOTS BROADCASTS	45.024	1807815-34-18				$200	$30,287	OTHER PROGRAMS	$14,438,000
SPONSORED K-12 LEARNING PROGRAMS	45.024	1809320-44-18				$16,706	$30,287	OTHER PROGRAMS	$14,438,000
TO SUPPORT A SERIES OF EARLY MUSIC CONCERTS AND NEW COMMISSIONS ON THE	45.024	1849823-31-19				$5,925	$30,287	OTHER PROGRAMS	$14,438,000
VETERANS UPWARD BOUND AT THE UNIVERSITY OF PENNSYLVANIA: STANDING TOGE	*45.129*		*PA HUMANITIES COUNCIL*	*S025317917*		*$1,211*	*$1,211*	*OTHER PROGRAMS*	*$14,438,000*
COMPLETING THE ROYAL INSCRIPTIONS OF THE NEO-ASSYRIAN PERIOD (RINAP):	45.149	PW-253771-17				$118,493	$118,493	RESEARCH AND DEVELOPMENT	$706,379,077
THE PHILADELPHIA PLAYBILLS PROJECT	45.169	HAA-255999-17				$41,405	$73,830	OTHER PROGRAMS	$14,438,000
DIGITAL HUMANITIES FROM AN INDIGENOUS PERSPECTIVE: STRENGTHENING PARTN	45.169	HAA-258754-18				$32,425	$73,830	OTHER PROGRAMS	$14,438,000
PENN MUSEUM: AFRICA GALLERIES	45.301	MA-10-18-0211-18				$14,233	$17,507	OTHER PROGRAMS	$14,438,000
TO CAPTURE AND KEEP! ESTABLISHING PRESERVATION PRACTICES FOR BORN DIG	*45.301*		*PHILA MUSEUM OF ART*	*N/A*		*$3,274*	*$17,507*	*OTHER PROGRAMS*	*$14,438,000*
MAPPING MANUSCRIPT MIGRATIONS	45.312	LG-00-17-0102-17				$58,617	$67,357	OTHER PROGRAMS	$14,438,000
OPENING ACCESS TO MID-20TH CENTURY SERIALS	45.312	LG-74-17-0161-17				$8,740	$67,357	OTHER PROGRAMS	$14,438,000
TOTAL INSTITUTE OF MUSEUM AND LIBRARY SERVICES OR NATIONAL ENDOWMENT FOR THE ARTS OR NATIONAL ENDOWMENT FOR THE HUMANITIES						$308,685			
NATIONAL SCIENCE FOUNDATION									
EFRI-ODISSEI: CUTTING AND PASTING - KIRIGAMI IN ARCHITECTURE, TECHNOLO	47.041	1331583			$13,761	$20,444	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EFRI-ODISSEI: CUTTING AND PASTING - KIRIGAMI IN ARCHITECTURE, TECHNOLO	47.041	1331583				$142,451	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: TEMPERATURE-DEPENDENCE OF ATOMIC-SCALE FRICTIO	47.041	1401164				$1,678	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: TEMPERATURE-DEPENDENCE OF ATOMIC-SCALE FRICTIO	47.041	1401164				$802	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
REALIZING NON-CLOSE-PACKED COLLOIDAL CRYSTALS USING DIRECTIONAL-BONDIN	47.041	1403237				$16,105	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CDS&E: COLLABORATIVE RESEARCH: DATA-DRIVEN PREDICTIVE MODELING OF FLOW	47.041	1404826				$85	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
PFI:BIC AFFORDABLE AND MOBILE ASSISTIVE ROBOTS FOR ELDERLY CARE	47.041	1430216				$2,298	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURED COMPOSITE MATERIALS WITH VARIABLE ADHESION PROPERTIES	47.041	1435745				-$8,120	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE UNSTEADY RHEOLOGY AND EVOLVING MICROSTRUCTURE OF SUS	47.041	1437482				$181,078	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: I/UCRC FOR ROBOTS AND SENSORS FOR THE HUMAN WE	47.041	1439681				$12,977	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
SNM: SCALABLE MANUFACTURING OF NANOSTRUCTURED MEMBRANES FOR FRACKING W	47.041	1449337			$52,323	$330,472	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
THE PENN I-CORPS SITE - INTEGRATING COMPANY FORMATION AND EXPERIENTIAL	47.041	1450467				$5,607	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN I-CORPS SITE - INTEGRATING COMPANY FORMATION AND EXPERIENTIAL	47.041	1450467				$52,071	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
GOALI/COLLABORATIVE RESEARCH: MANUFACTURING OF CARBON NANOTUBECONTAC	47.041	1463344				$90,858	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
GOALI/COLLABORATIVE RESEARCH: MANUFACTURING OF CARBON NANOTUBECONTAC	47.041	1463344				$92	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISTIC STUDIES OF HYDRODEOXYGENATION OF LIGNIN-DERIVED AROMATIC O	47.041	1508048				$9,921	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
PREDICTING THE INTERFACIAL ACTIVITY OF COMPLEX GRAFTED NANOPARTICLES	47.041	1510635				$51,565	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MODELING OF WETTING AND DEWETTING TRANSITIONS ON NANOTEXTURE	47.041	1511437				$178,030	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MODELING OF FAILURE IN POLYMER NANOCOMPOSITES	47.041	1536914				$73,042	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NNCI: ESTABLISHMENT OF A NANOTECHNOLOGY USER NODE AT THE UNIVERSITY OF	47.041	1542153			$57,376	$1,051,774	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EFRI 2-DARE: TWO-DIMENSIONAL NANOPORES WITH ELECTRO-OPTICAL CONTROL FO	47.041	1542707			$422,809	$422,809	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EFRI 2-DARE: TWO-DIMENSIONAL NANOPORES WITH ELECTRO-OPTICAL CONTROL FO	47.041	1542707				-$16,626	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EFRI 2-DARE: TWO-DIMENSIONAL NANOPORES WITH ELECTRO-OPTICAL CONTROL FO	47.041	1542707				$12,531	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EFRI 2-DARE: FUNCTIONALIZED MONOLAYER HETEROSTRUCTURES FOR BIOSENSORS	47.041	1542879			$283,930	$734,353	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EFRI 2-DARE: FUNCTIONALIZED MONOLAYER HETEROSTRUCTURES FOR BIOSENSORS	47.041	1542879				-$33,491	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
SCIENCE AND TECHNOLOGY CENTER FOR MECHANO-BIOLOGY	47.041	1548571			$1,629,772	$3,981,485	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
SCIENCE AND TECHNOLOGY CENTER FOR MECHANO-BIOLOGY	47.041	1548571				$4,978	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
SCIENCE AND TECHNOLOGY CENTER FOR MECHANO-BIOLOGY	47.041	1548571				$96,251	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: COUPLING SPIN, LIGHT, AND CHARGE FOR QUANTUM INFORMATION PROCE	47.041	1553511				$123,926	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: TIME-DOMAIN ENCODING FOR HIGHLY PARALLEL DIGITAL MOLECULAR SEN	47.041	1554200				$80,295	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
LARGE-AREA, ALIGNMENT-FREE, 3D CHIRAL PLASMONIC NANOSTRUCTURES USING T	47.041	1562884				-$3,238	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
GOALI: SINGLE DROPLET LEVEL UNDERSTANDING OF PHASE INVERSION EMULSIFIC	47.041	1604536				$84,517	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: SCALABLE ALGORITHMS FOR SPECTRAL ANALYSIS OF MASSIVE NETWORKED	47.041	1651433				$320,633	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: COMPUTATIONAL CHARACTERIZATION OF PROTEIN HYDRATION AND INTERA	47.041	1652646				$57,169	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: FUNCTIONAL ADAPTATION OF THE MATERNAL SKELETON TO REPRODUCTION	47.041	1653216				$104,766	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
REU: SUNFEST: SUMMER UNDERGRADUATE RESEARCH IN SENSOR TECHNOLOGIES	47.041	1659190				$83,103	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
ROLES OF MODELING- AND REMODELING-BASED BONE FORMATION IN DETERMINING	47.041	1661858			$7,097	$104,384	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
ALLOSTERIC INTERACTIONS BETWEEN PROTEINS ON DNA AND MEMBRANES	47.041	1662101				$81,551	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NANOSTRUCTURED COMPOSITE COATINGS TO HARDEN AND TOUGHEN POLYMER SURFAC	47.041	1662695				$73,080	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: EXPLOITING TUNABLE STIFFNESS FOR DYNAMIC ADHES	47.041	1663037				$99,495	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: EXPLOITING TUNABLE STIFFNESS FOR DYNAMIC ADHES	47.041	1663037				$432	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
GOALI: COLLABORATIVE RESEARCH: MODEL-PREDICTIVE SAFETY SYSTEMS FOR PRE	47.041	1704833				$13,415	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COMPLEXATION OF CHARGED POLYMERS AND NANOPARTICLES AT ALL AQUEOUS INTE	47.041	1705891				$21,936	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NANOPARTICLE DIFFUSION IN COMPLEX AND DYNAMIC ENVIRONMENTS	47.041	1706014				$166,829	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: RATIONAL DESIGN AND FABRICATION OF STRAIN ENGI	47.041	1727717				$10,556	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
GOALI: ENABLING ULTRA-LOW VISCOSITY LUBRICANTS THROUGH FUNDAMENTAL UND	47.041	1728360				$137,659	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NRI: INT: COLLAB: CO-ROBOTIC SYSTEMS FOR GEOSCIENCES FIELD RESEARCH	47.041	1734355				$292,711	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: COLLABORATIVE RESEARCH: ENVIRONMENTALLY RESPONSIVE, WATER HARVE	47.041	1745912				$104,074	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: IMPROVED VEHICLE AUTONOMY IN GEOPHYSICAL FLOWS	47.041	1760369				$149,526	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: FRICTION IN FLATLAND - STRUCTURAL AND CHEMICAL	47.041	1761874				$20,985	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
GOALI: COLLABORATIVE RESEARCH: ON-DEMAND CONTINUOUS-FLOW PRODUCTION OF	47.041	1803215				$41,229	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: ELECTROCHEMICAL PRODUCTION OF NH3 USING PROTON	47.041	1804145				$42,572	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE: BIOMIMETIC ENTROPIC PATTERNING (BEP) OF NANOBIOSENSORS	47.041	1804523				$33,833	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH SPATIAL RESOLUTION TACTILE SENSING IMAGER USING OPTICAL EXCEPTION	47.041	1811393				$108,888	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROFLOW NATIONAL I-CORPS PROPOSAL	47.041	1817579				$3,426	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
AIR-AD: HELP COPD PATIENTS BREATHE EASY AGAIN	47.041	1822281				$8,941	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
PFI-TT AFFORDABLE AND MOBILE ASSISTIVE ROBOTS FOR ELDERLY CARE	47.041	1827673				$45,140	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NRI: FND: CONVEX OPTIMIZATION FOR CONTACT-AWARE CONTROL OF DYNAMIC MAN	47.041	1830218				$120,148	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NRI: FND: CONVEX OPTIMIZATION FOR CONTACT-AWARE CONTROL OF DYNAMIC MAN	47.041	1830218				$788	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NRI:INT:COLLAB: SOFT ACTIVE CONTACT PADS WITH TUNABLE STIFFNESS AND AD	47.041	1830475				$31,217	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CPS: MEDIUM: RETHINKING COMMUNICATION AND CONTROL FOR LOW-LATENCY, HIG	47.041	1837253				$109,985	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
PLANNING GRANT: ENGINEERING RESEARCH CENTER FOR TRIBOLOGY TO CREATE RE	47.041	1840457			$2,235	$48,218	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
PLANNING GRANT: ENGINEERING RESEARCH CENTER FOR TRIBOLOGY TO CREATE RE	47.041	1840457				$10,112	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: UNDERSTANDING ELECTROCHEMICAL ALLOYING REACTION OF NANOSTRUCTUR	47.041	1840672				$130,089	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
NSF PENN I-CORPS NODE GRANT	47.041	1840740				$50,000	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
RAISE-EQUIP: INTEGRATED HIGHER-DIMENSIONAL QUANTUM PHOTONIC PLATFORM	47.041	1842612			$7,568	$69,116	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
RAISE-EQUIP: CHIP-SCALE QUANTUM MEMORIES FOR PRACTICAL QUANTUM COMMUNI	47.041	1842655			$50,245	$127,511	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: TOPOLOGICAL ENGINEERING FOR ACTIVE PHOTONIC STRUCTURES AND DEV	47.041	1846766				$4,629	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
CONNECTED DIGITAL HEALTH PLATFORM WITH INTEGRATED DELIVERY MODEL TO IM	47.041	1903673				$16,051	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: INTEGRATION OF IMPLANTABLE MEMS SENSORS AND CO	47.041	CMMI-1362652				$36	$11,208,683	RESEARCH AND DEVELOPMENT	$706,379,077
URBAN WATER INNOVATION NETWORK (U-WIN):TRANSITIONING TOWARD SUSTAINAB	*47.041*		*COLORADO STATE UNIVERSITY*	*1444758*		*$11,986*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT AND VALIDATION OF THE SAFECLOSE MESH AUGMENTATION SYSTEM	*47.041*		*PARADIGM SURGICAL, LLC*	*1648854*		*-$2*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFI:AIR - TT: PROTOTYPE DEVELOPMENT FOR WIDE-FIELD OPTICAL COHERENCE T	*47.041*		*LEHIGH UNIVERSITY*	*1640707*		*$2,405*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFRI NEWLAW PRELIMINARY PROPOSAL: TOPOLOGICAL ACOUSTIC METAMATERIALS F	*47.041*		*UNIVERSITY OF MICHIGAN*	*1741618*		*$103,008*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFRI NEWLAW: MID-INFRARED TOPOLOGICAL PLASMON-POLARITONS WITH 2D MATER	*47.041*		*UNIVERSITY OF MINNESOTA*	*1741660*		*$14,603*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFRI NEWLAW: CMOS-COMPATIBLE ELECTRICALLY CONTROLLED NON-RECIPROCAL	*47.041*		*NORTH CAROLINA STATE UNIVERSITY*	*1741693*		*$124,823*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A STEERABLE NEEDLE TO NAVIGATE OBSCURED TARGETS IN TISSUE FOR PRECISE	*47.041*		*GREPPO TECHNOLOGIES, LLC*	*1746583*		*$69,218*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN ENGINEERING RESEARCH CENTER FOR CELL MANUFACTURING TECHNOLOGIES (CM	*47.041*		*GEORGIA INSTITUTE OF TECHNOLOGY*	*1648035*		*$68,245*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NETWORKED NANOPHOTONIC DEVICES FOR STEM CELL REGULATION: FROM OPTOGENE	*47.041*		*UNIVERSITY OF BUFFALO*	*1706050*		*$79,991*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFI: BIC: WEARNET: WEARABLE NANOPLASMONIC BIOSENSING NETWORKS FOR SMAR	*47.041*		*RESEARCH FOUNDATION FOR THE STATE UNIVERSITY OF NEW YORK (BUFFALO)*	*1718177*		*$94,323*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
VIFANT OKN VISION TEST	*47.041*		*VIFANT LLC*	*1746353*		*$24,193*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATORY ROLES OF DECORIN IN THE AGGRECAN CONTENT AND MECHANICAL PRO	*47.041*		*DREXEL UNIVERSITY*	*1662544*		*$2,876*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DRINKSAVVY-UPENN DEVELOPMENT PLAN	*47.041*		*DRINKSAVVY, INC.*	*1746719*		*$67,500*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATORY ROLES OF DECORIN IN THE AGGRECAN CONTENT AND MECHANICAL PRO	*47.041*		*DREXEL UNIVERSITY*	*1662544*		*$261*	*$11,208,683*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BIOINSPIRED SYNTHESIS OF COMPLEX MOLECULAR SYSTEMS	47.049	1066116				-$47,394	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
MATERIALS WORLD NETWORK: MECHANICS AND DURABILITY OF DIAMOND-LIKE NANO	47.049	1107642				$8,133	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE FOR MATERIALS RESEARCH AND INNOVATION (CEMRI)	47.049	1120901				$169,338	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE FOR MATERIALS RESEARCH AND INNOVATION (CEMRI)	47.049	1120901				$16,935	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE FOR MATERIALS RESEARCH AND INNOVATION (CEMRI)	47.049	1120901				-$4,750	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
MODULI OF ABELIAN VARIETIES	47.049	1200271				$14,624	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
TOPOLOGICAL AND GEOMETRICAL PROBLEMS IN SOFT MATTER, DUE 10/1/12	47.049	1262047				$62,402	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
JAMMING TRANSITIONS AND KINETIC PHENOMENA	47.049	1305199				$74,169	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
DESIGNING THE ELECTRONIC PROPERTIES OF PBSE NANOWIRES FOR OPTOELECTRON	47.049	1309053				-$81	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NSF GEOMFEST 2013	47.049	1337391				$720	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NSF GEOMFEST 2013	47.049	1337391				$5,288	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: FREE SURFACE MOBILITY AND ITS ROLE IN THE FORMATION OF EXCEPTI	47.049	1350044				$15,185	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: NONPARAMETRIC EIGENANALYSIS OF HIGH DIMENSIONAL DATA	47.049	1352060				$59,346	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
FRG: COLLABORATIVE RESEARCH: CHERN CLASSES IN IWASAWA THEORY	47.049	1360767				$36,720	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
RADON TRANSFORMS: GEOMETRIC COMBINATORICS, REGULARITY, AND APPLICATION	47.049	1361697				-$620	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL POLYFLUOROALKYLATED BUILDING BLOCKS	47.049	1362841				-$17,376	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
STRING MATH CONFERENCES 2014	47.049	1401390			$2,230	$3,405	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCES FOR BAYESIAN MODEL SELECTION AND INFERENCE	47.049	1406563				$72,177	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
SUB-PICOSECOND STRESS-INDUCED CONDUCTIVITY TRANSITIONS, MECHANICAL TRA	47.049	1409114				$21,654	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: DE NOVO PROTEIN CONSTRUCTS FOR PHOTOSYNTHETIC	47.049	1412496				$6,969	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: CHARACTERIZING THE FIRST BILLION YEARS OF GALAXY EVOLUTION WIT	47.049	1455151				$171,111	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
FRG: COLLABORATIVE RESEARCH: OBSTRUCTIONS TO LOCAL-GLOBAL PRINCIPLES A	47.049	1463733				$89,020	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
FRG: COLLABORATIVE RESEARCH: OBSTRUCTIONS TO LOCAL-GLOBAL PRINCIPLES A	47.049	1463733				-$10,000	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
REACTIVE METAL-LIGAND MULTIPLE BONDS AND THEIR USE IN C-H ACTIVATION,	47.049	1464659				-$1,100	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL COUPLING REACTIONS	47.049	1464744				$30,779	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
OXIDATIVE METHODS FOR C-C, C-N, AND C-O BOND FORMATION	47.049	1464778				$172,985	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ALGEBRAIC, COMBINATORIAL AND ANALYTIC APPLICATIONS OF SYMMETRIC FUNCTI	47.049	1500834				$29,850	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
TOPICS IN FLUID DYNAMICS WITH FREE BOUNDARIES, AND KINETIC THEORY	47.049	1500916				$1,142	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL AND CHEMICAL CHANGES DUE TO ELECTRICAL STRESS IN PHASE-CHAN	47.049	1505127				$128,184	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: EXPERIMENTAL AND THEORETICAL STUDIES OF THE BI	47.049	1505662				$48,479	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CURVATURE, GROUP ACTIONS AND GEOMETRIC FLOWS	47.049	1506148				$21,692	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
THEORETICAL STUDIES OF MECHANICS IN ACTIVE MATTER	47.049	1506625				$174,983	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
PRECISE COPOLYMERS AND IONOMERS: CONDUCTIVITY IN LAYERED AND PERCOLATE	47.049	1506726				$217,434	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
TOPOLOGICAL FRAMEWORK FOR ANALYSIS AND VISUALIZATION OF ATOMISTIC MATE	47.049	1507013				$54,802	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
VERTICALLY ORIENTED ANISOTROPIC NANOPARTICLES IN POLYMER MATRICES	47.049	1507713				$121,208	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COMPUTATIONALLY DESIGNED SYNERGISTIC PROTEIN-NANOPARTICLE ASSEMBLIES	47.049	1508318				$47	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
VALID INFERENCE WHEN ANALYTICAL MODELS ARE APPROXIMATIONS	47.049	1512084				$70,876	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: CHARACTERIZING THE TRANS-NEPTUNIAN SOLAR SYSTE	47.049	1515804				$68,930	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZING THE PHYSICAL PROPERTIES OF HIGH-REDSHIFT SN IA HOST GAL	47.049	1517742				-$2,590	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH COLLABORATION: MODELING AND SIMULATION OF THE GROWTH OF GRAPH	47.049	1522603				$121,970	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
LIBERATING T-CELL MEDIATED IMMUNITY TO PANCREATIC CANCER	47.049	1545935			$732,527	$779,361	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: ACTION-MINIMIZING PATHS IN THE SPACE OF PROBABILITY MEASURES	47.049	1554130				$81,173	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: ACTION-MINIMIZING PATHS IN THE SPACE OF PROBABILITY MEASURES	47.049	1554130				$14,829	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: LINKING GRAPH TOPOLOGY OF LEARNED INFORMATION TO BEHAVIORAL VA	47.049	1554488				$95,464	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: FLOW, FAILURE, FLUCTUATIONS AND THE TOPOLOGY OF VASCULAR NETWO	47.049	1554887				$136,668	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR HIGH-RESOLUTION MULTISCALE ANALYSIS 3D DNA INT	47.049	1562665				$420,392	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
PROOF THEORY: FINITE DATA FROM INFINITE MATHEMATICS	47.049	1600263				$54,729	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
THE COMBINATORICS OF MACDONALD POLYNOMIALS AND SYMMETRIC FUNCTION OPER	47.049	1600670				$33,530	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
QUANTUM INVARIANTS, ENHANCED MODULI, AND INTEGRABLE SYSTEMS	47.049	1601438				$41,719	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
FROM PHOTON TO NEURON: A TEXTBOOK ON LIGHT, IMAGING, AND VISION	47.049	1601894				$10,614	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH PROPOSAL IN ALGEBRAIC GEOMETRY AND STRING THEORY	47.049	1603526				$119,737	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ELASTICITY, DEFORMATION, REARRANGEMENT & ASSEMBLY IN COMPLEX FLUIDS	47.049	1607378				$91,143	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CURVATURE GRADIENT DRIVEN ASSEMBLY OF TRAPPED AND RECONFIGURABLE STRUC	47.049	1607878				$62,322	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NSF/DMR-BSF: DIFFUSION ALONG METAL-CERAMIC INTERFACES: A COMBINED THEO	47.049	1609167				$87,075	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ENERGY LANDSCAPE APPROACHES TO UNDERSTANDING SOFT GLASSY MATERIALS	47.049	1609525				$93,744	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
RESPONSIVE HYBRID OLEOSIN NANOMATERIALS	47.049	1609784				$65,429	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NSF/DMR-BSF: ULTRA-TOUGH DOUBLE-NETWORK HYDROGELS FOR CARTILAGE REPAIR	47.049	1610525				$182,808	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COALESCING SYSTEMS WITH RANDOM INITIAL CONDITIONS	47.049	1612674				$15,823	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
MAGNETO-ACTIVE ELASTOMERS: HOMOGENIZATION, INSTABILITIES AND RELAXAT	47.049	1613926				$88,691	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ACCURATE COSMOLOGICAL MEASUREMENTS FROM THE DARK ENERGY SURVEY	47.049	1615555				$141,215	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH RESOLUTION OBSERVATIONS OF THE SUNYEAV-ZEL'DOVICH EFFECT IN GALAX	47.049	1615604				$245,969	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING STABLE GLASS FILMS USING MOLECULAR DESIGN AND SURFACE-MEDI	47.049	1628407				$293,971	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH EXPERIENCES FOR UNDERGRADUATES (REU)-SITE	47.049	1659512				$113,426	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH EXPERIENCES FOR UNDERGRADUATES (REU)-SITE	47.049	1659512				-$7,208	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
SPECTROSCOPY AND DYNAMICS OF REACTION INTERMEDIATES	47.049	1664572				$209,994	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
SUSCHEM: GOALI: ENABLING PHOTOREDOX CATALYSIS IN THE INDUSTRIAL SETTIN	47.049	1664818				$83,866	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
SYNTHESIS, CHARACTERIZATION AND REACTIVITY STUDIES OF CERIUM METAL-LIG	47.049	1664928				$176,650	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
THE INTERPLAY BETWEEN ELECTRON AND ENERGY TRANSFER IN MOLECULAR NANOSY	47.049	1665291				$198,815	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ENHANCED SAMPLING METHODS FOR CHARACTERIZING SOLVENT FLUCTUATIONS IN T	47.049	1665339				$108,216	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
A SYSTEM OF MINIMALIST PROTEIN LABELS FOR FLUORESCENCE STUDIES	47.049	1708759				$315,030	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: DE NOVO PROTEIN CONSTRUCTS FOR PHOTOSYNTHETIC	47.049	1709518				$156,994	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSPORT & DYNAMICS OF SWIMMING MICROORGANISMS IN TIME-DEPENDENT FLOW	47.049	1709763				$133,947	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: DIRECTING CHARGE AND ENERGY FLOW IN DISCRETE N	47.049	1709827				$62,536	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: INTEGRATIVE LARGE SCALE DATA ANALYSIS AND STAT	47.049	1712735				$110,201	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NSF/DMR-BSF COORDINATED THEORETICAL AND RAMAN SPECTROSCOPIC PROBES OF	47.049	1719353				$53,065	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
MATERIALS RESEARCH SCIENCE AND ENGINEERING CENTERS - MRSEC	47.049	1720530				$3,685,079	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
MATERIALS RESEARCH SCIENCE AND ENGINEERING CENTERS - MRSEC	47.049	1720530				$193,680	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
MRI: ACQUISITION OF AN ULTRA-SMALL-ANGLE TO WIDE-ANGLE DUAL SOURCE X-	47.049	1725969				-$15,396	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
VARIATIONAL AND PARABOLIC PHENOMENA IN DIFFERENTIAL GEOMETRY	47.049	1737006				$31,261	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: EFFECTIVE FIELD THEORIES FROM STRING COMPACTIFICATION	47.049	1756996			$4,173	$76,483	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: STOCHASTIC PROCESSES IN STATISTICAL PHYSICS AND OPTIMIZATION	47.049	1757479				$117,617	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
GEOMETRIC HARMONIC ANALYSIS: AFFINE AND FROBENIUS-HORMANDER GEOMETRY F	47.049	1764143				$68,667	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ANALYSIS OF NON-LINEAR PARTIAL DIFFERENTIAL EQUATIONS IN FREE BOUNDARY	47.049	1764177				$97,461	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
SUSCHEM: OXIDATIVE COUPLING IN COMPLEXITY BUILDING REACTIONS	47.049	1764298				$761	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CONSTRUCTING METAL-CARBON MULTIPLE BONDS FOR DEHYDROGENATION AND DEHYD	47.049	1764329				$185,224	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
NSF CTMC	47.049	1764365				$92,198	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ALGEBRAIC STRUCTURES OVER FIELDS OF FUNCTIONS	47.049	1805439				$82,714	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
A MATERIALS GENOME APPROACH TO STRUCTURE AND FUNCTION	47.049	1807127				$174,561	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: ATOMIC DISPLACEMENT ENGINEERING OF POST-EPITAX	47.049	1808065				$34,487	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
DESIGNING NEW QUANTUM TOPOLOGICAL NANOMATERIALS VIA CONTROLLED ION-EXC	47.049	1808202				$85,581	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: QUANTIFYING THE COARSENING KINETICS OF SUPPORT	47.049	1809398				$52,160	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: INVESTIGATION OF ROTATION-TIME AND INVERSION-T	47.049	1811370				-$4,092	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
FUNDAMENTAL REACTIONS RELEVANT TO SELECTIVE HYDROCARBON FUNCTIONALIZAT	47.049	1818513			$75,558	$81,957	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
MRI: ACQUISITION OF A 400 MHZ NMR FOR CHEMISTRY AND ENERGY RESEARCH AN	47.049	1827457				$312,942	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
MRI: ACQUISITION OF A DUAL BEAM FOCUSED ION BEAM / SCANNING ELECTRON M	47.049	1828545				$238,061	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: ENABLING QUANTUM LEAP: EXCEPTIONAL-POINT TOPOLOGICAL POLARITONI	47.049	1838412			$25,773	$229,325	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: ENABLING QUANTUM LEAP: NANOENGINEERING OF TWO-DIMENSIONAL AND T	47.049	1838456				$82,348	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
BORROWING STRENGTH: THEORY POWERING APPLICATIONS	47.049	1841682				$6,644	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: COLLABORATIVE RESEARCH: TYPE II: DATA-DRIVEN CHARACTERIZATION A	47.049	1844514				$32,964	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: A STATISTICAL INFERENTIAL FRAMEWORK FOR ONLINE LEARNING ALGORI	47.049	1847415				$14,180	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
GROUPS, MANIFOLDS, AND STABLE HOMOTOPY THEORY	47.049	1850644				$46,690	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
2019 GRADUATE STUDENT COMBINATORICS CONFERENCE	47.049	1900040				$14,357	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
OPERATOR ALGEBRAS IN THE TWENTY FIRST CENTURY	47.049	1915752				$15,032	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
EXPLORATION OF LOW-DIMENSIONAL GAS CLATHRATE HYDRATES	47.049	1916859			$27,605	$174,627	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
DEEP-LEARNING FOR GALAXY MORPHOLOGY IN THE BIG DATA ERA	47.049	AST-1816330				$52,580	$13,667,676	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCED ACTPOL	*47.049*		*PRINCETON UNIVERSITY*	*SUB0000032*		*$134,598*	*$13,667,676*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PENN-UPR PARTNERSHIP FOR RESEARCH AND EDUCATION IN MATERIALS	*47.049*		*UNIVERSITY OF PUERTO RICO*	*DMR-1523463*		*$47,205*	*$13,667,676*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADVANCED ACTPOL	*47.049*		*PRINCETON UNIVERSITY*	*SUB0000032*		*$88,286*	*$13,667,676*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR ENABLING NEW TECHNOLOGIES THROUGH CATALYSIS (CENTC) PHASE I	*47.049*		*UNIVERSITY OF WASHINGTON*	*1205189*		*$86,729*	*$13,667,676*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFC: CENTER FOR THE PHYSICS OF BIOLOGICAL FUNCTION	*47.049*		*PRINCETON UNIVERSITY*	*1734030*		*$37,661*	*$13,667,676*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF A HIGH SPEED BOARD TO BOARD COMMUNICATIONS OVER AN ATCA	*47.049*		*STONY BROOK*	*1624739*		*$134,460*	*$13,667,676*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COLLABORATIVE RESEARCH: A MULTIDISCIPLINARY STUDY TO DETERMINE THE FU	47.050	1550112				$122,498	$518,141	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE PROPOSAL: CONSTRAINTS FROM FAULT ROUGHNESS ON THE SCALE-	47.050	1624504				$54,269	$518,141	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: SOUTHERN OCEAN CONVECTION IN CLIMATE MODELS: C	47.050	1756808				$104,793	$518,141	RESEARCH AND DEVELOPMENT	$706,379,077
NSF CAREER: DETERMINING DISTINCT TRIGGERS OF MASS EXTINCTION AND TURNO	47.050	1846777				$7,020	$518,141	RESEARCH AND DEVELOPMENT	$706,379,077
LUQUILLO CZO: THE ROLE OF HOT SPOTS AND HOT MOMENTS IN TROPICAL LANDSC	*47.050*		*UNIVERSITY OF NEW HAMPSHIRE*	*1331841*		*$129,367*	*$518,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HAZARDS SEES: RISK ASSESSMENT AND RISK MANAGEMENT: AN INTEGRATED APPRO	*47.050*		*PRINCETON UNIVERSITY*	*SUB000091*		*$50,661*	*$518,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ODM2 ADMIN PILOT POJECT YEAR 2	*47.050*		*CONSORTIUM OF UNIV FOR THE ADVMENT OF HYDROLOGIC SCIENCE, INC.*	*EAR-1338606*		*$24,600*	*$518,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MIGRATING CZO DATA TO HYDROSHARE	*47.050*		*CORNELL UNIVERSITY*	*EAR-1360760*		*$24,933*	*$518,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COLLABORATIVE RESEARCH: PRINTABLE ROBOTS: AN EXPEDITION IN COMPUTING F	47.070	1138847				$208,671	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: PRINTABLE ROBOTS: AN EXPEDITION IN COMPUTING F	47.070	1138847				$435	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: THE ALGORITHMIC FOUNDATIONS OF DATA PRIVACY	47.070	1253345				$112,595	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: FOUNDATIONS FOR MODELING AND VERIFICATION OF MEDICAL CYBER-PH	47.070	1253842				$133,189	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
III: MEDIUM: COLLABORATIVE RESEARCH: CITING STRUCTURED AND EVOLVING DA	47.070	1302212				-$4,359	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CIF: SMALL: RICH TYPE INFERENCE FOR FUNCTIONAL PROGRAMMING	47.070	1319880				$4,306	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NRI-LARGE: COLLABORATIVE RESEARCH: HUMAN-ROBOT COORDINATED MANIPULATIO	47.070	1328805				$54,542	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NRI-LARGE: COLLABORATIVE RESEARCH: HUMAN-ROBOT COORDINATED MANIPULATIO	47.070	1328805				$740	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
XPS: CLCCA: IMPROVING PARALLEL PROGRAM RELIABILITY THROUGH NOVEL APPRO	47.070	1337174				-$87	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
TWC: MEDIUM: COLLABORATIVE RESEARCH: BLACK-BOX EVALUATION OF CRYPTOGRA	47.070	1408734				-$24,800	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SHF: SMALL: NONSTANDARD COMPUTATIONAL MODELS OF LINEAR LOGIC	47.070	1421193				$68,742	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SHF: SMALL: RANDOM TESTING FOR LANGUAGE DESIGN	47.070	1421243				$256,560	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
RI: SMALL: COLLABORATIVE RESEARCH: RESEARCH LEADING TO COMPREHENSIVE G	47.070	1422186				-$521	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NRI: COLLABORATIVE: ROBOTICS 2.0 FOR DISASTER RESPONSE AND RELIEF OPER	47.070	1426840				$1,055	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CPS: FRONTIER: COLLABORATIVE RESEARCH: BIOCPS FOR ENGINEERING LIVING C	47.070	1446592			$148,362	$496,149	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CPS: FRONTIER: COLLABORATIVE RESEARCH: BIOCPS FOR ENGINEERING LIVING C	47.070	1446592				$1,688	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CPS: FRONTIER: COLLABORATIVE RESEARCH: COMPOSITIONAL, APPROXIMATE, AND	47.070	1446664				$120,441	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
SYNERGY: COLLABORATIVE RESEARCH: SECURITY AND PRIVACY-AWARE CYBER-PHYS	47.070	1505799				$325,666	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CI-NEW: COLLABORATIVE RESEARCH: A MODULAR PLATFORM FOR ENABLING COMPUT	47.070	1513108				$149,508	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
TWC: MEDIUM: CRYPTOGRAPHIC APPLICATIONS OF CAPACITY THEORY	47.070	1513671				$197,768	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NETS: MEDIUM: COLLABORATIVE RESEARCH: DEFIND: DECLARATIVE FORMAL INTER	47.070	1513679				$37,078	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SATC MEDIUM: HARDWARE-ASSISTED LIGHTWEIGHT CAPABILITY OPTIMIZATION (HA	47.070	1513687				$392,515	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
TWC: MEDIUM: DISTRIBUTED DIFFERENTIAL PRIVACY	47.070	1513694				$196,396	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
TWC: MEDIUM: MICRO-POLICIES: A FRAMEWORK FOR TAG-BASED SECURITY MONITO	47.070	1513854				$206,106	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
INSPIRE: LEGGED LOCOMOTION FOR DESERT RESEARCH	47.070	1514882			$34,288	$57,368	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: EXPEDITIONS IN COMPUTING: THE SCIENCE OF DEEP	47.070	1521539				$320,266	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: EXPEDITIONS IN COMPUTING: THE SCIENCE OF DEEP	47.070	1521539				$800	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SHF: SMALL: LUCID: LOW-OVERHEAD, UNOBTRUSIVE CACHE CONTENTION DETECTIO	47.070	1525296				$173,586	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NETS: SMALL: COLLABORATIVE RESEARCH: COMPETITION, NEUTRALITY AND SERVI	47.070	1525457				$3,514	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SHF: SMALL: NEW FRONTIERS IN CONSTRAINT-BASED PROGRAM ANALYSIS	47.070	1526270				$179,208	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
RET SITE: GRASP - TEACHER PARTNERSHIP IN ROBOTICS EDUCATION	47.070	1542301				$140,710	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
BIGDATA: F: GRAPH SKETCHING AND OPTIMIZATION PROBLEMS	47.070	1546151				$73,477	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CICI: DATA PROVENANCE: PROVENANCE-BASED TRUST MANAGEMENT FOR COLLABORA	47.070	1547360				$121,008	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CSR:NETS: MEDIUM: NETWORK FUNCTIONS VIRTUALIZATION WITH TIMING GUARANT	47.070	1563873				$88,349	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
AF: SMALL: SUBLINEAR ALGORITHMS FOR GRAPH OPTIMIZATION PROBLEMS	47.070	1617851				$62,760	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
EXP: LINGUISTIC ANALYSIS AND A HYBRID HUMAN-AUTOMATIC COACH FOR IMPROV	47.070	1623730			$42,624	$125,022	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
MRI DEVELOPMENT OF AN OBSERVATORY FOR QUANTITATIVE ANALYSIS OF COLLECT	47.070	1626008				$153,501	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: CRYPTOGRAPHIC SECURITY AT INTERNET SCALE	47.070	1651344				$38,020	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NSF EAGER: CONSTRUCTION OF SOCIAL INTERACTIONS IN 3D SPACE FROM FIRST	47.070	1651389				$17,936	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
BD SPOKES: SPOKE: NORTHEAST: COLLABORATIVE: GRAND CHALLENGES FOR DATA-	47.070	1661987				$77,109	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SATC: CORE: MEDIUM: COLLABORATIVE: AN ALGEBRAIC APPROACH TO SECURE	47.070	1701785				$80,456	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
RI: MEDIUM: COLLABORATIVE RESEARCH: CLOSED LOOP PERCEPTUAL PLANNING FO	47.070	1703319				$84,963	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CSR: SHF: MEDIUM: COLLABORATIVE RESEARCH: NEW HORIZON IN DETERMINISTIC	47.070	1703541				$70,841	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SHF: MEDIUM: COLLABORATIVE RESEARCH: FORMAL ANALYSIS AND SYNTHESIS OF	47.070	1703791				$81,656	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SHF: MEDIUM: COLLABORATIVE RESEARCH: THE THEORY AND PRACTICE OF DEPEND	47.070	1703835				$76,056	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NETS: MEDIUM: COLLABORATIVE RESEARCH: DIAGNOSING DATACENTER NETWORKS	47.070	1703936				$36,770	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CIF: SMALL: METRIC REPRESENTATIONS OF NETWORK DATA	47.070	1717120				$128,444	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
RI: SMALL: MODERN MACHINE LEARNING ALGORITHMS FOR RANKING FROM PAIRWIS	47.070	1717290				$127,245	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CI-NEW: NIEUW: NOVEL INCENTIVES AND WORKFLOWS IN LINGUISTIC DATA COLLE	47.070	1730377				$331,633	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CI-NEW: NIEUW: NOVEL INCENTIVES AND WORKFLOWS IN LINGUISTIC DATA COLLE	47.070	1730377				$9,775	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
AITF: PROVENANCE WITH PRIVACY AND RELIABILITY IN FEDERATED DISTRIBUTED	47.070	1733794				$127,205	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: ADAPTIVE LARGE-SCALE PROGRAM ANALYSIS	47.070	1743116				$110,501	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
LEGAL BARRIERS TO SECURING THE ROUTING ARCHITECTURE	47.070	1748362				$42,813	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: PREDICTING DOMAIN-LEVEL READING COMPREHENSION EASE TO SUPPORT A	47.070	1748771				$82,200	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NSF STUDENT TRAVEL GRANT FOR 2018 PROGRAMMING LANGUAGES MENTORING WOR	47.070	1749155				$7,000	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CRII: RI: ROBUST VISUAL COMPUTING OF FRICTIONAL CONTENT	47.070	1755544				$22,021	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CRII: CCF: LOW-COMPLEXITY CODING AT OPTIMAL LENGTH	47.070	17557077				$71,796	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
AF: MEDIUM: COLLABORATIVE RESEARCH: FOUNDATIONS OF FAIR DATA ANALYSIS	47.070	1763307				$40,804	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
AF: MEDIUM: COLLABORATIVE RESEARCH: FOUNDATIONS OF ADAPTIVE DATA ANALY	47.070	1763314				$80,074	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CCF: MEDIUM: ENABLING REAL-TIME QUANTITATIVE DECISION MAKING OVER STRE	47.070	1763514				$162,828	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
S&AS: FND: COLLAB: PLANNING AND CONTROL OF HETEROGENEOUS ROBOT TEAMS F	47.070	1812319				$69,382	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
AF: SMALL: COLLABORATIVE RESEARCH: LARGE-SCALE ADAPTIVE MATERIAL POINT	47.070	1813624				$35,217	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
AF: SMALL: COLLABORATIVE RESEARCH: BOOLEAN FUNCTION ANALYSIS MEETS STO	47.070	1814706				$28,831	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
SCH: INT: MINING DRUG-DRUG INTERACTION INDUCED ADVERSE EFFECTS FROM HE	47.070	1827472				$133,008	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
FMITF: COLLABORATIVE RESEARCH: SYNERGIES BETWEEN PROGRAM SYNTHESIS AND	47.070	1836936				$73,801	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
BIGDATA: IA: COLLABORATIVE RESEARCH: ASYNCHRONOUS DISTRIBUTED MACHINE	47.070	1837964				$18,871	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
NEONUR NSF I-CORPS GRANT	47.070	1844816				$42,189	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: COMPUTATIONAL DESIGN FOR ROBUST LEGGED ROBOTS	47.070	1845339				$14,807	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: A NETWORK MOTION PICTURE PRIMITIVE FOR NETWORK MONITORING AND	47.070	1845749				$28,288	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
TWC: MEDIUM: COLLABORATIVE RESEARCH: ACTIVE SECURITY	47.070	CNS-1406225				-$87	$7,161,027	RESEARCH AND DEVELOPMENT	$706,379,077
CYBER-PHYSICAL SYSTEMS VIRTUAL ORGANIZATION: ACTIVE RESOURCES	*47.070*		*VANDERBILT UNIVERSITY*	*3834-019899*		*$112,177*	*$7,161,027*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CIF21 DIBBS: EI: MPROV: PROVENANCE-BASED DATA ANALYTICS CYBERINFRASTRU	*47.070*		*UNIVERSITY OF MEMPHIS*	*1640813*		*$244,245*	*$7,161,027*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROVENANCE FOR DEBUGGING PERFORMANCE ISSUES IN NETWORK APPLICATIONS	*47.070*		*CARNEGIE MELLON UNIVERSITY*	*CNS-1513961*		*$9,887*	*$7,161,027*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CIF21 DIBBS: EL: CREATING A DIGITAL ENVIRONMENT FOR ENABLING DATA-DRIV	*47.070*		*PURDUE UNIVERSITY*	*1724728-OAC*		*$8,313*	*$7,161,027*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INSPIRE TRACK 2: DISCOVERY AND DEVELOPMENT OF OPTIMIZED PHOTONIC SYSTE	47.074	1343159			$49,918	$499,882	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: UNRAVELING HOMEOSTATIC MECHANISMS IN GENE EXPRESSION REGULATIO	47.074	1350601				$116,943	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: ECOLOGICAL CONSEQUENCES OF THE EFFECTS OF A ZO	47.074	1354184				$22,019	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
SIGNALING MECHANISMS THAT REGULATE ATTRACTIVE AXON GUIDANCE AT THE CNS	47.074	1355181				$65,298	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
PROTEIN FOLDING: MECHANISM AND PRINCIPLES	47.074	1409137				$154,738	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL ANCHORING MECHANISM FOR PROKARYOTIC SURFACE PROTEINS	47.074	1413158				-$3,219	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL ANCHORING MECHANISM FOR PROKARYOTIC SURFACE PROTEINS	47.074	1413158				$51,454	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL, FUNCTIONAL, AND EVOLUTIONARY ANALYSIS OF LONG NON-CODING R	47.074	1444490			$175,118	$482,891	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL, FUNCTIONAL, AND EVOLUTIONARY ANALYSIS OF LONG NON-CODING R	47.074	1444490				$1,339	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: DEVELOPING NOVEL SOCIAL SYSTEMS-LEVEL APPROACHES WITH A NEW AN	47.074	1452520				$107,053	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: DEVELOPING NOVEL SOCIAL SYSTEMS-LEVEL APPROACHES WITH A NEW AN	47.074	1452520				$13,500	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
EVOLUTION OF MUCOSAL B CELL IMMUNITY: NOVEL ROLES OF IGT+ B CELLS IN T	47.074	1457282			$1,893	$20,796	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
BILATERAL BBSRC-NSF/BIO COLLABORATIVE RESEARCH: ABI DEVELOPMENT: ACR	47.074	1458390			$68,428	$77,857	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
US-FRANCE RESEARCH PROPOSAL: PREDICTING ODORANT-DEPENDENT AND INDEPEND	47.074	1515930				-$19,792	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: RISK AND REWARD OF HIGH MUTATION RATE: WHY LAR	47.074	1556168				$23,375	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL BASES OF SONG PREFERENCE AND REPRODUCTIVE BEHAVIOR IN A FEMALE	47.074	1557499				$173,742	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF THE 'ANTIFLORIGEN' TFL1 IN ARABIDIOPSIS DEVELOPMENT	47.074	1557529				$181,939	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
DIGITIZATION TCN: THE MID-ATLANTIC MEGALOPOLIS: ACHIEVING A GREATER SC	47.074	1601697			$6,242	$90,585	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
DIGITIZATION TCN: THE MID-ATLANTIC MEGALOPOLIS: ACHIEVING A GREATER SC	47.074	1601697				$3,597	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
NEW TOOLS FOR GENETIC ANALYSIS IN ARABIDOPSIS THALIANA	47.074	1614191				$892	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
NEW TOOLS FOR GENETIC ANALYSIS IN ARABIDOPSIS THALIANA	47.074	1614191				$74,456	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
CIS AND TRANS DETERMINANTS OF POLYCOMB RECRUITMENT IN PLANTS	47.074	1614355				$276,907	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
CIS AND TRANS DETERMINANTS OF POLYCOMB RECRUITMENT IN PLANTS	47.074	1614355				$12,489	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: REVEALING THE FUNCTION OF THE EPITRANSCRIPTOME IN PLANT PATHOGE	47.074	1623887				-$2,707	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: ESTABLISHING NOVEL SIGNALING TRANSMISSION MODES OF LOV PHOTORE	47.074	1652003				$113,902	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: DIGITIZATION TCN: THE MID-ATLANTIC MEGALOPOLIS	47.074	1743744			$17,133	$54,434	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
DECIPHERING THE ROLES OF DIFFERENTIAL TYPE IV PILIN EXPRESSION AND N-G	47.074	1817518				$170,082	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
DECIPHERING THE ROLES OF DIFFERENTIAL TYPE IV PILIN EXPRESSION AND N-G	47.074	1817518				$2,099	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF THE ANTIFLORIGEN TFL1 IN AXILLARY MERISTEM FATE	47.074	1905062				$33,882	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER: EFFECTS OF EMOTION ON HIPPOCAMPAL REPRESENTATIONS AND MEMORY	47.074	IOS-1256941				-$30	$2,838,359	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH-PGR: DISSECTING THE GENETIC NETWORKS UNDERLYING KRANZ ANATOMY	*47.074*		*DONALD DANFORTH PLANT SCIENCE CENTER*	*1546882*		*$8,475*	*$2,838,359*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LTREB RENEWAL: EXPERIMENTAL TESTS OF ALTERNATIVE STATES ON ROCKY INTER	*47.074*		*UNIVERSITY CORPORATION, THE*	*1555641*		*$29,481*	*$2,838,359*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE NEURAL MECHANISMS UNDERLYING VISUAL TARGET AND TASK SWITCHING	47.075	1265480				-$41,556	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
CAREER; DECISION-INDUCED BIASES IN VISUAL PERCEPTS	47.075	1350786				$108,677	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: MONETARY DSGE MODELS AT THE ZERO LOWER BOUND:	47.075	1424843				$3,005	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: MAPPING AND CONTROL OF LARGE-SCALE NEURAL DYNA	47.075	1430087				$19,564	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATION OF URBAN AND RURAL POPULATION	47.075	1430404				$50,472	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
AFFORDABLE CARE ACT AND THE LABOR MARKET	47.075	1459353				$21,708	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
REVISITING THE VARIABLE DELETION OF LABIOVELAR GLIDE (W) IN SEOUL KORE	47.075	1529051				$1,576	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: GOOD BOOMS, BAD BOOMS	47.075	1529586				$1,045	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
NCS-FO: THE ROLE OF NOISE IN MENTAL EXPLORATION FOR LEARNING	47.075	1533623				$103,269	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
OBSERVING THE INVISIBLE: A COLLABORATIVE INVESTIGATION BETWEEN ASTROPH	47.075	1557138				$18,085	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
UNCERTAINTY IN MODELS OF AUTHORITY AND MODELS OF MATCHING	47.075	1559369				$128,809	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
FORECASTING AND POLITICAL DISCOURSE	47.075	1559370				$22,528	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
EMPIRICAL STUDIES OF BUSINESS-TO-BUSINESS BARGAINING: EVIDENCE FROM HO	47.075	1559485				$137,098	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
THE BLACK FAMILY RACIAL SOCIALIZATION PROJECT: A MIXED METHODS, MULTIM	47.075	1606869				$10,365	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COMPUTATIONAL TECHNIQUES FOR STUDYING EVERYDAY MULTIATTRIBUTE CHOICE	47.075	1626825				$201,276	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COGNITIVE CHARACTERISTICS OF THE LEADERS OF LANGUAGE CHANGE	47.075	1627972				$39,829	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COLLOBARATIVE RESEARCH: A CORPUS OF NEW YORK CITY ENGLISH: AUDIO-ALIGN	47.075	1629348				$27,453	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
NCS-FO: COLLABORATIVE RESEARCH: A MECHANISTIC MODEL OF COGNITIVE CONTR	47.075	1631550				$149,767	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
POSTDOCTORAL FELLOWSHIP: NEURO-VISIONS OF THE PREJUDICED MIND: IMPLICA	47.075	1632596				$5,010	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: ARCHAEOLOGICAL EXAMINATIONS OF POLITIC	47.075	1640392				$1,643	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER - COMPLEXITY AND EMERGENCY RESPONSE IN ABRUPT CLIMATE CHANGE	47.075	1646822				$1,367	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: EPIGENENTIC SIGNATURES OF SOCIAL ISOLA	47.075	1650850				$20,701	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: VARIATION AND CHANGE IN PAST TENSE NEG	47.075	1658547				-$12,130	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: VARIATION AND CHANGE IN PAST TENSE NEG	47.075	1658547				$7,722	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
RE-EXAMINING THE ROLES OF BELIEFS AND INFORMATION IN SOVEREIGN DEBT CR	47.075	1726976				$83,408	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
GLOBAL FAMILY CHANGE	47.075	1729185				$196,298	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DIGITAL NEWS AND THE CONSUMPTION OF INFORMATION ONLINE	47.075	1729412				$50,323	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
FAMILIES OF HIGH NET WORTH: CHALLENGES AND OPPORTUNITIES	47.075	1729469				$235	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: BREAKING THE FISCAL LINK? THE IMPACT O	47.075	1747672				$6,414	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: THE ROLE OF MITOCHONDRIAL DNA BACKGROU	47.075	1751863				$3,834	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCUMENTING NEANDERTAL FIRE SIGNATURES THROUGH HIGH RESOLUTION ANALYSE	47.075	1755237				$50,825	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
PRENATAL AIR POLLUTION EXPOSURES AND EARLY CHILDHOOD HEALTH AND DEVELO	47.075	1756738				$87,154	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: PAYOFF-BELIEF-SEPARABLE PREFERENCES	47.075	1758653				$70,108	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
VIOLENCE AND THE PERSISTENCE OF ETHNIC INDENTIFICATION	47.075	1761934				$74,857	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: CAUSAL EFFECTS OF GRANDPARENTS ON GRANDCHILDR	47.075	1823521				$31,516	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING FAMILY INCOME AND CONSUMPTION DYNAMICS IN THE U.S.	47.075	1824520				$73,587	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING MODERN HUMAN POPULATION HISTORY AND DYNAMICS: A GENOMIC	47.075	1824826				$5,782	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: GENETIC DIVERSITY OF THE COLONIAL CHES	47.075	1825583				$565	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
SCHOLARS AWARD: A HISTORY OF DATA PRACTICES IN THE WATER SCIENCES	47.075	1827876				$24,546	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
THE GENETIC BASIS FOR THE EVOLUTION OF ADAPTIVE SKIN APPENDAGE TRAITS	47.075	1847598				$48,214	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
MODELING MENTAL REPRESENTATION IN JUDGMENT	47.075	1847794				$2,823	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: PIECEWISE LINEAR APPROXIMATIONS FOR DSGE MODEL	47.075	1851634				$26,263	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
DOCTORAL DISSERTATION RESEARCH: LINGUISTIC ACCOMMODATION TO SOUTHERN S	47.075	1917900				$417	$2,123,542	RESEARCH AND DEVELOPMENT	$706,379,077
ANDEAN EGLN1, A TARGET OF NATURAL SELECTION FOR HYPOXIC ADAPTATION	*47.075*		*UNIVERSITY OF MICHIGAN*	*1638642*		*$108,867*	*$2,123,542*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
US-GERMAN COLLABORATION: ROLES OF PLACE AND GRID CELLS AND PHASE PRECE	*47.075*		*COLUMBIA UNIVERSITY*	*1724243*		*$69,582*	*$2,123,542*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASSESSING STUDENT ABILITIES AND ENHANCING VALUE ADDED IN HIGHER EDUCAT	*47.075*		*CARNEGIE MELLON UNIVERSITY*	*SES-1658746*		*$30,049*	*$2,123,542*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EAGER: OPTIMIZING SCIENTIFIC PEER REVIEW	*47.075*		*SYRACUSE UNIV*	*1800956*		*$47,640*	*$2,123,542*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COLLABORATIVE RESEARCH: URBANISM IN THE SOUTH CAUCASUS: ARCHAEOLOGICAL	*47.075*		*EMORY UNIVERSITY*	*1430403*		*$2,952*	*$2,123,542*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COLLABORATIVE RESEARCH: USING EDUCATIONAL DATA MINING TECHNIQUES TO UN	47.076	1661153				$91,588	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE RESEARCH FELLOWSHIP PROGRAM	47.076	1321851				$1,216,006	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE RESEARCH FELLOWSHIP PROGRAM	47.076	1321851				-$646,499	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: ET-ECS: ELECTRONIC TEXTILES FOR EXPLORING COMP	47.076	1509245				$63,906	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: ET-ECS: ELECTRONIC TEXTILES FOR EXPLORING COMP	47.076	1509245				$7,200	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
THE EFFECTS OF EDUCATION AND PROFESSIONAL DEVELOPMENT ON BEGINNING STE	47.076	1535175				$245,515	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: THE ROLE OF INSTRUCTOR AND PEER FEEDBACK IN IM	47.076	1544130				$7,190	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: THE ROLE OF INSTRUCTOR AND PEER FEEDBACK IN IM	47.076	1544130				$811	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
NRT-IGE: PENN PATHFINDERS	47.076	1545212				$43,763	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
NRT-IGE: PENN PATHFINDERS	47.076	1545212				$500	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING FORMATIVE ASSESSMENT TOOLS AND ROUTINES FOR ADDITIVE REASON	47.076	1620888				$102,173	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
SYSTEMIC FORMATIVE ASSESSMENT TO PROMOTE MATHEMATICS LEARNING IN ELEME	47.076	1621333			$130,883	$928,402	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
EAGER: MAKER: BIOMAKERLAB: A WETLAB AND STARTER ACTIVITIES FOR PROMOTI	47.076	1623018				$118,026	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
EXP: COLLABORATIVE RESEARCH: DESIGNING THE IMPACT STUDIO -- DYNAMIC VI	47.076	1623258			$26,464	$54,731	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
BELIEF REVISION IN EARLY CHILDHOOD: LEARNING ABOUT LEARNING IN THE LA	47.076	1660655			$2,417	$6,652	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: USING DATA MINING AND OBSERVATION TO DERIVE AN	47.076	1665216			$84,739	$211,461	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
BIOGRAPH 2.0 - ONLINE PROFESSIONAL DEVELOPMENT FOR HIGH SCHOOL BIOLOGY	47.076	1721003			$268,152	$432,407	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: DEBUGGING BY DESIGN: DEVELOPING A TOOL SET FOR	47.076	1742140				$6,550	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: DEBUGGING BY DESIGN: DEVELOPING A TOOL SET FOR	47.076	1742140				$223,054	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
DOES NUMERICAL INTUITION TRAINING IMPROVE MATH PERFORMANCE?	47.076	1760867				$275,084	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
PROFESSIONAL DEVELOPMENT SUPPORTS FOR TEACHING BIOINFORMATICS THROUGH	47.076	1812738				$128,938	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
BUILDING SUSTAINABLE NETWORKED INSTRUCTIONAL LEADERSHIP IN ELEMENTARY	47.076	1813048				$14,301	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
BUILDING SUSTAINABLE NETWORKED INSTRUCTIONAL LEADERSHIP IN ELEMENTARY	47.076	1813048				$299,972	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE RESEARCH: FW-HTF THEME 1: INTEGRATING COGNITIVE SCIENCE	47.076	1839686				$69,062	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
LEARN.DESIGN.COMPUTE WITH BIO: A WORKSHOP FOR CONNECTING COMPUTATIONAL	47.076	1840933				$28,638	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
LEARN.DESIGN.COMPUTE WITH BIO: A WORKSHOP FOR CONNECTING COMPUTATIONAL	47.076	1840933				$10,583	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
NATIONAL SCIENCE FOUNDATION GRADUATE RESEARCH FELLOWSHIP PROGRAM	47.076	1845298				$2,856,334	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
CAP TOWARDS INCLUSIVE DESIGN IN K-12 SERIOUS GAMING: EXAMINING INTERSE	47.076	IIS-1450877				-$102	$6,851,587	RESEARCH AND DEVELOPMENT	$706,379,077
AMP V	*47.076*		*DREXEL UNIVERSITY*	*235920*		*$18,233*	*$6,851,587*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TERC POSTDOCTORAL FELLOWSHIP	*47.076*		*TERC*	*1502882*		*$3,345*	*$6,851,587*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EAGER: MAKER: COLLABORATIVE RESEARCH: CULTURALLY RESPONSIVE MAKING: DE	*47.076*		*ARIZONA STATE UNIVERSITY*	*1623453*		*$9,841*	*$6,851,587*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COLLABORATIVE RESEARCH: BUILDING ENHANCED SCIENTIFIC THINKING THROUGH	*47.076*		*MISSOURI BOTANICAL GARDEN*	*1513043*		*$3,922*	*$6,851,587*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
PURSUING THE AMERICAN DREAM: MULTI-GENERATIONAL MOBILITY AMONG IMMIGRA	*47.076*		*AMERICAN EDUCATIONAL RESEARCH ASSOCIATION*	*1749275*		*$20,000*	*$6,851,587*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CAREER: HIERARCHICAL SELF-ASSEMBLY OF PHOTONIC DEVICES FROM PATCHY COL	47.078	1351935				$49,390	$220,891	RESEARCH AND DEVELOPMENT	$706,379,077
HERA: ILLUMINATING OUR EARLY UNIVERSE	*47.078*		*UNIVERSITY OF CALIFORNIA, BERKELEY*	*1636646*		*$171,501*	*$220,891*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PIRE: RESEARCH AND EDUCATION IN ACTIVE COATINGS TECHNOLOGIES (REACT) F	47.079	1545884			$12,847	$691,056	$722,002	RESEARCH AND DEVELOPMENT	$706,379,077
PIRE: RESEARCH AND EDUCATION IN ACTIVE COATINGS TECHNOLOGIES (REACT) F	47.079	1545884				$30,946	$722,002	RESEARCH AND DEVELOPMENT	$706,379,077
SI2-SSI: THE LANGUAGE APPLICATION GRID: A FRAMEWORK FOR REPID ADAPTAT	*47.080*		*BRANDEIS UNIVERSITY*	*4-02069*		*$2,200*	*$2,200*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PENN-UPR PARTNERSHIP FOR RESEARCH AND EDUCATION IN MATERIALS	*47.082*		*UNIVERSITY OF PUERTO RICO*	*DMR-0934195*		*$128*	*$128*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTERGOVERNMENTAL PERSONNEL ACT ASSIGNMENT - KIMBERLY GALLAGHER	47.RD	IPA				$171,538	$175,016	RESEARCH AND DEVELOPMENT	$706,379,077
QUARKNET 2018	*47.RD*	*N/A*	*UNIVERSITY OF NOTRE DAME*	*N/A*		*$3,478*	*$175,016*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL NATIONAL SCIENCE FOUNDATION					$4,464,490	$45,489,252			
SMALL BUSINESS ADMINISTRATION									
TRANSITIONING WORKERS INTO ENTREPRENEURS	59.037	SBAHQ-17-B-0077			$37,069	$42,424	$1,288,519	OTHER PROGRAMS	$14,438,000
PLANNING FOR PROFITS: "DECISION MAKERS"	59.037	SBAHQ-17-B-0080			$45,410	$54,660	$1,288,519	OTHER PROGRAMS	$14,438,000
PENNSYLVANIA SMALL BUSINESS DEVELOPMENT CENTERS 2018 SBA PROPOSAL	59.037	SBAHQ18B0054			$1,189,981	$1,191,435	$1,288,519	OTHER PROGRAMS	$14,438,000
SMALL BUSINESS ADMINISTRATION / FEDERAL GRANT	*59.061*		*KUTZTOWN UNIVERSITY OF PENNSYLVANIA*	*SBAHQ19B0027*		*$88,042*	*$88,042*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL SMALL BUSINESS ADMINISTRATION					$1,272,460	$1,376,561			
DEPARTMENT OF VETERANS AFFAIRS									
THE ROLE OF LOCAL NSAID ADMINISTRATION AND INFLAMMATION ON TENDON HEAL	64.RD	00979-R				$100,184	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
PERIOPERATIVE POST-PROSTATECTOMY INCONTINENCE HOME TELEHEALTH PROGRAM	64.RD	521D87110				$16,371	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IMPLEMENTING GOALS OF CARE CONVERSATIONS WITH VETERANS IN VA LTC SETTI	64.RD	IPA				$86,966	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA CORY DANIEL CZUCZMAN	64.RD	IPA				-$2,481	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
EVIDENCE BASED PSYCHOTHERAPY PROGRAM	64.RD	IPA				$11,418	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
KAEMPF TOP IPA	64.RD	IPA				$16,934	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
OSLIN TOP IPA-PETRO	64.RD	IPA				$5,816	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROMODULATION AS A THERAPY FOR PTSD FOLLOWING CHRONIC TBI	64.RD	IPA				$25,309	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA	64.RD	IPA - TYLER MELVIN				-$642	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
DOWNING IPA-TOP	64.RD	IPA - LAURIE DOWNING				$19,951	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA	64.RD	IPA - MARY VALIGA				$102,501	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
PERIOPERATIVE POST-PROSTATECTOMY INCONTINENCE HOME TELEHEALTH PROGRAM	64.RD	IPA - THOMAS BAVARIA				$7,524	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
ADAM MARC IPA - JOSH BAKER	64.RD	IPA ADAM MARC				$24,405	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
ADAM MARC FY19 IPA	64.RD	IPA ADAM MARC				$15,331	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
FY17 VA IPA - ADAM MUSSELL	64.RD	IPA ADAM MUSSELL				-$12	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
BIOACTIVE INJECTABLE IMPLANTS FOR FUNCTIONAL INTERVERTERBRAL DISC REGE	64.RD	IPA AGREEMENT				$57,278	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
CARTILAGE RESPONSE TO COMPRESSION INJURY: A PLATFORM FOR THERAPEUTICS	64.RD	IPA AGREEMENT				$123,375	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
COGNITIVE BEHAVIORAL THERAPY FOR INSOMNIA (IPA: JAMES FINDLEY)	64.RD	IPA AGREEMENT				$3,629	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA JUDY SHEA	64.RD	IPA AGREEMENT				$12,320	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA SUMEDHA CHHATRE	64.RD	IPA AGREEMENT				$11,473	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
INCORPORATING VETERANS' PREFERENCES INTO LUNG CANCER SCREENING DECISIO	64.RD	IPA AGREEMENT				$19,482	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
VA COMPREHENSIVE END-OF-LIFE CARE'S PROMISE CENTER	64.RD	IPA AGREEMENT				$7,962	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
TISSUE-ENGINEERED CONSTRUCTS FOR TREATMENT OF INTERVERTEBRAL DISC DEGE	64.RD	IPA AGREEMENT				$107,015	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
LYNCH IPA - TOP	64.RD	IPA AGREEMENT				$20,754	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA-TIMOTHY POND	64.RD	IPA AGREEMENT				$13,525	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
INSOMNIA DURING RECOVERY: IS CBT-I EFFICACIOUS AND IS INSOMNIA A MODIF	64.RD	IPA AGREEMENT				$2,416	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC VULNERABILITY OF MULTI-SUBSTANCE USE IN THE MVP	64.RD	IPA AGREEMENT				$5,873	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA ANTHONY DAVIS	64.RD	IPA AGREEMENT				$13,786	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA VANIA FREIRE	64.RD	IPA AGREEMENT				$410	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSPLANTABLE MICRO-TISSUE ENGINEERED NEURAL NETWORKS TO RESTORE THE	64.RD	IPA AGREEMENT				$52,173	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
DESIGNING NEURONAL TISSUE CONSTRUCTS THAT MIMIC BRAIN-SPECIFIC ARCHITE	64.RD	IPA AGREEMENT				$10,991	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA FOR VICTORIA A. (TORI) HILBERT	64.RD	IPA AGREEMENT				$14,925	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA: XIAOFENG GUO	64.RD	IPA AGREEMENT				$15,148	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
VA MERIT AWARD: IMMUNE AND GENETIC CONTROLS OF TISSUE REGENERATION IN	64.RD	IPA AGREEMENT				$126,486	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
MIRECC IPA AGREEMENT KEMBER	64.RD	IPA AGREEMENT				$9,788	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROMODULATION AS A THERAPY FOR PTSD FOLLOWING CHRONIC TBI	64.RD	IPA AGREEMENT				$50,411	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROMODULATION AS A THERAPY FOR PTSD FOLLOWING CHRONIC TBI	64.RD	IPA AGREEMENT				$67,874	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING MULTI-LEVEL DETERMINANTS OF RACIAL/ETHNIC DISPARITIES IN	64.RD	IPA AGREEMENT				$35,484	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF NKG2D SIGNALING IN PERIPHERAL ARTERIAL DISEASE	64.RD	IPA AGREEMENT				$44,120	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA AGREEMENT FOR MELISSA NASCHEK	64.RD	IPA AGREEMENT				$40,835	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
PRECISION CARDIO-METABOLIC PHENOTYPING FOR GENETIC DISCOVERY AND RISK	64.RD	IPA AGREEMENT				$55,689	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
PHENOTYPIC AND GENOMIC ARCHITECTURE OF CARDIOVASCULAR DISEASE SUBTYPES	64.RD	IPA AGREEMENT				$85,116	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA AGREEMENT FOR JESSICA KOSHINSKI	64.RD	IPA AGREEMENT				$36,159	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
VA COMPREHENSIVE END-OF-LIFE CARE'S PROMISE CENTER	64.RD	IPA AGREEMENT				$39,933	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
JIALI (HELEN) YAN IPA	64.RD	IPA AGREEMENT				$28,377	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
GROUP (PROJECT LIFE FORCE) VS. INDIVIDUAL SUICIDE SAFETY PLANNING RC	64.RD	IPA AGREEMENT				$74,667	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA ANDREA SEGAL	64.RD	IPA AGREEMENT				$14,639	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA HOWARD	64.RD	IPA AGREEMENT				$15,633	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
INHIBITION OF TNF-A SIGNALING TO REDUCE INTERVERTEBRAL DISC INFLAMMATI	64.RD	IPA AGREEMENT				$5,816	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA JUDY SHEA	64.RD	IPA AGREEMENT				$5,511	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA JUDY SHEA	64.RD	IPA AGREEMENT - JUDITH SHEA				-$1,263	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA ANDREA SEGAL	64.RD	IPA ANDREA SEGAL				$11,119	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA ANEEZA AGHA	64.RD	IPA ANEEZA AGHA				-$721	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA ANEEZA AGHA	64.RD	IPA ANEEZA AGHA				$78,538	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERED MULTI-FUNCTIONAL NANOFIBROUS MENISCUS IMPLANTS	64.RD	IPA- BURDICK/SCHAER				$320,923	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA CAROLYN SABINI	64.RD	IPA CAROLYN M SABINI				$3,290	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA CHALANDA EVANS	64.RD	IPA CHALANDA EVANS				$7,023	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
PETRO MIRECC IPA	64.RD	IPA CHRISTOPHER PETRO				$4,800	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA-PETRO	64.RD	IPA CHRISTOPHER PETRO				$565	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
FY17 VA IPA-DANIEL DEL ALCAZAR	64.RD	IPA DANIEL DEL ALCAZAR				$42,270	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA AGREEMENT FOR DANIEL TRAUM	64.RD	IPA DANIEL TRAUM				$36,589	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA - MILLION VETERAN PROGRAM (MVP)	64.RD	IPA DANISH SALEHEEN				$60,479	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA FOR DAWEI XIE	64.RD	IPA DAWEI XIE				$15,287	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
TISSUE ENGINEERED TOTAL DISC REPLACEMENT IN A LARGE ANIMAL MODEL	64.RD	IPA J LACHLAN SMITH				$127,200	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
CHART REVIEW OF THE INSOMNIA TELEHEALTH PROGRAM (IPA: JAMES FINDLEY)	64.RD	IPA JAMES FINDLEY				$10,529	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
DESIGNING NEURONAL TISSUE CONSTRUCTS THAT MIMIC BRAIN-SPECIFIC ARCHITE	64.RD	IPA JAMES LIM				$21,680	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA JUDY SHEA	64.RD	IPA JUDY SHEA				$35,155	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSPLANTABLE MICRO-TISSUE ENGINEERED NEURAL NETWORKS TO RESTORE THE	64.RD	IPA JUSIN BURRELL				$28,807	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA KELSEY KARPINK	64.RD	IPA KELSEY KARPINK				$2,806	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
LYNCH PRIME IPA	64.RD	IPA KEVIN LYNCH				$12,498	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA: LAKSHMI PRAYOSHA VILLA	64.RD	IPA LAKSHMI P VILLA				$58,855	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA LINDSEY NORTON	64.RD	IPA LINDSEY NICOLE NORTON				$2,484	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
VA IPA LIZBETH NOVELO	64.RD	IPA LIZBETH NOVELO				$7,939	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA - MARGARET LAWLACE	64.RD	IPA MARGARET LAWLACE				-$707	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA MOHAN BALACHANDRAN	64.RD	IPA MOHAN BALACHANDRAN				$30,146	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA OLENGA ANABUI	64.RD	IPA OLENGA E ANABUI				$2,029	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
THE INTRA-INDIVIDUAL CHANGES IN AMBULATION AND FUNCTIONAL OUTCOMES AMO	64.RD	IPA PAMELA CACCHIONE				$9,291	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATED COGNITIVE BEHAVIORAL THERAPY TO IMPROVE OUTCOMES IN SCHIZOP	64.RD	IPA PAUL M. GRANT				$9,928	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA RACHEL DJARAHER	64.RD	IPA RACHEL DJARAHER				$3,712	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
MIRECC IPA AGREEMENT KEMBER YEAR 2	64.RD	IPA RACHEL KEMBER				$47,606	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA RANDY HASTINGS	64.RD	IPA RANDY HASTINGS				$13,788	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA RORY FRANCIS HARTE	64.RD	IPA RORY FRANCIS HARTE				$4,378	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA SHIMRIT KEDDEM	64.RD	IPA SHIMRIT KEDDEM				$127,164	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA-SUMEDHA CHHATRE PARIKH PROJECT	64.RD	IPA SUMEDHA CHHATRE				$5,211	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA SUMEDHA CHHATRE	64.RD	IPA SUMEDHA CHHATRE				$8,195	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
BEERS - VA MERIT AWARD	64.RD	IPA SURAFEL MULUGETA				$98,042	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	*Federal CFDA Number*	*Additional Award Identification (Optional)*	*Name of Funder Pass-Through Entity*	*Identifying Number Assigned By Funder Pass-Through Entity*	*Total Amount Provided to Sub-Recipients*	*Federal Expenditures*	*Federal Program Total*	*Cluster Name*	*Cluster Total*
REPAIRING CORTICAL DEFECTS AFTER TRAUMATIC BRAIN INJURY WITH ENGINEERE	64.RD	IPA THOMAS JAMES LIM				$25,150	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
IPA - ZUOZHEN TIAN - CELL THERAPY FOR THE DEGENERATING INTERVERTEBRAL	64.RD	IPA TIAN ZUOZHEN				$16,606	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF TNF-ALPHA IN CUTANEOUS INTEGRITY	64.RD	JPA - MEENA SHARMA				$87,210	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
CHRONIC NEURODEGENERATIVE AND NEUROPHYSIOLOGICAL SEQUELA OF CLOSED-HEA	64.RD	PO #642D36047				$413	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
MICROBIOME AND INNATE IMMUNITY WITH PERCUTANEOUS OSSEOINTEGRATED PROST	64.RD	VA259-16-C-0224				$2,855	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS RESEARCH IN VETERANS WITH PTSD (CERV-PTSD)	64.RD	VA268-15-C-0074				$11,367	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
REMOTE AMBULATORY MANAGEMENT OF VETERANS WITH SLEEP APNEA (REVAMP)	64.RD	N/A				$22,930	$3,070,814	RESEARCH AND DEVELOPMENT	$706,379,077
VA IPA FOR ADON ROSEN	64.U01	IPA AGREEMENT				$215	$215	OTHER PROGRAMS	$14,438,000
IPA - LAURIE DOWNING	64.U02	IPA LAURIE DOWNING				$2,276	$2,276	OTHER PROGRAMS	$14,438,000
VA IPA AGREEMENT FOR AKUDO EJELONU	64.U04	IPA AGREEMENT				$1,505	$1,505	OTHER PROGRAMS	$14,438,000
IPA AGREEMENTS FOR YONGHAI LI AND AKUDO EJELONU	64.U05	IPA AGREEMENT				$20,776	$20,776	OTHER PROGRAMS	$14,438,000
INVOLVEMENT OF PECAM-1 IN VEGF-DEPENDENT PERMEABILITY	64.U07	IPA VALSAMMA ABRAHAM				$37,500	$37,500	OTHER PROGRAMS	$14,438,000
INTENSIVE TRAINING IN COGNITIVE BEHAVIORAL THERAPY FOR VETERANS EXPERI	64.U11	IPA AGREEMENT				$91,339	$91,339	OTHER PROGRAMS	$14,438,000
IPA - LAURIE DOWNING	64.U12	IPA LAURIE DOWNING				$9,379	$9,379	OTHER PROGRAMS	$14,438,000
CBT-SP TELE-HUB PROJECT	64.U14	IPA GREGORY K BROWN				$20,260	$20,260	OTHER PROGRAMS	$14,438,000
TOTAL DEPARTMENT OF VETERANS AFFAIRS						$3,254,064			
ENVIRONMENTAL PROTECTION AGENCY									
BUILDING US WATER INFRASTRUCTURE TO IMPROVE CHILDHOOD OUTCOMES	*66.509*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*RD - 83927901 - 0*		*$68,702*	*$68,702*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL ENVIRONMENTAL PROTECTION AGENCY						$68,702			
DEPARTMENT OF ENERGY									
DESIGN OF FUNCTIONAL MATERIALS BASED ON NEW PRINCIPLES OF DISORDER	81.049	DE-FG02-05ER46199				$56,649	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
PHYSICAL ANALYSIS OF THE BULK PHOTOVOLTAIC EFFECT FOR SOLAR HARVESTING	81.049	DE-FG02-07ER46431				$180,188	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE AND ELECTRONIC PROPERTIES OF DIRAC MATERIAL	81.049	DE-FG02-84ER45118				$123,696	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
SPECTROSCOPY AND DYNAMICS OF REACTION INTERMEDIATES IN COMBUSTION CHEM	81.049	DE-FG02-87ER13792				-$14,547	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
SPECTROSCOPY AND DYNAMICS OF REACTION INTERMEDIATES IN COMBUSTION CHEM	81.049	DE-FG02-87ER13792				$297,097	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
SUDBURY NEUTRINO OBSERVATORY	81.049	DE-FG02-88ER40479				$51,812	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
THE LOW ENERGY NEUTRINO PHYSICS RESEARCH PROGRAM AT PENN	81.049	DE-FG02-88ER40479				$591,262	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
MEMBRANE-ATTACHED ELECTRON CARRIERS IN PHOTOSYNTHESIS AND RESPIRATION	81.049	DE-FG02-91ER20052				$129,629	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
ATOMISTIC STUDY OF PLASTIC DEFORMATION OF TRANSITION METAL ALLOYS INCL	81.049	DE-FG02-98ER45702				$170,918	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
SISGR: BI-CONTINUOUS MULTI-COMPONENT NANOCRYSTAL SUPERLATTICES FOR SO	81.049	DE-SC0002158				-$478	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
AUTONOMOUS MOTILITY OF SYNTHETIC PROTOCELLS DRIVEN BY BIOCHEMICAL CATA	81.049	DE-SC0007063				$274,267	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH ENERGY PHYSICS RESEARCH AT THE UNIVERSITY OF PENNSYLVANIA	81.049	DE-SC0007901				-$325,349	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH ENERGY PHYSICS RESEARCH AT THE UNIVERSITY OF PENNSYLVANIA	81.049	DE-SC0007901				$528,411	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH ENERGY PHYSICS RESEARCH AT THE UNIVERSITY OF PENNSYLVANIA	81.049	DE-SC0007901				$2,004,283	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
NANO-STRUCTURED CATALYSTS FOR IMPROVED OXIDE-METAL INTERACTIONS	81.049	DE-SC0009440				$165,217	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
SYNTHESIS AND EXPLORATORY CATALYSIS OF 3D METALS: GROUP-TRANSFER REAC	81.049	DE-SC0012486				$222,809	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA THEORETICAL PROGRAM	81.049	DE-SC0013528				$105,026	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA THEORETICAL PROGRAM	81.049	DE-SC0013528				$585,349	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
TRACKING PHOTOCHEMICAL AND PHOTOPHYSICAL PROCESSES FOR SOLAR ENERGY CO	81.049	DE-SC0016043				$125,959	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
POLYMER CONFORMATIONS AND CHAIN DYNAMICS UNDER 1D AND 2D RIGID CONFINE	81.049	DE-SC0016421				$170,642	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCING SEPARATIONS OF RARE EARTH ELEMENTS THROUGH COORDINATION AND	81.049	DE-SC0017259				$196,078	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
PRODUCTION OF RADIOHALOGENS: BROMINE AND ASTATINE FOR IMAGING AND THER	81.049	DE-SC0017646				$133,078	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
SELECTIVE OXIDATIONS USING MOLECULAR OXYGEN: STRATEGIES FOR O-ATOM TRA	81.049	DE-SC0018057				$166,271	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
PROBABILISTIC DATA FUSION AND PHYSICS-INFORMED MACHINE LEARNING: A NEW	81.049	DE-SC0019116				$120,854	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
DE NOVO MATERIALS DESIGN OF CATALYTIC SURFACE MOTIFS FOR WATER-GAS-SHI	81.049	DE-SC0019281				$93,473	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
NANOMATERIAL CONSTRUCTION THROUGH PEPTIDE COMPUTATIONAL DESIGN AND HIE	81.049	DE-SC0019282				$174,400	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
MULTILINEAR SPECTROSCOPY, SEMICLASSICAL ELECTRODYNAMICS, AND ENERGY TR	81.049	DE-SC0019397				$142,005	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
NANOSTRUCTURED SOLAR FUEL SYSTEMS	81.049	DE-SC0019781				$15,922	$6,828,491	RESEARCH AND DEVELOPMENT	$706,379,077
RATIONAL DESIGN OF INNOVATIVE CATALYTIC TECHNOLOGIES FOR BIOMASS DERIV	*81.049*		*UNIVERSITY OF DELAWARE*	*DESC0001004*		*$167*	*$6,828,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR ACTINIDE SCIENCE AND TECHNOLOGY (CAST)	*81.049*		*FLORIDA STATE UNIVERSITY*	*DESC0016568*		*$296,590*	*$6,828,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RATIONAL DESIGN OF INNOVATIVE CATALYTIC TECHNOLOGIES FOR BIOMASS DERIV	*81.049*		*UNIVERSITY OF DELAWARE*	*DESC0001004*		*$22,198*	*$6,828,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHOTOSYNTHETIC ANTENNA RESEARCH CENTER (PARC)	*81.049*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*DESC0001035*		*$28,707*	*$6,828,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR THE COMPUTATIONAL DESIGN OF FUNCTIONAL LAYERED MATERIALS	*81.049*		*TEMPLE UNIVERSITY*	*DESC0012575*		*-$4,092*	*$6,828,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIGH EFFICIENCY WASTE HEAT HARVESTING USING NOVEL THERMAL OSCILLATORS	81.086	DE-EE0008314			$7,204	$69,350	$121,984	RESEARCH AND DEVELOPMENT	$706,379,077
USAMP LOW-COST MG SHEET COMPONENT DEVELOPMENT AND DEMONSTRATION PROJEC	*81.086*		*UNITED STATES AUTOMOTIVE MATERIALS PARTNERSHIP, LLC*	*DE-EE0007756*		*$52,634*	*$121,984*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COST-EFFECTIVE MANUFACTURING AND MORPHOLOGICAL STABILIZATION OF NANOST	81.089	DE-FE0023317				$3,763	$302,534	RESEARCH AND DEVELOPMENT	$706,379,077
COST-EFFECTIVE STABILIZATION OF NANOSTRUCTURED CATHODES BY ATOMIC LAYE	81.089	DE-FE0031252				$176,912	$302,534	RESEARCH AND DEVELOPMENT	$706,379,077
ENHANCING COKING TOLERANCE AND STABILITY OF SOFC ANODES USING ATOMIC	81.089	DE-FE0031673			$78,976	$121,859	$302,534	RESEARCH AND DEVELOPMENT	$706,379,077
SYNPLASTOME 2.0: SYNTHETIC PLASTID GENOME TO REPROGRAM CHLOROPLAST FUN	*81.135*		*UNIVERSITY OF TENNESSEE*	*DEAR000060*		*$196,339*	*$237,263*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIGH EFFICIENCY WAFER-SCALE THERMIONIC ENERGY CONVERTERS	*81.135*		*STANFORD UNIVERSITY*	*DEAR0000664*		*$40,924*	*$237,263*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNDERSTANDING TRANSPORT AND AGING MECHANISMS TO OPTIMIZE SANDIAS ION-	*81.RD*	*1685286*	*SANDIA NATIONAL LABORATORY*	*DE-AC04-94-AL85000*		*$9,741*	*$1,369,677*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE WATCHMAN PROGRAM- B626865	*81.RD*	*B626865*	*LAWRENCE LIVERMORE NATIONAL LABORATORY*	*DE-AC52-07NA27344*		*$71,143*	*$1,369,677*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WATCHMAN PDR EFFORT	*81.RD*	*B634739*	*LAWRENCE LIVERMORE NATIONAL LABORATORY*	*DE-AC52-07NA27344*		*$1,121*	*$1,369,677*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WFIRST SCIENCE INVESTIGATION TEAMS AND ADJUTANT SCIENTISTS	81.RD	DE-AC02-05CH11231				$87,166	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
DESIGN AND FABRICATION OF AN ELECTRONICS FOR THE 35 TONNE PROTOTYPE	81.RD	DE-AC02-98CH10886				$7,738	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH FOR ATLAS EXPERIMENT	81.RD	DE-AC02-98CH10886				$139,124	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH FOR ATLAS EXPERIMENT	81.RD	DE-AC02-98CH10886				$844,087	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH FOR ATLAS EXPERIMENT	81.RD	DE-AC02-98CH10886				$284	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-SCALE OBSERVATION AND MODELING OF IP3/CA SIGNALING	81.RD	DE-AC52-06NA25396				$25,501	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCED ELECTRO-CATALYSTS THROUGH CRYSTALLOGRAPHIC ENHANCEMENT	81.RD	DE-AC52-06NA25396				$94,433	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
ANALYSIS OF THE MAGNETIC PROPERTIES OF NEW SPIN-CROSSOVER COMPLEXES	81.RD	DE-AC52-06NA25396				$27,933	$1,369,677	RESEARCH AND DEVELOPMENT	$706,379,077
PIPELINE INFRASTRUCTURE OPERATIONS PERSONNEL EFFORT FOR THE LSST DARK	*81.RD*	*SUB TO DE-AC02-76SF00515*	*STANFORD LINEAR ACCELERATOR CENTER*	*DE-AC02-76SF00515*		*$20,922*	*$1,369,677*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENERGY FRONTIER RESEARCH CENTERS	*81.RD*	*XEJ-5-42261-01*	*NATIONAL RENEWABLE ENERGY LABORATORY*	*DE-AC36-08-GO-28308*		*$40,484*	*$1,369,677*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FLORENCE CATHEDRAL IMAGING PROJECT	81.U06	DEAC5206NA25396				$50,000	$50,000	OTHER PROGRAMS	$14,438,000
TOTAL DEPARTMENT OF ENERGY					$86,180	$8,909,949			
DEPARTMENT OF EDUCATION									
SEOG - SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT	84.007	P007A183720				$2,555,128	$2,555,128	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
TITLE VI NATIONAL RESOURCE CENTER FUNDING 2014-2018	84.015	P015A140137			$8,448	$261,662	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI NATIONAL RESOURCE CENTER FUNDING 2014-2018	84.015	P015A140143			$11,523	$153,332	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI NATIONAL RESOURCE CENTER FUNDING AND FLAS FELLOWSHIP FUNDING	84.015	P015A180057				$134,044	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI NATIONAL RESOURCE CENTER FUNDING AND FLAS FELLOWSHIP FUNDING	84.015	P015A180057				$312,900	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI NATIONAL RESOURCE CENTER FUNDING AND FLAS FELLOWSHIP FUNDING	84.015	P015A180141				$167,328	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI NATIONAL RESOURCE CENTER FUNDING AND FLAS FELLOWSHIP FUNDING	84.015	P015A180141				$193,287	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI NATIONAL RESOURCE CENTER AND FLAS FELLOWSHIP FUNDING 2018-202	84.015	P015A180144				$72,096	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI NATIONAL RESOURCE CENTER AND FLAS FELLOWSHIP FUNDING 2018-202	84.015	P015A180144				$255,042	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI FLAS FELLOWSHIP FUNDING 2014-2018	84.015	P015B140137				$3,214	$1,742,993	OTHER PROGRAMS	$14,438,000

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
TITLE VI FLAS FELLOWSHIP FUNDING 2014-2018	84.015	P015B140143				$8,828	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI FLAS FELLOWSHIP FUNDING 2014-2018	84.015	P015B140144				$25,060	$1,742,993	OTHER PROGRAMS	$14,438,000
TITLE VI FLAS FELLOWSHIP FUNDING 2018-2022	84.015	P015B180147				$156,200	$1,742,993	OTHER PROGRAMS	$14,438,000
INTENSIVE ADVANCED PROGRAM FOR ZULU IN SOUTH AFRICA	84.021	P021A160057				$1,789	$139,069	OTHER PROGRAMS	$14,438,000
INTENSIVE ADVANCED PROGRAM FOR ZULU IN SOUTH AFRICA 2019-2020	84.021	P021A180010				$137,280	$139,069	OTHER PROGRAMS	$14,438,000
FULBRIGHT-HAYS DOCTORAL DISSERTATION RESEARCH ABROAD PROGRAM 2018-2020	84.022	P022A180006				$29,918	$29,918	RESEARCH AND DEVELOPMENT	$706,379,077
FWS - FEDERAL WORK STUDY	84.033	P033A173720				$117,697	$3,963,972	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
CWSP - FEDERAL WORK STUDY	84.033	P033A183720				$3,846,275	$3,963,972	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
PERKINS LOAN NEW LOANS ISSUED DURING 2019	84.038					$10,056	$46,430,892	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
PERKINS LOAN OUTSTANDING LOANS ISSUED AS OF 07/01/2018	84.038					$46,396,577	$46,430,892	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
PERKINS LOAN ADMINISTRATIVE COST ALLOWANCE	84.038					$24,259	$46,430,892	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
OFFICE OF POSTSECONDARY EDUCATION (OPE): STUDENT SUPPORT SERVICES PROG	84.042	P042A150394				$359,528	$359,528	TRIO CLUSTER	$1,807,444
UNIVERSITY OF PENNSYLVANIA TALENT SEARCH PROGRAM	84.044	9044A160227				$291,202	$291,202	TRIO CLUSTER	$1,807,444
UPWARD BOUND	84.047	P047A131651				$146,410	$1,156,714	TRIO CLUSTER	$1,807,444
UNIVERSITY OF PENNSYLVANIA UPWARD BOUND PROGRAM	84.047	P047A180557				$346,288	$1,156,714	TRIO CLUSTER	$1,807,444
UPWARD BOUND MATH AND SCIENCE PROGRAM	84.047	P047M130476				$94,891	$1,156,714	TRIO CLUSTER	$1,807,444
UNIVERSITY OF PENNSYLVANIA-UPWARD BOUND MATH SCIENCE PROGRAM	84.047	P047M180267				$214,192	$1,156,714	TRIO CLUSTER	$1,807,444
UNIVERSITY OF PENNSYLVANIA VETERANS UPWARD BOUND PROGRAM	84.047	P047V170188				$354,933	$1,156,714	TRIO CLUSTER	$1,807,444
PELL GRANT	84.063	P063P172158				$190,932	$7,330,678	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
PELL GRANT	84.063	P063P20182158				$7,139,746	$7,330,678	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
GAANN MECHANICAL ENGINEERING PROGRAM IN FUNDAMENTALS OF ADVANCED MANUF	84.200	P200A160282				$339,842	$339,842	OTHER PROGRAMS	$14,438,000
FULBRIGHT-HAYS DOCTORAL DISSERTATION RESEARCH ABROAD FELLOWSHIP PROGRA	84.22A	P022A170004				$56,128	$56,128	RESEARCH AND DEVELOPMENT	$706,379,077
FEDERAL DIRECT LOANS	84.268					$187,331,486	$187,331,486	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
21ST CENTURY COMMUNITY LEARNING CENTER (21CCLC) COHORT 8	*84.287*		*PENNSYLVANIA DEPARTMENT OF EDUCATION*	*FC #4100071658*	*$10,250*	*$137,473*	*$1,019,380*	*OTHER PROGRAMS*	*$14,438,000*
21ST CENTURY LEARNING COMMUNITY CENTERS -- COHORT 7	*84.287*		*PENNSYLVANIA DEPARTMENT OF EDUCATION*	*4100068078*	*$10,500*	*$209,857*	*$1,019,380*	*OTHER PROGRAMS*	*$14,438,000*
21ST CENTURY COMMUNITY LEARNING CENTER COHORT 9	*84.287*		*PENNSYLVANIA DEPARTMENT OF EDUCATION*	*S287C170038*	*$11,500*	*$138,759*	*$1,019,380*	*OTHER PROGRAMS*	*$14,438,000*
21ST CENTURY COMMUNITY LEARNING CENTER COHORT 9	*84.287*		*PENNSYLVANIA DEPARTMENT OF EDUCATION*	*S287C170038*	*$12,250*	*$247,967*	*$1,019,380*	*OTHER PROGRAMS*	*$14,438,000*
21ST CENTURY COMMUNITY LEARNING CENTER (21CCLC) COHORT 8	*84.287*		*PENNSYLVANIA DEPARTMENT OF EDUCATION*	*FC #4100071658*	*$19,000*	*$187,684*	*$1,019,380*	*OTHER PROGRAMS*	*$14,438,000*
21ST CENTURY LEARNING COMMUNITY CENTERS -- COHORT 7	*84.287*		*PENNSYLVANIA DEPARTMENT OF EDUCATION*	*4100068078*	*$19,500*	*$97,640*	*$1,019,380*	*OTHER PROGRAMS*	*$14,438,000*
EFFICACY EVALUATION OF ZOOLOGY ONE: KINDERGARTEN RESEARCH LABS	84.305	R305A160109			$88,067	$598,920	$3,086,649	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER ON STANDARDS, ALIGNMENT, INSTRUCTION, AND LEARNING (C-SAIL)	84.305	R305C150007			$1,753,710	$2,216,986	$3,086,649	RESEARCH AND DEVELOPMENT	$706,379,077
THE SCHOOL DISTRICT OF PHILADELPHIA-PENN GRADUATE SCHOOL OF EDUCATION	84.305	R305H140097			-$3,273	-$3,273	$3,086,649	RESEARCH AND DEVELOPMENT	$706,379,077
THE CENTER FOR RESEARCH USE IN EDUCATION	*84.305*		*UNIVERSITY OF DELAWARE*	*R305C150017*		*$78,817*	*$3,086,649*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EXPLORING ADAPTIVE COGNITIVE AND AFFECTIVE LEARNING SUPPORT FOR NEXT G	*84.305*		*FLORIDA STATE UNIVERSITY*	*R305A170376*		*$87,708*	*$3,086,649*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF ORGANIZATION SKILLS TRAINING PROGRAM FOR UPPER ELEMENTAR	*84.305*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R305A170052*		*$16,119*	*$3,086,649*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFYING MALLEABLE FACTORS IN BLENDED LEARNING ENVIRONMENTS USING A	*84.305*		*AMERICAN INSTITUTE FOR RESEARCH*	*R305A170167*		*$91,372*	*$3,086,649*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PARTNERING WITH EARLY INTERVENTION PROVIDERS TO INCREASE IMPLEMENTATIO	84.324	R324B180017				$93,984	$90,351	RESEARCH AND DEVELOPMENT	$706,379,077
ADAPTING AN EVIDENCE-BASED PRACTICE FOR CHILDREN AT-RISK FOR AUTISM FO	*84.324*		*UNIVERSITY OF CALIFORNIA, DAVIS*	*R324A150211*		*-$3,633*	*$90,351*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GEAR UP CCRCS	*84.334*		*SCHOOL DISTRICT OF PHILADELPHIA*	*005/F16*	*$209,097*	*$261,969*	*$366,691*	*OTHER PROGRAMS*	*$14,438,000*
GEAR UP CCRCS	*84.334*		*SCHOOL DISTRICT OF PHILADELPHIA*	*005/F16*		*$104,722*	*$366,691*	*OTHER PROGRAMS*	*$14,438,000*
2017-2018 NWP CRWP-SEED HIGH-NEED SCHOOL GRANT	*84.367*		*NATIONAL WRITING PROJECT*	*92-PA06-B-SEED2017-CRWPPD*		*$2,982*	*$88,305*	*OTHER PROGRAMS*	*$14,438,000*
SDP RESIDENCY PROGRAM - URBAN TEACHING APPRENTICESHIP	*84.367*		*SCHOOL DISTRICT OF PHILADELPHIA*	*582910*		*$85,323*	*$88,305*	*OTHER PROGRAMS*	*$14,438,000*
TEACH GRANT	84.379	P379T182158				$6,538	$18,732	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
								STUDENT FINANCIAL ASSISTANCE	
TEACH GRANT	84.379	P379T192158				$12,194	$18,732	CLUSTER	$270,411,826
INCLUDE ME TO ACHIEVE	*84.412*		*ELWYN FOUNDATION*	*LOA #RTTT CIZ 40*		*$910*	*$14,768*	*OTHER PROGRAMS*	*$14,438,000*
PLN/DREXEL EARLY CHILDHOOD PROGRAM PLANNING	*84.412*		*DREXEL UNIVERSITY*	*117558*		*$13,858*	*$14,768*	*OTHER PROGRAMS*	*$14,438,000*
IASG - IRAQ AND AFGHANISTAN SERVICE GRANT	84.U10	P4D8AI72158				$5,511	$5,511	OTHER PROGRAMS	$14,438,000
THE PENN LITERACY NETWORK EARLY CHILDHOOD LITERACY PROGRAM 2018-2019	*84.U13*	*8722-0619-15*	*PUBLIC HEALTH MANAGEMENT CORPORATION*	*8722-0619-15*		*$103,045*	*$103,045*	*OTHER PROGRAMS*	*$14,438,000*
TOTAL DEPARTMENT OF EDUCATION					$2,150,572	$256,520,982			
DEPARTMENT OF HEALTH AND HUMAN SERVICES									
EXPANDING PEDIATRIC TRAINING IN PREDOCTORAL DENTAL EDUCATION	93.059	D85HP30830				$48,318	$325,077	RESEARCH AND DEVELOPMENT	$706,379,077
EXPANDING PEDIATRIC TRAINING IN PREDOCTORAL DENTAL EDUCATION	93.059	D85HP30830				$276,759	$325,077	RESEARCH AND DEVELOPMENT	$706,379,077
PROGRAM AREA B: TB/HIV	93.067	U2GGH001498				$79,992	$1,279,158	RESEARCH AND DEVELOPMENT	$706,379,077
PROGRAM AREA B: TB/HIV	93.067	U2GGH001498				$1,199,166	$1,279,158	RESEARCH AND DEVELOPMENT	$706,379,077
UPENN TCORS: TOBACCO PRODUCT MESSAGING IN A COMPLEX COMMUNICATION ENVI	93.077	P50CA179546			$31,423	$1,234,076	$3,519,872	RESEARCH AND DEVELOPMENT	$706,379,077
USING EYE TRACKING TO UNDERSTAND AND IMPROVE GRAPHIC WARNING LABEL EFF	93.077	R01CA180929				-$18,101	$3,519,872	RESEARCH AND DEVELOPMENT	$706,379,077
BRAIN AND BEHAVIORAL EFFECTS OF GRAPHIC CIGARETTE WARNING LABELS	93.077	R01DA036028				$27	$3,519,872	RESEARCH AND DEVELOPMENT	$706,379,077
BRAIN AND BEHAVIORAL EFFECTS OF GRAPHIC CIGARETTE WARNING LABELS	93.077	R01DA036028				$427,279	$3,519,872	RESEARCH AND DEVELOPMENT	$706,379,077
EXAMINING THE EFFECTS OF ADVERTISING, PACKAGING AND LABELING ON PERCEP	93.077	U54CA229973			$686,395	$1,487,348	$3,519,872	RESEARCH AND DEVELOPMENT	$706,379,077
OSU CENTER OF EXCELLENCE IN REGULATORY TOBACCO SCIENCE (OSU-CERTS)(PRO	*93.077*		*OHIO STATE UNIVERSITY*	*P50CA180908*		*$6,539*	*$3,519,872*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATING NEW NICOTINE STANDARDS FOR CIGARETTES	*93.077*		*WAKE FOREST UNIVERSITY*	*U54DA031659*		*-$120,466*	*$3,519,872*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATING NEW NICOTINE STANDARDS FOR CIGARETTES	*93.077*		*WAKE FOREST UNIVERSITY*	*U54DA031659*		*$391,408*	*$3,519,872*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATING NEW NICOTINE STANDARDS FOR CIGARETTES	*93.077*		*WAKE FOREST UNIVERSITY*	*U54DA031659*		*$111,762*	*$3,519,872*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMMUNITY COUNTS: PUBLIC HEALTH SURVEILLANCE FOR BLEEDING DISORDERS	*93.080*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U27DD001155*		*$5,281*	*$18,369*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMMUNITY COUNTS: PUBLIC HEALTH SURVEILLANCE FOR BLEEDING DISORDERS	*93.080*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U27DD001155*		*$13,088*	*$18,369*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SOUTHESTERN PENNSYLVANIA ADULT AND PEDIATRIC PREVENTION EPICENTER NETW	93.084	U54CK000485			$18,843	$179,330	$2,088,496	RESEARCH AND DEVELOPMENT	$706,379,077
SOUTHESTERN PENNSYLVANIA ADULT AND PEDIATRIC PREVENTION EPICENTER NETW	93.084	U54CK000485			$51,723	$344,043	$2,088,496	RESEARCH AND DEVELOPMENT	$706,379,077
SOUTHESTERN PENNSYLVANIA ADULT AND PEDIATRIC PREVENTION EPICENTER NETW	93.084	U54CK000485			$51,873	$53,045	$2,088,496	RESEARCH AND DEVELOPMENT	$706,379,077
SOUTHESTERN PENNSYLVANIA ADULT AND PEDIATRIC PREVENTION EPICENTER NETW	93.084	U54CK000485			$471,392	$927,313	$2,088,496	RESEARCH AND DEVELOPMENT	$706,379,077
PATTERNS OF UTILIZATION AND EFFECT OF POST-OPERATIVE ANTIBIOTICS IN CO	*93.084*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*WU-17-160*		*$3,644*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREDICTORS OF RECURRENT MULTIDRUG-RESISTANT UTI AND IMPACT OF FMT ON R	*93.084*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*U54CK000482*		*$265,524*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MICROBIOME AND CLINICAL PREDICTORS OF ENTERIC MDRO ACQUISITION (MARIMB	*93.084*		*RUSH UNIVERSITY*	*U54CK000481*		*-$236*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHLORHEXIDINE GLUCONATE BATHING EVALUATION AND COMPARISON PROJECT (CHE	*93.084*		*RUSH UNIVERSITY*	*U54CK000481*		*$39,704*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF MDRO RISK FROM ERTAPENEM ANTIMICROBIAL PROPHYLAXIS	*93.084*		*DUKE UNIVERSITY MEDICAL CENTER*	*U54CK000483*		*-$4,357*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
POST-SEPSIS OPT-OUT PROTOCOL TO IMPROVE PATIENT OUTCOMES	*93.084*		*DUKE UNIVERSITY MEDICAL CENTER*	*U54CK000483*		*-$504*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MICROBIOME AND CLINICAL PREDICTORS OF ENTERIC MDRO ACQUISITION (MARIMB	*93.084*		*RUSH UNIVERSITY*	*U54CK000481*		*$143,083*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
POST-SEPSIS OPT-OUT PROTOCOL TO IMPROVE PATIENT OUTCOMES	*93.084*		*DUKE UNIVERSITY MEDICAL CENTER*	*U54CK000483*		*$137,907*	*$2,088,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PLASMA EXCHANGE AND GLUCOCORTICOIDS FOR TREATMENT OF ANCA-ASSOCIATED V	93.103	R01FD003516			$8,838	$29,981	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
METHOD VALIDATION AND COMPARISON FOR THE DETECTION OF MYCOTOXINS IN NO	93.103	U18FD005009				$11,532	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
COMPANION ANIMAL AND ANIMAL FOOD DIAGNOSTIC SAMPLE ANALYSIS IN SUPPORT	93.103	U18FD005164				$17,430	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
COMPANION ANIMAL AND ANIMAL FOOD DIAGNOSTIC SAMPLE ANALYSIS IN SUPPORT	93.103	U18FD005164				$18,860	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
ANIMAL AND ANIMAL FOOD DIAGNOSTIC SAMPLE ANALYSIS IN SUPPORT OF FDA VE	93.103	U18FD006158				$13,390	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
ANIMAL AND ANIMAL FOOD DIAGNOSTIC SAMPLE ANALYSIS IN SUPPORT OF FDA VE	93.103	U18FD006158				$37,209	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
ANIMAL AND ANIMAL FOOD DIAGNOSTIC SAMPLE ANALYSIS IN SUPPORT OF FDA VE	93.103	U18FD006158				$9,319	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
METHOD VALIDATION FOR THE DETECTION OF DEOXYNIVALENOL (DON) IN DOG FOO	93.103	U18FD006449				$48,187	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
METHOD VALIDATION FOR THE DETECTION OF CLOSTRIDIUM DIFFICILE A AND B T	93.103	U18FD006450				$35,817	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
BUILDING CAPACITY FOR THE RAPID DETECTION OF LEAD IN BOVINE BLOOD AND	93.103	U18FD006451				$39,783	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
SENSITITRE ANTIMICROBIAL SUSCEPTIBILITY TESTING TO SUPPORT VETLIRN INV	93.103	U18FD006565				$68,950	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
CAPACITY TO STORE CRITICAL DIAGNOSTIC SAMPLES IN SUPPORT OF VET-LIRN A	93.103	U18FD006569				$12,220	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
UTILIZING A BENCHTOP CENTRIFUGE FOR SEPARATION OF SAMPLES FOR TOXICOLO	93.103	U18FD006570				$10,328	$383,491	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF BIOMARKERS FOR TRASTUZUMAB-INDUCED CARDIOTOXICITY	*93.103*		*MASSACHUSETTS GENERAL HOSPITAL*	*R30FD006290*		*$925*	*$383,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NATURAL HISTORY OF FRIEDREICH ATAXIA IN CHILDREN	*93.103*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01FD006029*		*$16,105*	*$383,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF BIOMARKERS FOR TRASTUZUMAB-INDUCED CARDIOTOXICITY	*93.103*		*MASSACHUSETTS GENERAL HOSPITAL*	*R30FD006290*		*$4,911*	*$383,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NATURAL HISTORY OF FRIEDREICH ATAXIA IN CHILDREN	*93.103*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01FD006029*		*$8,544*	*$383,491*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHILADELPHIA INTEGRATED SYSTEM OF CARE EXPANSION (PISCE)	*93.104*		*COMMUNITY BEHAVIORAL HEALTH*	*SUB TO 1U79SM062463*		*$54,016*	*$160,727*	*OTHER PROGRAMS*	*$14,438,000*
PHILADELPHIA INTEGRATED SYSTEM OF CARE EXPANSION (PISCE)	*93.104*		*COMMUNITY BEHAVIORAL HEALTH*	*SUB TO 1U79SM062463*		*$106,711*	*$160,727*	*OTHER PROGRAMS*	*$14,438,000*
AUTISM INTERVENTION RESEARCH NETWORK FOR BEHAVIORAL HEALTH	*93.110*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*UA3MC11055*		*$57,074*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LEADERSHIP EDUCATION IN ADOLESCENT HEALTH (LEAH)	*93.110*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*T71MC30798*		*$9,070*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LEADERSHIP EDUCATION IN ADOLESCENT HEALTH (LEAH)	*93.110*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*T71MC30798-01-00*		*$7,395*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LEADERSHIP EDUCATION IN ADOLESCENT HEALTH (LEAH)	*93.110*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*T71MC30798-01-00*		*$34,380*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HEMOPHILIA TREATMENT CENTERS	*93.110*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*320961-06-01*		*$37,318*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STANDARDIZED COMPREHENSIVE MEDICAL CARE FOR THALASSEMIA PATIENTS: MID-	*93.110*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U1AMC28549-03-00*		*$34,755*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AUTISM INTERVENTION RESEARCH NETWORK FOR BEHAVIORAL HEALTH	*93.110*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*UA3MC11055*		*$234,895*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AWARENESS AND ACCESS TO CARE FOR CHILDREN AND YOUTH WITH EPILEPSY	*93.110*		*NORTHWELL HEALTH*	*H98MC31766*		*$20,254*	*$435,141*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INGOT: A FAMILY OF STATISTICAL COMPUTING ALGORITHMS FOR HYPOTHESIS-DRI	93.113	K01ES026840				$28,956	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE IN ENVIRONMENTAL TOXICOLOGY	93.113	P30ES013508				$83,264	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE IN ENVIRONMENTAL TOXICOLOGY	93.113	P30ES013508				$8,682	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE IN ENVIRONMENTAL TOXICOLOGY	93.113	P30ES013508				$1,646,436	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE IN ENVIRONMENTAL TOXICOLOGY	93.113	P30ES013508				$228,172	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSGENERATIONAL EFFECTS OF ENDOCRINE DISRUPTORS: EPIGENETICS AND PHY	93.113	R01ES023284				-$4,111	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
PROTEIN KINASE C AND LUNG CARCINOGENESIS	93.113	R01ES026023				$406,850	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
PROTEIN KINASE C AND LUNG CARCINOGENESIS	93.113	R01ES026023				$164,180	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS REGULATING THE EARLY STAGES OF UV-INDUCED SKIN CANCER	93.113	R01ES028114				$388,546	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
PRECONCEPTION PHTHALATE EXPOSURE AND OFFSPRING OUTCOMES	93.113	R01ES028206				$600,502	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC ACTIVATION OF NITROARENES AND NRF2-KEAP1	93.113	R01ES029294				$42,538	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
STEER AND TREES SUMMER RESEARCH PROGRAM	93.113	R25ES021649				$88,889	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
SKIN MICROBIOME INTERACTIONS WITH NEONATAL ARYL HYDROCARBON RECEPTOR S	93.113	R56ES030218				$29,656	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSLATIONAL RESEARCH TRAINING PROGRAM IN ENVIRONMENTAL HEALTH SCIENC	93.113	T32ES019851				$10,810	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSLATIONAL RESEARCH TRAINING PROGRAM IN ENVIRONMENTAL HEALTH SCIENC	93.113	T32ES019851				$378,400	$4,252,883	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC SIGNATURES OF DEVELOPMENTAL REPROGRAMMING IN TARGET AND SUR	*93.113*		*BAYLOR COLLEGE OF MEDICINE*	*U01ES026719*		*-$34,164*	*$4,252,883*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EPIGENETIC SIGNATURES OF DEVELOPMENTAL REPROGRAMMING IN TARGET AND SUR	*93.113*		*BAYLOR COLLEGE OF MEDICINE*	*U01ES026719*		*$34,164*	*$4,252,883*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EPIGENETIC SIGNATURES OF DEVELOPMENTAL REPROGRAMMING IN TARGET AND SUR	*93.113*		*BAYLOR COLLEGE OF MEDICINE*	*U01ES026719*		*$124,506*	*$4,252,883*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EPIGENETIC SIGNATURES OF DEVELOPMENTAL REPROGRAMMING IN TARGET AND SUR	*93.113*		*BAYLOR COLLEGE OF MEDICINE*	*U01ES026719*		*$26,607*	*$4,252,883*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMPETENCY BASED OCCUPATIONAL MEDICINE RESIDENCY TRAINING	93.117	D33HP31673				$382,479	$382,479	RESEARCH AND DEVELOPMENT	$706,379,077
CONTRIBUTION OF G0-LIKE CELLS TO MAINTENANCE OF THE ORAL CANCER STEM C	93.121	F32DE024685				$3,570	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE ROLE AND THERAPEUTIC IMPLICATIONS OF ALTERED NOTCH SIGNAL	93.121	F32DE026957				$5,265	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
THE ROLE OF NF-KB IN MESENCHYMAL STEM CELLS DURING DIABETIC WOUND HEAL	93.121	K08DE027129				$94,782	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
FAS CONTROLS EXOSOME-MEDIATED MIRNA TRANSFER IN MSC-BASED THERAPY	93.121	K99DE025915				$17,871	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINING THE FUNCTIONS OF MOLECULARLY DEFINED POPULATIONS OF NOCICE	93.121	K99DE026807				-$7,139	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
FAS CONTROLS EXOSOME-MEDIATED MIRNA TRANSFER IN MSC-BASED THERAPY	93.121	R00DE025915				$1,514	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINING THE FUNCTIONS OF MOLECULARLY DEFINED POPULATIONS OF NOCICE	93.121	R00DE026807				$281,397	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
BACTERIA AND LYMPHOCYTE SUPPRESSION IN PERIODONTITIS	93.121	R01DE006014				$487,274	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR BIOLOGY OF VIRULENCE IN PERIODONTAL DISEASE	93.121	R01DE009517				$269,949	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
P. GINGIVALIS AS A KEYSTONE PATHOGEN	93.121	R01DE015254				$244,666	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DIABETES-ENHANCED EXPERIMENTAL PERIODONTITIS	93.121	R01DE017732				$413,866	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL ANTI-CARIES APPROACH TO MODULATE VIRULENCE OF CARIOGENIC BIOFI	93.121	R01DE018023			$147,132	$478,185	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS FOR IMPAIRED DIABETIC ORAL WOUND HEALING	93.121	R01DE019108				$471,407	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DENDRITIC CELLS AND PERIODONTAL DISEASE	93.121	R01DE021921				$4,889	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DENDRITIC CELLS AND PERIODONTAL DISEASE	93.121	R01DE021921				$269,831	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
LYSOSOMAL MATURATION DURING PERIODONTAL INFECTIONS	93.121	R01DE022465				$41,057	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
A. ACTINOMYCETEMCOMITANS CDT INDUCES PRO-INFLAMMATORY INNATE IMMUNE RE	93.121	R01DE023071				$76,558	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF SKELETAL DEVELOPMENT AND HOMEOSTASIS BY IFT PROTEIN	93.121	R01DE023105				$415,142	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
NEUTROPHIL HOMEOSTASIS AND PERIODONTITIS: NOVEL CONCEPTS AND TREATMENT	93.121	R01DE024153				$493,248	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETICS, DYSBIOSIS AND INFLAMMATION IN EPITHELIAL CELLS	93.121	R01DE024160				$166,205	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF EMBRYONIC PATTERNING AND ADULT STEM CELLS OF ORAL APPEND	93.121	R01DE024570				$408,586	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DEL-1: MOLECULAR AND CELLULAR TARGETS IN PERIODONTITIS	93.121	R01DE024716				$317,517	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
ROLES OF EPITHELIAL SPLICING REGULATORY PROTEINS IN CRANIOFACIAL DEVEL	93.121	R01DE024749			$381,169	$880,143	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED CULTIVATION OF NEW PERIODONTAL PATHOGENS	93.121	R01DE024767			$66,599	$345,729	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
ESTABLISHING LYMPHEDEMA AND FIBROSIS MEASURES IN ORAL CANCER PATIENTS	93.121	R01DE024982			$376,238	$546,532	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
S. MUTANS-C. ALBICANS INTERACTIONS SYNERGIZE THE VIRULENCE OF CARIOGEN	93.121	R01DE025220			$60,192	$314,415	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
BIOFILM ELIMINATION AND CARIES PREVENTION USING MULTIFUNCTIONAL NANOCA	93.121	R01DE025848			$34,083	$413,013	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
DIABETES REVERSAL AND THE SUBGINGIVAL MICROBIOTA	93.121	R01DE026603				$42,533	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
JARID1B-MEDIATED EPIGENETIC REGULATION OF ONCOGENIC SIGNALS IN ORAL CA	93.121	R01DE027185				$318,568	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
ROLES OF KSHV TEGUMENT PROTEINS IN VIRION ASSEMBLY	93.121	R01DE027901			$99,503	$359,341	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
ENZYMATIC APPROACH FOR TARGETING MANNANS/EPS TO DISRUPT CROSS-KINGDOM	93.121	R01DE027970				$270,137	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION OF MESENCHYMAL STEM CELL TRANSPLANTATION IN AGIN	93.121	R03DE028026				$10,020	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR AND ANTIBODY DETECTION OF ZIKA VIRUS IN SALIVA AT THE POINT	93.121	R21DE026700			$24,500	$157,270	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
MISLEADING MESSAGES, AMBIVALENT ATTITUDES: TEEN'S HEALTH BELIEFS ON SP	93.121	R21DE028414			$15,111	$62,469	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
A RANDOMIZED TRIAL OF COGNITIVE VS. BEHAVIORAL INCENTIVES TO INDUCE SU	93.121	R34DE025426				$42,405	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
LOCAL ENDOGENOUS REGULATORS OF FUNCTIONAL IMMUNE PLASTICITY IN THE PER	93.121	R37DE026152			$60,530	$282,084	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
JARID1B-MEDIATED EPIGENETIC REGULATION OF ONCOGENIC SIGNALS IN ORAL CA	93.121	R56DE027185				$266	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
ARMOR TRIAL	93.121	U01DE027637				$184,580	$9,870,532	RESEARCH AND DEVELOPMENT	$706,379,077
ORAL HYGIENE, PERIODONTAL DISEASE AND INFECTIVE ENDOCARDITIS	*93.121*		*CAROLINAS HEALTH CARE SYSTEM*	*R01DE023375*		*$26,457*	*$9,870,532*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NEW MODEL OF REGENERATIVE WOUND HEALING VIA INFLAMMATION-MODULATING	*93.121*		*LANKENAU INSTITUTE FOR MEDICAL RESEARCH*	*R01DE021104*		*$166,205*	*$9,870,532*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TARGETING SUCCINATE SIGNALING IMPEDES PERIODONTITIS PROGRESSION	*93.121*		*NEW YORK UNIVERSITY*	*R01DE027074*		*$60,562*	*$9,870,532*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL REGISTRY OF DENTAL OUTCOMES IN HEAD AND NECK CANCER PATIENTS	*93.121*		*CAROLINAS HEALTH CARE SYSTEM*	*U01DE022939*		*$223,221*	*$9,870,532*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ORAL HYGIENE, PERIODONTAL DISEASE AND INFECTIVE ENDOCARDITIS	*93.121*		*CAROLINAS HEALTH CARE SYSTEM*	*R01DE023375*		*$55,957*	*$9,870,532*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DYSBIOSIS OF THE SUBGINGIVAL MICROBIOME: HOST-MICROBIAL METATRANSCRIPT	*93.121*		*UNIVERSITY OF FLORIDA*	*R01DE021553*		*$44,910*	*$9,870,532*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISCOVERING A SMALL MOLECULE THAT TARGETS THE KSHV PROCESSIVITY FACTOR	*93.121*		*FOX CHASE CHEMICAL DIVERSITY CENTER*	*R41DE028489*		*$108,075*	*$9,870,532*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATING THE IMPLEMENTATION OF THE LIVE DONOR CHAMPION PROGRAM	*93.134*		*JOHNS HOPKINS UNIVERSITY*	*R39OT31103*		*$33,960*	*$33,960*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053			$13,224	$13,224	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053			$173,708	$220,939	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				$4,627	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				-$12,145	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				$250,292	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				$69,243	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				$31,792	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				$532,964	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				$105,008	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA PREVENTION RESEARCH CENTER	93.135	U48DP005053				$35,018	$1,251,309	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECT OF ASPIRIN ON BIOMARKERS OF BARRETT'S ESOPHAGUS AFTER SUCCESSFU	*93.135*		*MD ANDERSON CANCER CENTER*	*HHSN26120120034I*		*$347*	*$1,251,309*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RAPID INITIATION OF BUPRENORPHINE/NALOXONE TO OPTIMIZE MAT UTILIZATION	93.136	R01CE003049				$174,014	$565,029	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN VIOLENCE AND INJURY CONTROL RESEARCH CENTER	93.136	R49CE002474			$1,251	$15,140	$565,029	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN VIOLENCE AND INJURY CONTROL RESEARCH CENTER	93.136	R49CE002474			$25,909	$49,741	$565,029	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN VIOLENCE AND INJURY CONTROL RESEARCH CENTER	93.136	R49CE002474				$138,285	$565,029	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN VIOLENCE AND INJURY CONTROL RESEARCH CENTER	93.136	R49CE002474				$166,488	$565,029	RESEARCH AND DEVELOPMENT	$706,379,077
MICHIGAN YOUTH VIOLENCE PREVENTION CENTER COMMUNITY ENGAGEMENT AND REV	*93.136*		*UNIVERSITY OF MICHIGAN*	*U01CE002698*		*$21,361*	*$565,029*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASBESTOS FATE, EXPOSURE, REMEDIATION, AND ADVERSE HEALTH EFFECTS	93.143	P42ES023720				$21,136	$2,033,760	RESEARCH AND DEVELOPMENT	$706,379,077
ASBESTOS FATE, EXPOSURE, REMEDIATION, AND ADVERSE HEALTH EFFECTS	93.143	P42ES023720				$2,012,624	$2,033,760	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER OF EXCELLENCE FOR DIVERSITY IN HEALTH EDUCATION AND RESEARCH	93.157	D34HP24459				-$5,420	-$5,420	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE CLINICAL ONTOLOGIES OF LOSS-OF-FUNCTION AND GAIN-OF-	93.172	F30HG010442				$9,561	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
GENOMIC AND FUNCTIONAL ANALYSIS OF ACTIVE DNA DEMETHYLATION IN MAMMAL	93.172	R00HG007982				$169,733	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
GENOMIC AND CELLULAR VARIATION FROM SINGLE MOLECULES TO SINGLE CELLS	93.172	R01HG006137			$212,451	$443,487	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
PATIENT PREFERENCES FOR COLLECTING AND REPURPOSING GENETIC, CONSUMER A	93.172	R01HG009655				$369,888	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
NETWORK-BASED ALGORITHMS FOR TARGET IDENTIFICATION AND DRUG REPOSITION	93.172	R01HG010067			$71,614	$312,770	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
APOBEC-COUPLED EPIGENETIC SEQUENCING	93.172	R21HG009545				$236,029	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
DIVERSITY ACTION PLAN AT THE UNIVERSITY OF PENNSYLVANIA (PENN) GENOMIC	93.172	R25HG010323				$83,345	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR SUB-CELLULAR GENOMICS	93.172	RM1HG010023			$177,524	$1,489,651	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING GRANT IN COMPUTATIONAL BIOLOGY	93.172	T32HG000046				$240,073	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING GRANT IN COMPUTATIONAL BIOLOGY	93.172	T32HG000046				$25,016	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
POSTDOCTORAL TRAINING PROGRAM IN GENOMIC MEDICINE	93.172	T32HG009495				-$190	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
POSTDOCTORAL TRAINING PROGRAM IN GENOMIC MEDICINE	93.172	T32HG009495				$261,114	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
POSTDOCTORAL TRAINING PROGRAM IN GENOMIC MEDICINE	93.172	T32HG009495				$15,076	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN POSTDOCTORAL TRAINING PROGRAM IN THE ETHICAL, LEGAL AND SOCIA	93.172	T32HG009496				$1,425	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN POSTDOCTORAL TRAINING PROGRAM IN THE ETHICAL, LEGAL AND SOCIA	93.172	T32HG009496				$183,601	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN POSTDOCTORAL TRAINING PROGRAM IN THE ETHICAL, LEGAL AND SOCIA	93.172	T32HG009496				$47,220	$4,345,852	RESEARCH AND DEVELOPMENT	$706,379,077
APPLYING GENOMIC SEQUENCING IN PEDIATRICS	*93.172*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*960033RUSB*		*-$8,038*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENZYME-LESS DNA BASE DISCRIMINATION USING SOLID-STATE NANOPORES WITH H	*93.172*		*COLUMBIA UNIVERSITY*	*1 (GG012559)*		*$56,706*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR PHOTOGENOMICS	*93.172*		*ALTIUS INSTITUTE FOR BIOMEDICAL SCIENCES*	*RM1HG007743*		*$170*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ARRAYED SINGLE-CELL READOUT OF POOLED GENETIC PERTURBATION LIBRARIES	*93.172*		*BROAD INSTITUTE OF MIT AND HARVARD*	*R01HG009283*		*-$34,343*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR DYNAMIC RNA EPITRANSCRIPTOMES	*93.172*		*UNIVERSITY OF CHICAGO*	*RM1HG008935*		*-$53,168*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR DYNAMIC RNA EPITRANSCRIPTOMES	*93.172*		*UNIVERSITY OF CHICAGO*	*RM1HG008935*		*$121,641*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR PHOTOGENOMICS	*93.172*		*ALTIUS INSTITUTE FOR BIOMEDICAL SCIENCES*	*RM1HG007743*		*$252,372*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ARRAYED SINGLE-CELL READOUT OF POOLED GENETIC PERTURBATION LIBRARIES	*93.172*		*BROAD INSTITUTE OF MIT AND HARVARD*	*R01HG009283*		*$82,915*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REPORTING ADULT-ONSET GENOMIC RESULTS TO PEDIATRIC BIOBANK PARTICIPANT	*93.172*		*GEISINGER HEALTH SYSTEM*	*R01HG009671*		*$39,798*	*$4,345,852*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ALTERED IONOTROPIC RECEPTOR MATURATION IN THE IMPAIRED AUDITORY CRITIC	93.173	F31DC016192				$43,849	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
THE FUNCTION OF CORTICAL GAIN ADAPTATION IN DETECTING SOUNDS IN NOISE	93.173	F31DC016524				$44,022	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
STATE-DEPENDENT OLFACTORY INFORMATION PROCESSING	93.173	F31DC017054				$6,204	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL REPRESENTATIONS OF SPATIAL DIRECTIONS IN LANGUAGE, SCHEMAS, AND	93.173	F32DC015203				$32,146	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
CORTICAL MECHANISMS OF AUDITORY-VOCAL INTERACTION	93.173	K08DC014299				$229,855	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
OLFACTORY CODING IN MAMMALS	93.173	R01DC006213			$62,876	$625,117	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
GENOMIC ARCHITECTURE OF SHH DEPENDENT COCHLEAR MORPHOGENESIS	93.173	R01DC006254				$197,911	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
LINGUISTIC AND NONLINGUISTIC FUNCTIONS OF FRONTAL CORTEX	93.173	R01DC009209				$356,167	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
REPRESENTATIONS OF SOUND PROCESSING IN THE AUDITORY CORTEX	93.173	R01DC009224				$222,049	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
PERCEPTUAL CODING AND MODULATION OF ODOR OBJECTS IN THE HUMAN BRAIN	93.173	R01DC010014			$69,355	$333,571	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
FIGURATIVE LANGUAGE IN APHASIC AND HEALTH PARTICIPANTS	93.173	R01DC012511				$19,705	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF CALHM1 ION CHANNEL IN TASTE TRANSDUCTION	93.173	R01DC012538				$5,400	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
TMS AS A BIOMARKER OF PLASTICITY IN APHASIA RECOVERY	93.173	R01DC012780			$31,907	$162,230	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING OF SENSORY AXONS IN THE OLFACTORY BULB	93.173	R01DC012854				$2,880	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING OF SENSORY AXONS IN THE OLFACTORY BULB	93.173	R01DC012854				$529,940	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
SPATIOTEMPORAL MECHANISMS OF OLFACTORY PROCESSING IN THE HUMAN BRAIN	93.173	R01DC013243			$22,843	$159,444	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
CHRONIC RHINOSINUSITIS AND GENETICS OF BITTER TASTE RECEPTORS	93.173	R01DC013588			$177,873	$264,803	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-SCALE STUDY OF AUDITORY SCENE ANALYSIS IN THE VENTRAL AUDITORY P	93.173	R01DC013961			$191,658	$597,079	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL REGULATED NANOHYDROGEL DELIVERY SYSTEM FOR TARGETED INNER EAR	93.173	R01DC014464				$384,155	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
CIRCUIT MECHANISMS OF SOUND PROCESSING AND DETECTION IN THE AUDITORY P	93.173	R01DC014479				$450,663	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
CONCEPTUAL COMBINATION	93.173	R01DC015359			$40,359	$530,224	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
NEURONAL CIRCUITS SUPPORTING LEARNING-DRIVEN CHANGES IN AUDITORY PERCE	93.173	R01DC015527				$557,277	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
BITTER AND SWEET TASTE RECEPTOR PHYSIOLOGY IN AIRWAY CILIATED CELLS	93.173	R01DC016309				$409,419	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSCRANIAL MAGNETIC STIMULATION FOR APHASIA: EFFICACY AND NEURAL BAS	93.173	R01DC016800				$360,948	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
SWEET RECEPTOR (T1R2/3) SIGNALING IN THE UPPER AIRWAY AND REGULATION O	93.173	R03DC013862				-$44	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
CONFERENCES FOR ADVANCES AND PERSPECTIVES IN AUDITORY NEUROPHYSIOLOGY	93.173	R13DC010549				$10,385	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING THE MOLECULAR DETERMINANTS OF SELECTIVE AXONAL FASCICULATI	93.173	R21DC015885				$78,867	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
CROSS-DISCIPLINARY TRAINING IN COMPUTATIONAL APPROACHES TO THE NEUROSC	93.173	T32DC016903				$173,685	$7,158,355	RESEARCH AND DEVELOPMENT	$706,379,077
OBJECTIVE EVALUATION OF CONDUCTIVE OLFACTORY LOSSES AND NASAL OBSTRUCT	*93.173*		*OHIO STATE UNIVERSITY*	*R01C013626*		*$16,875*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SEMANTIC MEMORY AND LANGUAGE LEARNING IN ALZHEIMER'S DISEASE AND SEMAN	*93.173*		*TEMPLE UNIVERSITY*	*R01DC013063*		*$75,507*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRINCIPLES OF OLFACTORY REWARD PROCESSING IN THE HUMAN BRAIN	*93.173*		*NORTHWESTERN UNIVERSITY*	*60044484 PENN*		*$2,758*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THEORY-DRIVEN TREATMENT OF LANGUAGE AND COGNITIVE PROCESSES IN APHASIA	*93.173*		*TEMPLE UNIVERSITY*	*253763-UPENN*		*$39,468*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MAPPING AND FUNCTION OF ODORANT RECEPTORS IN THE HUMAN OLFACTORY SYSTE	*93.173*		*NORTHWESTERN UNIVERSITY*	*R01DC014426*		*$60,681*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRINCIPLES OF OLFACTORY REWARD PROCESSING IN THE HUMAN BRAIN	*93.173*		*NORTHWESTERN UNIVERSITY*	*60044484 PENN*		*$86,044*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OLFACTORY MEMORY ACQUISITION, CONSOLIDATION AND RECALL	*93.173*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*R01DC005991*		*$22,719*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE FUNCTION OF RESPIRATORY-LINKED LOCAL FIELD POTENTIAL OSCILLATIONS	*93.173*		*NORTHWESTERN UNIVERSITY*	*R01DC016364*		*$3,126*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PERSONAL VARIATION IN THE TASTE OF PEDIATRIC MEDICINES, SIDE EFFECTS A	*93.173*		*MONELL CHEMICAL SENSES CENTER*	*R01DC011287*		*$16,434*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EARLY DETECTION AND TREATMENT OF EMERGING COGNITIVE-LINGUISTIC IMPAIRM	*93.173*		*TEMPLE UNIVERSITY*	*R01DC013063*		*$46,792*	*$7,158,355*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NATIONAL RESEARCH SERVICE AWARD	93.186	2-T32HP10026-18-00				-$609	$426,605	RESEARCH AND DEVELOPMENT	$706,379,077
NATIONAL RESEARCH SERVICE AWARD	93.186	T32HP10026				-$1,568	$426,605	RESEARCH AND DEVELOPMENT	$706,379,077
NATIONAL RESEARCH SERVICE AWARD	93.186	T32HP10026				$16,362	$426,605	RESEARCH AND DEVELOPMENT	$706,379,077
NATIONAL RESEARCH SERVICE AWARD	93.186	T32HP10026				$412,420	$426,605	RESEARCH AND DEVELOPMENT	$706,379,077
PRAGMATIC TRIALS IN MAINTENANCE HEMODIALYSIS	93.213	UH3DK102384			$122,700	$357,327	$569,384	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMARY PALLIATIVE CARE FOR EMERGENCY MEDICINE	*93.213*		*NEW YORK UNIVERSITY*	*UG3AT009844*		*$19,750*	*$569,384*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTISCALE MODELING OF FACET CAPSULE MECHANOBIOLOGY	*93.213*		*UNIVERSITY OF MINNESOTA*	*U01AT010326*		*$188,940*	*$569,384*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRIMARY PALLIATIVE CARE FOR EMERGENCY MEDICINE	*93.213*		*NEW YORK UNIVERSITY*	*UG3AT009844*		*$3,367*	*$569,384*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FAMILY PLANNING SERVICE	*93.217*		*FAMILY HEALTH COUNCIL OF CENTRAL PA*	*5 FPHPA03160-02-00*		*$97,623*	*$97,623*	*OTHER PROGRAMS*	*$14,438,000*
POSTDOCTORAL TRAINING IN HEALTH SERVICES RESEARCH	93.225	T32HS026116				$272,943	$272,943	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF HOME CARE ENVIRONMENTS FOR DIVERSE ELDERS	93.226	1-K99-HS-022406-01				-$198	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF ALTERNATIVE LEVELS OF STROKE	93.226	1-R01-HS-018540-01				-$3,118	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF INTERVENTIONS FOR DEPRESSION IN THE COMMU	93.226	K02HS022124				$29,690	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
LEARNING HEALTH SYSTEMS MENTORED CAREER DEVELOPMENT PROGRAM	93.226	K12HS026372				$164,849	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
PROSPECTIVE COMPARATIVE EFFECTIVENESS TRIAL FOR MALIGNANT BOWEL OBSTRU	93.226	R01HS021491			$21,728	$142,746	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
THE GEOGRAPHY OF ACUTE CARE	93.226	R01HS023614			$23,715	$74,921	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
MARKET AND ORGANIZATION IMPACT ON MEDICAL TECHNOLOGY DIFFUSION: OUTCOM	93.226	R01HS023615			$22,720	$211,531	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE AND COST EFFECTIVENESS OF STRATEGIES TO LIMIT MRSA IN LONG	93.226	R01HS023794			$262,126	$522,985	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
PROVIDER CHARACTERISTICS AND QUALITY OF PROSTATE CANCER CARE	93.226	R01HS024106				$241,630	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
THE EFFECTIVENESS OF POST-ACUTE CARE	93.226	R01HS024266			$21,072	$122,609	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
NICU PERFORMANCE: MISSED NURSING CARE AND INFANT OUTCOMES	93.226	R01HS024918			$131,146	$415,645	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
THE IMPACT OF ACOS ON DISPARITIES	93.226	R01HS025184				$210,956	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
EXAMINATION OF READMISSIONS AFTER CARDIAC SURGERY IN PENNSYLVANIA: DEV	93.226	R03HS025038				$13,327	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
ELECTRONIC HEALTH RECORD USE, WORK ENVIRONMENTS & PATIENT OUTCOMES	93.226	R21HS023805				$67,048	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
PHYSICIAN CONSOLIDATION AND INCENTIVES IN CHILDBIRTH	93.226	R36HS026397				$38,389	$2,570,939	RESEARCH AND DEVELOPMENT	$706,379,077
SOARING: STUDYING OLDER ADULTS AND RESEARCHING THEIR INFORMATION NEEDS	*93.226*		*UNIVERSITY OF WASHINGTON*	*R01HS022106*		*$6,379*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATIENT SAFETY IN NURSING HOMES: A CLOSER LOOK AT IMPROVEMENT	*93.226*		*UNIVERSITY OF CHICAGO*	*R01HS024967*		*$4,497*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INFORMATION NEEDS OF HOMECARE NURSES DURING ADMISSION AND CARE PLANNIN	*93.226*		*DREXEL UNIVERSITY*	*232683*		*$17,377*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREDICTING AND PREVENTING PEDIATRIC HOSPITAL READMISSIONS	*93.226*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3210810519*		*$28,749*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATIENT SAFETY IN NURSING HOMES: A CLOSER LOOK AT IMPROVEMENT	*93.226*		*UNIVERSITY OF CHICAGO*	*R01HS024967*		*$54,434*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SAFETY OUTCOMES OF OBESE RESIDENTS OF US NURSING HOMES	*93.226*		*UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES*	*R01HS025703*		*$46,453*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPACT OF PEDIATRIC TRAUMA CENTERS ON OUTCOMES OF INJURED CHILDREN	*93.226*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HS023806*		*$40,231*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE RESEARCH, DEVELOPMENT, AND EVALUATION OF CONSUMERS' ASSESSMENTS OF	*93.226*		*YALE UNIVERSITY*	*U18HS016978*		*$51,359*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DIRECT AND INDIRECT EFFECTS OF DIRECT-TO-CONSUMER ADVERTISING	*93.226*		*CORNELL UNIVERSITY*	*R01HS025983*		*$29,625*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTEGRATING COSTS INTO SHARED DECISION-MAKING FOR HEART FAILURE WITH R	*93.226*		*EMORY UNIVERSITY*	*R01HS026081*		*$28,792*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPACT OF PEDIATRIC TRAUMA CENTERS ON OUTCOMES OF INJURED CHILDREN	*93.226*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HS023806*		*$4,544*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SAFETY OUTCOMES OF OBESE RESIDENTS OF US NURSING HOMES	*93.226*		*UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES*	*R01HS025703*		*$5,489*	*$2,570,939*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UPPER AIRWAY CONTROL DURING DISRUPTED AND MISALIGNED SLEEP	93.233	1-R01-HL-116508-01A1				-$133	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
INDIVIDUAL DIFFERENCES IN OBSTRUCTIVE SLEEP APNEA	93.233	P01HL094307			$353,730	$2,128,920	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
PREMOTOR CONTROL OF UPPER AIRWAY AND REM SLEEP ATONIA	93.233	R01HL047600				$363,696	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROMETABOLIC ASSESSMENT OF OBSTRUCTIVE SLEEP APNEA BY MRI	93.233	R01HL122754				$261,721	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC REGULATION OF WAKEFULNESS	93.233	R01HL123331			$23,981	$423,560	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
SHIFT WORK SLEEP LOSS: LOCUS COERULEUS NEURON SENESCENCE AND DEGENERAT	93.233	R01HL124576				$26,311	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
APPROACHES TO GENETIC HETEROGENEITY OF OBSTRUCTIVE SLEEP APNEA	93.233	R01HL134015			$375,152	$845,207	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
ELUCIDATION OF GENETIC EFFECTS ON SLEEP AND CIRCADIAN TRAITS	93.233	R01HL143790			$161,380	$434,847	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
USE OF TELEMEDICINE TO PROMOTE SLEEP MEDICINE EDUCATION IN HEALTHCARE	93.233	R25HL120874				$188,023	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN RESPIRATORY NEUROBIOLOGY & SLEEP	93.233	T32HL007713				$540,044	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN SLEEP AND SLEEP DISORDERS	93.233	T32HL007953				$85	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN SLEEP AND SLEEP DISORDERS	93.233	T32HL007953				$35,556	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN SLEEP AND SLEEP DISORDERS	93.233	T32HL007953				$385,272	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-INSTITUTIONAL TRAINING IN GENETIC/GENOMIC APPROACHES TO SLEEP DI	93.233	T32HL110952			$184,447	$186,914	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
ICOMPARE-CCC	93.233	U01HL125388			-$8,000	$4,800	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
ICOMPARE-CCC	93.233	U01HL125388			$70,672	$73,171	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
ICOMPARE-CCC	93.233	U01HL125388			$232,338	$864,845	$6,762,839	RESEARCH AND DEVELOPMENT	$706,379,077
INDIVIDUAL, AGE-DEPENDENT DIFFERENCES IN ACC-MEDIATED ADAPTIVE DECISIO	93.242	1-R01-MH-098899-01				$1,614	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DOWNMODULATING MONOCYTE/MACROPHAGE ACTIVATION FOR HAND	93.242	2-R01-MH-061139-11A1				-$92,322	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
STUDYING EPIGENETIC PATHWAYS IN BRAIN FUNCTION AND SOCIAL BEHAVIOR USI	93.242	DP2MH107055				$748,993	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL CONSTRAINTS ON LARGE-SCALE BRAIN ACTIVITY IN PSYCHOSIS ASSO	93.242	F30MH118871				$25,907	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
LOCALIZING ABNORMALITIES IN GOAL-DIRECTED BEHAVIOR TO STRIATAL CIRCUIT	93.242	F31MH114528				$31,443	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
A PROSPECTIVE EXAMINATION OF EPIGENETIC CORRELATES OF DEPRESSION AND T	93.242	F31MH114609				$43,895	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
MAPPING NORMAL DEVELOPMENTAL COUPLING BETWEEN STRUCTURAL AND FUNCTIONA	93.242	F31MH115709				$39,803	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE PAYER ROLE IN THE IMPLEMENTATION OF EBP IN THE PUBLI	93.242	F32MH103960				-$490	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR-GENETIC ANALYSIS OF HABITUATION LEARNING	93.242	F32MH107139				$9,612	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING COMMUNITY MENTAL HEALTH SERVICES FOR ADULTS WITH ASD AND CO-	93.242	F32MH111166				$58,464	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM OF LITHIUM IN NEUROGENESIS AND BEHAVIOR	93.242	F32MH113334				$57,579	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF DORSOMEDIAL STRIATUM LOW-THRESHOLD SPIKING INTERNEURONS IN GOA	93.242	F32MH114506				$59,082	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MODEL BEHAVIOR IN ZEBRAFISH: CHARACTERIZATION OF THE STARTLE RESPONSE	93.242	F32MH115434				$62,503	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL MECHANISMS OF PATHOLOGICAL SELFISHNESS	93.242	F32MH115661				$53,994	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROCOGNITIVE VARIABILITY IN SCHIZOPHRENIA AND YOUTH AT-RISK FOR PSYC	93.242	K01MH102609				$48,054	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PTSD AND PREGNANCY: PSYCHOPHYSIOLOGY, RESPONSE TO TREATMENT & PREGNANC	93.242	K23MH102360				$105,989	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MICROENTERPRISE TO IMPROVE CHILD DEVELOPMENT IN HOUSEHOLDS EXPOSED TO	93.242	K23MH106362			$7,980	$166,678	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PSYCHOPHYSIOLOGY, NEUROSTEROIDS, AND STRESS IN PREMENSTRUAL DYSPHORIC	93.242	K23MH107831				$179,977	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DELINEATING NEUROBIOLOGICAL HETEROGENEITY IN INTERNALIZING SYMPTOMS US	93.242	K99MH117274				$101,919	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PENN MENTAL HEALTH AIDS RESEARCH CENTER	93.242	P30MH097488			-$1,456	-$1,456	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PENN MENTAL HEALTH AIDS RESEARCH CENTER	93.242	P30MH097488			$44,401	$551,171	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PENN MENTAL HEALTH AIDS RESEARCH CENTER	93.242	P30MH097488			$224,423	$1,132,291	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PENN MENTAL HEALTH AIDS RESEARCH CENTER	93.242	P30MH097488				-$873	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENTAL TRAJECTORIES OF NEGATIVE SYMPTOMS IN SCHIZOPHRENIA	93.242	P50MH096891				-$5,404	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PREPUBERTAL STRESS, WINDOWS OF RISK & SEX BIAS FOR AFFECTIVE DISTURBAN	93.242	P50MH099910			$14,161	$145,442	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
PREPUBERTAL STRESS, WINDOWS OF RISK & SEX BIAS FOR AFFECTIVE DISTURBAN	93.242	P50MH099910				$31,586	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSFORMING MENTAL HEALTH DELIVERY THROUGH BEHAVIORAL ECONOMICS AND I	93.242	P50MH113840			$27,768	$28,798	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSFORMING MENTAL HEALTH DELIVERY THROUGH BEHAVIORAL ECONOMICS AND I	93.242	P50MH113840			$37,775	$1,373,482	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
THE HISTONE CODE OF NEURONAL FUNCTION AND DYSFUNCTION	93.242	R00MH111836				$242,666	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
1/3-A NEUROBEHAVIORAL FAMILY STUDY OF SCHIZOPHRENIA	93.242	R01MH042191				$97,813	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ASSOCIATIVE PROCESSES IN EPISODIC MEMORY	93.242	R01MH055687				$452,846	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ELECTROPHYSIOLOGY OF HUMAN SPATIAL COGNITION	93.242	R01MH061975			$99,356	$191,624	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SRC MEDIATES MOLECULAR ALTERATIONS LEADING TO NMDAR HYPOFUNCTION IN SC	93.242	R01MH075916			$178,737	$352,359	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
BAR PROTEINS LINKING MEMBRANE AND CYTOSKELETON DYNAMICS	93.242	R01MH087950				$482,967	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ANIMAL MODEL OF GENETICS AND SOCIAL BEHAVIOR IN AUTISM SPECTRUM DISORD	93.242	R01MH096875			$29,552	$29,552	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ANIMAL MODEL OF GENETICS AND SOCIAL BEHAVIOR IN AUTISM SPECTRUM DISORD	93.242	R01MH096875				-$48,950	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
STRESS AND INFLAMMATION IN THE PATHOPHYSIOLOGY OF LATE-LIFE DEPRESSION	93.242	R01MH098260			$37,598	$346,526	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
OLIGODENDROCYTE DAMAGE AND DYSFUNCTION IN HIV ASSOCIATED NEUROCOGNITIV	93.242	R01MH098742			$229,681	$522,463	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
OLFACTORY NEUROIMAGING MARKERS OF HEIGHTENED DEVELOPMENTAL RISK FOR SC	93.242	R01MH099156				$17,594	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF THE STRESS RESPONSE	93.242	R01MH100319				$9,051	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF NEUROGENESIS AND BEHAVIOR BY GSK-3	93.242	R01MH100923				$45,999	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
QUANTITATIVE BEHAVIORAL AND IMAGING PHENOTYPES OF AMOTIVATION IN SCHIZ	93.242	R01MH101111				-$4,145	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
RECORDING NEURAL ACTIVITIES ONTO DNA	93.242	R01MH103910			$1,044,487	$1,460,698	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
OXIDATIVE STRESS, IMMUNE ACTIVATION, AND THERAPEUTIC TARGETING IN HIV/	93.242	R01MH104134			$37,030	$258,551	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
CIRCUITRY MECHANISMS UNDERLYING NORMAL AND ABERRANT ADULT HIPPOCAMPAL	93.242	R01MH105128				$362,743	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
RCT OF TEACHTOWN IN AUTISM SUPPORT CLASSROOMS: INNOVATION AND EXNOVATI	93.242	R01MH106175				$587,631	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SECOISOLARICIRESINOL DIGLUCOSIDE TO MITIGATE INFLAMMATION AND TOXICITY	93.242	R01MH106967			$297,922	$628,781	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MULTIMODAL BRAIN MATURATION INDICES MODULATING PSYCHOPATHOLOGY AND NUE	93.242	R01MH107235				$181,644	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING THE EMERGENCY DEPARTMENT MANAGEMENT OF DELIBERATE SELF-HARM	93.242	R01MH107452			$373,518	$1,198,953	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL MECHANISMS UNDERLYING THE ANTIDEPRESSANT EFFECTS OF SLEEP DEPRI	93.242	R01MH107571				$649,679	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
LONGITUDINAL MULTI-MODAL NEUROIMAGING OF IRRITABILITY IN YOUTH	93.242	R01MH107703				$676,567	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
LONGITUDINAL MULTI-MODAL NEUROIMAGING OF IRRITABILITY IN YOUTH	93.242	R01MH107703				$6,783	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INCREASING ACCURACY AND EFFICIENCY OF FIDELITY MEASUREMENT IN CBT	93.242	R01MH108551			$28,296	$782,819	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS REGULATING COMPLEX SOCIAL BEHAVIOR	93.242	R01MH108627			$344,382	$940,790	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
RETROTRANSPOSONS IN SCHIZOPHRENIA	93.242	R01MH109260				$674,134	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF PERK HAPLOTYPES IN HIV-ASSOCIATED NEUROCOGNITIVE DISORDERS	93.242	R01MH109382			$114,693	$806,473	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
CELLULAR AND MOLECULAR ANALYSIS OF STARTLE MODULATION	93.242	R01MH109498				$435,581	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NEURONAL CIRNA CHARACTERIZATION AND IMPACT UPON CHANNEL FUNCTIONING	93.242	R01MH110180				$826,219	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL NEURAL CIRCUIT BIOMARKERS OF DEPRESSION RESPONSE TO COMPUTER-AUG	93.242	R01MH110939				$494,413	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF HEME OXYGENASE IN HIV/HAND PATHOGENESIS	93.242	R01MH111389			$48,560	$414,459	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SECONDARY DISTRIBUTION OF HIV SELF-TESTS: AN INNOVATIVE STRATEGY FOR P	93.242	R01MH111602			$634,540	$976,825	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE EPIGENETIC MECHANISMS UNDERLYING STRESS-RELATED NEUR	93.242	R01MH111719				$482,876	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NON-INVASIVE NEUROMODULATION MECHANISMS AND DOSE/RESPONSE METRICS	93.242	R01MH111886				$997,267	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MAPPING HETEROGENEITY OF NEUROANATOMICAL IMAGING SIGNATURES OF PSYCHOS	93.242	R01MH112070			$86,500	$616,842	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INTER-MODAL COUPLING IMAGE ANALYTICS	93.242	R01MH112847				$417,419	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
LONGITUDINAL MAPPING OF NETWORK DEVELOPMENT UNDERLYING EXECUTIVE DYSFU	93.242	R01MH113550				$754,930	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
LONGITUDINAL MAPPING OF NETWORK DEVELOPMENT UNDERLYING EXECUTIVE DYSFU	93.242	R01MH113550				$6,461	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ADOLESCENT NEURODEVELOPMENT AND IMPAIRED INTRINSIC MOTIVATION IN PSYCH	93.242	R01MH113565				$418,821	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR AND CIRCUIT MECHANISMS OF NEUREXIN1-MEDIATED GOAL-DIRECTED D	93.242	R01MH115030				$658,674	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
CRCNS: DECISION MAKING IN CHANGING ENVIRONMENTS	93.242	R01MH115557			$204,272	$520,362	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS IN MHEALTH TO SIGNAL INTERVENTIONAL NEEDS FOR MENT	93.242	R01MH116884			$807	$51,145	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
CREATING AN ADAPTIVE SCREENING TOOL FOR DETECTING NEUROCOGNITIVE DEFIC	93.242	R01MH117014				$73,261	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
HARMONIZATION FOR MULTISITE CONNECTOMICS: PARSING HETEROGENEITY AND CR	93.242	R01MH117807				$9,682	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
EVOLUTION OF THE LINKED ARCHITECTURE OF NETWORK CONTROL AND EXECUTIVE	93.242	R21MH106799				$20,389	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATING ORGANIZATIONAL AND PSYCHOLOGICAL THEORIES TO PREDICT IMPLE	93.242	R21MH106887				$27,853	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ABERRANT PARANASAL SINUS DEVELOPMENT IN SCHIZOPHRENIA	93.242	R21MH108895				$26,521	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SOFTWARE TO MEASURE CONSUMER PREFERENCES IN THE TREATMENT OF DEPRESSIO	93.242	R21MH108996				$169,587	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INTERVENTION MAPPING TO DEVELOP MULTI-LEVEL IMPLEMENTATION STRATEGIES	93.242	R21MH109878				$7,538	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DECONSTRUCTING THE HYPOTHALMIC ONTOGENY AND PLASTICITY VIA CLONAL ANAL	93.242	R21MH110160				$118,373	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF ELECTRONIC QUALITY REPORTING SYSTEM FOR BEHAVIORAL ACTI	93.242	R21MH116362			$5,821	$172,634	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF ANTIRETROVIRAL DRUGS ON HUMAN NEURAL CELL TYPES IN A 3D MOD	93.242	R21MH118037				$141,633	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
A NANOMAGNETIC PLATFORM TECHNOLOGY TO CHARACTERIZE TRAUMATIC BRAIN INJ	93.242	R21MH118170				$52,873	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
EDUCATING PHYSICIAN SCIENTISTS IN PSYCHIATRY (EPSP): FIRING UP THE NEX	93.242	R25MH119043				$1,052	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MATERNAL STRESS AND THE VAGINAL MICROBIOME: IMPACTS ON BRAIN DEVELOPME	93.242	R33MH104184				-$8,083	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF A TAILORED HIV PREVENTION INTERVENTION FOR YOUNG MEN	93.242	R34MH101997			$2,967	$49,149	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SERVICES TO ENHANCE SOCIAL FUNCTIONING IN ADULTS WITH AUTISM SPECTRUM	93.242	R34MH104407				$12,935	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING A WOMEN-FOCUSED PREP INTERVENTION FOR HIV PREVENTION	93.242	R34MH108437			$89,843	$248,662	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
FEASIBILITY OF A BEHAVIORAL ACTIVATION TRIAL IN COMMUNITY MENTAL HEALT	93.242	R34MH108818			$26,375	$118,740	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL CIRCUIT MECHANISMS MEDIATING TMS AND OXYTOCIN EFFECTS ON SOCIAL	93.242	R37MH109728			$63,181	$697,563	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE EPIGENETIC MECHANISMS UNDERLYING STRESS-RELATED NEUR	93.242	R56MH111719				-$1,293	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
TECHNOLOGY-SUPPORTED TRAINING AND QUALITY ASSURANCE FOR PSYCHOSOCIAL I	93.242	R56MH118550				$56,530	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
NETWORK CONTROL AND FUNCTIONAL CONTEXT: MECHANISMS FOR TMS RESPONSE	93.242	RF1MH116920				$277,028	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN NEUROPSYCHOPHARMACOLOGY	93.242	T32MH014654				$412	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
TRAINING PROGRAM IN NEUROPSYCHOPHARMACOLOGY	93.242	T32MH014654				$246,241	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN BEHAVIORAL/COGNITIVE NEUROSCIENCE	93.242	T32MH017168				-$2,852	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN BEHAVIORAL/COGNITIVE NEUROSCIENCE	93.242	T32MH017168				$222,145	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SCHIZOPHRENIA: A NEUROPSYCHIATRIC PERSPECTIVE	93.242	T32MH019112				$462	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SCHIZOPHRENIA: A NEUROPSYCHIATRIC PERSPECTIVE	93.242	T32MH019112				-$6,573	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SCHIZOPHRENIA: A NEUROPSYCHIATRIC PERSPECTIVE	93.242	T32MH019112				$222,220	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MENTAL HEALTH BIOSTATISTICS TRAINING GRANT	93.242	T32MH065218				$987	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
MENTAL HEALTH BIOSTATISTICS TRAINING GRANT	93.242	T32MH065218				$39,081	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE TRAINING IN THE NEUROCIRCUITRY OF AFFECTIVE DISORDERS	93.242	T32MH106442				$5,787	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE TRAINING IN THE NEUROCIRCUITRY OF AFFECTIVE DISORDERS	93.242	T32MH106442				$209,056	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE TRAINING IN THE NEUROCIRCUITRY OF AFFECTIVE DISORDERS	93.242	T32MH106442				$31,200	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
THE ACADEMIC-COMMUNITY EXPERIENCE (ACE): A POSTDOCTORAL TRAINING FELLO	93.242	T32MH109433				$453	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
THE ACADEMIC-COMMUNITY EXPERIENCE (ACE): A POSTDOCTORAL TRAINING FELLO	93.242	T32MH109433				$252,771	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
1/5 INTERNATIONAL CONSORTIUM ON BRAIN AND BEHAVIOR IN 22Q11.2 DELETION	93.242	U01MH101719			$32,928	$32,928	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
1/5 INTERNATIONAL CONSORTIUM ON BRAIN AND BEHAVIOR IN 22Q11.2 DELETION	93.242	U01MH101719			$71,002	$72,377	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
1/5 INTERNATIONAL CONSORTIUM ON BRAIN AND BEHAVIOR IN 22Q11.2 DELETION	93.242	U01MH101719				-$10,028	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
3/3: PEDIGREE-BASED WHOLE GENOME SEQUENCING OF AFFECTIVE AND PSYCHOTIC	93.242	U01MH105634			$37,797	$118,464	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
3/3: PEDIGREE-BASED WHOLE GENOME SEQUENCING OF AFFECTIVE AND PSYCHOTIC	93.242	U01MH105634				$31,899	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
SSRI EFFECTS ON DEPRESSION AND IMMUNITY IN HIV/AIDS	93.242	U01MH107276			$200,742	$842,563	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DIMENSIONAL CONNECTOMICS OF ANXIOUS MISERY	93.242	U01MH109991				$1,171	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DIMENSIONAL CONNECTOMICS OF ANXIOUS MISERY	93.242	U01MH109991				$506,259	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
DIMENSIONAL CONNECTOMICS OF ANXIOUS MISERY	93.242	U01MH109991				$202,644	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
IPSC-BASED PLATFORM DEVELOPMENT FOR MAJOR PSYCHIATRIC DISORDER MODELIN	93.242	U19MH106434			$177,804	$180,443	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
IPSC-BASED PLATFORM DEVELOPMENT FOR MAJOR PSYCHIATRIC DISORDER MODELIN	93.242	U19MH106434			$1,655,050	$2,670,482	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
IPSC-BASED PLATFORM DEVELOPMENT FOR MAJOR PSYCHIATRIC DISORDER MODELIN	93.242	U19MH106434				$34,095	$36,311,381	RESEARCH AND DEVELOPMENT	$706,379,077
ANTI-HIV NEUROIMMUNMODULATORY THERAPY WITH NEUROKININ-1 (NK1R) ANTAGON	*93.242*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*950480RSUB*		*-$46*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PERSON CENTERED CARE PLANNING & SERVICE ENGAGEMENT	*93.242*		*NEW YORK UNIVERSITY*	*F7437-01*		*$13,184*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ED-SAFE-2: TRANSLATING SAFETY PLANNING INTO PRACTICE	*93.242*		*UNIVERSITY OF MASSACHUSETTS*	*WA00320041/RFS2016010*		*$20,488*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SUICIDE RISK REDUCTION IN THE YEAR FOLLOWING JAIL RELEASE	*93.242*		*MICHIGAN STATE UNIVERSITY*	*U01MH106660*		*$22,895*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEURODEVELOPMENT: GENES, ENVIRONMENT, AND THEIR INTERACTIONS	*93.242*		*UNIVERSITY OF TEXAS RIO GRANDE VALLEY*	*R01MH107248*		*$13,790*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE ROLE OF PLACE AND GRID CELLS IN HUMAN SPATIAL NAVIGATION AND MEMOR	*93.242*		*COLUMBIA UNIVERSITY*	*R01MH104606*		*$138*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REMOTE SUPERVISION FOR IMPLEMENTING COLLABORATIVE CARE FOR PERINATAL D	*93.242*		*UNIVERSITY OF WASHINGTON*	*R01MH108548*		*$93,930*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SOCIAL AND CIRCADIAN RHYTHMS, REWARD SENSITIVITY, AND RISK FOR BIPOLAR	*93.242*		*TEMPLE UNIVERSITY*	*360993-18110-02*		*$26,341*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ZERO SUICIDE IMPLEMENTATION AND EVALUATION IN OUTPATIENT MENTAL HEALTH	*93.242*		*COLUMBIA UNIVERSITY*	*R01MH112139*		*$144,096*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PERFUSION MRI FOR MULTI-SITE STUDIES FOR BRAIN FUNCTION	*93.242*		*BETH ISRAEL MEDICAL CENTER*	*01027167*		*$75,579*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRAIN NETWORK MECHANISMS OF INSTRUCTED LEARNING	*93.242*		*RUTGERS UNIVERSITY*	*R01MH109520*		*$23,127*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE EFFECTS OF MEDICAID WAIVERS ON AUTISM SERVICE USE AND EXPENDITURES	*93.242*		*PENNSYLVANIA STATE UNIVERSITY COLLEGE OF MEDICINE*	*R01MH108558*		*$103,072*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
3/5-THE AUTISM BIOMARKERS CONSORTIUM DAAC	*93.242*		*DUKE UNIVERSITY*	*U19MH108206*		*-$40*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR PROFILING OF SCHIZOPHRENIA	*93.242*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*R01MH110921*		*$38,069*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUROBIOLOGICAL UNDERPINNINGS OF TWO SUICIDAL SUBTYPES	*93.242*		*COLUMBIA UNIVERSITY*	*R01MH109326*		*$54,361*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GENETICS OF SEVERE MENTAL ILLNESS	*93.242*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*R01MH113078*		*$88,009*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PTSD MONITORING SYSTEM FOR PROLONGED EXPOSURE THERAPY	*93.242*		*ACLARIS MEDICAL, LLC*	*R43MH107089*		*$13,116*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RECOVERY-ORIENTED PRACTICES IN COMMUNITY MENTAL HEALTH CENTERS: A NATI	*93.242*		*YALE UNIVERSITY*	*M151A11969 (A10040)*		*$27,591*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE BIPOLAR SEQUENCING CONSORTIUM FOR COMBINED ANALYSES AND FOLLOW-UP	*93.242*		*JOHNS HOPKINS UNIVERSITY*	*R01MH110437*		*$74,676*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFYING NEURAL MECHANISMS OF PTSD SYMPTOM REDUCTION INDUCED BY COM	*93.242*		*UNIVERSITY OF ILLINOIS AT CHICAGO*	*R61MH111907*		*$35,910*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
INNOVATIVE INCENTIVE STRATEGIES FOR SUSTAINABLE HIV TESTING AND LINKAG	*93.242*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*R01MH105254*		*$128,660*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRAIN STRUCTURE AND FUNCTION IN INFANTS A LONGITUDINAL STUDY	*93.242*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01MH092535*		*$3,295*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LEVERAGING ROUTINE CLINICAL MATERIALS AND MOBILE TECHNOLOGY TO ASSESS	*93.242*		*PALO ALTO VETERANS INSTITUTE FOR RESEARCH*	*WIS0003-05*		*$212,761*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISCLOSURE OF SERIOUS MENTAL ILLNESS IN THE WORKPLACE	*93.242*		*ARIZONA STATE UNIVERSITY*	*R01MH111650*		*$56,255*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INDIVIDUAL DIFFERENCES IN OVARIAN HORMONES DURING LATE ADOLESCENCE: IM	*93.242*		*UNIVERSITY OF CHICAGO*	*R21MH110716*		*$3,274*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIGHER ORDER CHROMATIN AND GENETIC RISK FOR SCHIZOPHRENIA	*93.242*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*R01MH106056*		*$16,199*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
2/5 PHENOTYPIC PROFILING OF ASD RISK	*93.242*		*BROAD INSTITUTE OF MIT AND HARVARD*	*R01MH111813*		*$19,530*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A HYBRID EFFECTIVENESS-IMPLEMENTATION TRIAL OF GROUP CBT IN URBAN SCHO	*93.242*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01MH108555*		*$39,165*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WEIGHT HISTORY, BRAIN ACTIVATION TO FOOD CUES AND EATING DISORDER PROG	*93.242*		*DREXEL UNIVERSITY*	*232616*		*$190,784*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LIFESENSE: TRANSFORMING BEHAVIORAL ASSESSMENT OF DEPRESSION USING PERS	*93.242*		*NORTHWESTERN UNIVERSITY*	*R01MH111610*		*$56,308*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
3/5-THE AUTISM BIOMARKERS CONSORTIUM DAAC	*93.242*		*DUKE UNIVERSITY*	*U19MH108206*		*$6,610*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SABER: SCALABLE ANALYTICS FOR BRAIN EXPLORATION RESEARCH USING X-RAY M	*93.242*		*JOHNS HOPKINS UNIVERSITY*	*R24MH114799*		*$4,602*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AGRICULTURAL INTERVENTION FOR FOOD SECURITY AND HIV HEALTH OUTCOMES IN	*93.242*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*R01MH107330*		*$14,690*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRIDE: SUB SAHARAN AFRICA - PARTNERSHIPS IN RESEARCH TO IMPLEMENT AND	*93.242*		*RESEARCH FOUNDATION FOR MENTAL HYGIENE, INC.*	*U19MH113203*		*$79,312*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEXT GENERATION REAL-TIME MONITORING FOR PREP ADHERENCE IN YOUNG KENYA	*93.242*		*MASSACHUSETTS GENERAL HOSPITAL*	*R01MH109309*		*$21,670*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMMUNITY PSYCHOSIS RISK SCREENING: AN INSTRUMENT DEVELOPMENT STUDY	*93.242*		*TEMPLE UNIVERSITY*	*R01MH112613*		*$9,934*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFFECT OF HIV AND ART THERAPY ON DEVELOPMENTAL MYELINATION	*93.242*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R21MH118121*		*$133,534*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
1/9 - PREDICTORS AND MECHANISMS OF CONVERSION TO PSYCHOSIS	*93.242*		*YALE UNIVERSITY*	*U01MH081902*		*$52,669*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFYING NEURAL MECHANISMS OF PTSD SYMPTOM REDUCTION INDUCED BY COM	*93.242*		*UNIVERSITY OF ILLINOIS AT CHICAGO*	*R61MH111907*		*$292,902*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A COMMUNITY RESOURCE FOR SINGLE CELL DATA IN THE BRAIN	*93.242*		*ALLEN INSTITUTE FOR BRAIN SCIENCE*	*U24MH114827*		*$180,602*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DYNAMIC RNA MODIFICATIONS HUMAN BRAIN DEVELOPMENT AND AUTISM	*93.242*		*EMORY UNIVERSITY*	*U01MH116441*		*$297,180*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
2/3: PEDIGREE-BASED WHOLE GENOME SEQUENCING OF AFFECTIVE AND PSYCHOTIC	*93.242*		*UNIVERSITY OF TEXAS RIO GRANDE VALLEY*	*U01MH105632*		*$77,203*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE AURORA STUDY - LONGITUDINAL ASSESSMENT OF POST-TRAUMATIC SYNDROMES	*93.242*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*U01MH110925*		*$38,799*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ALTERNATIVE APPROACHES TO SUPPORTING ASD SERVICES FOR YOUNG ADULTS	*93.242*		*DREXEL UNIVERSITY*	*R01MH117653*		*$153,473*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROJECT S.T.E.P (SEX TALK TO EMPOWER PARENTS): PARENTS AS HIV/STI PREV	*93.242*		*YALE UNIVERSITY*	*R25MH087217*		*$4,125*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GENERATING AND ACCELERATING THE MATURATION OF PVALB-FAST SPIKING INTER	*93.242*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01MH066912*		*$5,286*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRAIN STRUCTURE AND FUNCTION IN INFANTS A LONGITUDINAL STUDY	*93.242*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01MH092535*		*$12,754*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TESTING STRATEGIES FOR COUPLE ENGAGEMENT IN PMTCT AND FAMILY HEALTH IN	*93.242*		*UNIVERSITY OF ALABAMA AT BIRMINGHAM*	*R01MH116736*		*$24,820*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ALTERATIONS IN THE INTRAUTERINE MICROENVIRONMENT FOLLOWING PRENATAL ST	*93.242*		*OHIO STATE UNIVERSITY*	*R21MH117552*		*$7,931*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR PROFILING OF SCHIZOPHRENIA	*93.242*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*R01MH110921*		*$69,232*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN EVALUATION OF THE NATIONAL ZERO SUICIDE MODEL ACROSS LEARNING HEALT	*93.242*		*HENRY FORD HEALTH SYSTEM*	*U01MH114087*		*$3,623*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MAPPING CORTICOSTRIATAL DEVELOPMENT	*93.242*		*CHILD MIND INSTITUTE BIOBANK*	*R21MH118556*		*$6,410*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MHEALTH IMPLEMENTATION IN COMMUNITY MENTAL HEALTH CENTERS	*93.242*		*UNIVERSITY OF WASHINGTON*	*R01MH116057*		*$19,218*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFYING SUICIDAL SUBTYPES AND DYNAMIC INDICATORS OF INCREASING AND	*93.242*		*UNIVERSITY OF UTAH*	*R01MH117600*		*$8,517*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A HYBRID EFFECTIVENESS-IMPLEMENTATION TRIAL OF GROUP CBT IN URBAN SCHO	*93.242*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01MH108555*		*$15,811*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DYNAMIC RNA MODIFICATIONS HUMAN BRAIN DEVELOPMENT AND AUTISM	*93.242*		*EMORY UNIVERSITY*	*U01MH116441*		*$6,734*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRIDE: SUB SAHARAN AFRICA - PARTNERSHIPS IN RESEARCH TO IMPLEMENT AND	*93.242*		*RESEARCH FOUNDATION FOR MENTAL HYGIENE, INC.*	*U19MH113203*		*$6,185*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN EVALUATION OF THE NATIONAL ZERO SUICIDE MODEL ACROSS LEARNING HEALT	*93.242*		*HENRY FORD HEALTH SYSTEM*	*U01MH114087*		*$1,088*	*$36,311,381*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PENN MEDICINE ENGAGE: EMERGENCY ENGAGEMENT FOR OPIOID USE DISORDER	93.243	H79TI081596				$224,271	$645,934	OTHER PROGRAMS	$14,438,000

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
RECOVERY-ORIENTED COGNITIVE THERAPY FOR INDIVIDUALS WITH SEVERE AND PE	*93.243*		*GEORGIA STATE UNIVERSITY*	*44100-026-0000054112*		*$8,383*	*$645,934*	*OTHER PROGRAMS*	*$14,438,000*
REACHING THE MOST VULNERABLE: PACTS II	*93.243*		*CITY OF PHILADELPHIA*	*U79SM063192*		*$20,006*	*$645,934*	*OTHER PROGRAMS*	*$14,438,000*
SAMHSA-PERC FEP	*93.243*		*CITY OF PHILADELPHIA*	*1720597-003 SAMHSA-PERC*		*$200,039*	*$645,934*	*OTHER PROGRAMS*	*$14,438,000*
REACHING THE MOST VULNERABLE: PACTS II	*93.243*		*CITY OF PHILADELPHIA*	*U79SM063192*		*$66,227*	*$645,934*	*OTHER PROGRAMS*	*$14,438,000*
FIRST RESPONDERS - COMPREHENSIVE NALOXONE DISTRIBUTION AND RECOVERY SERVICE INITIATIVE	93.243	1H79SPO080317-01				$82,866	$645,934	OTHER PROGRAMS	$14,438,000
MH BASE UNITARY	*93.243*		*CITY OF PHILADELPHIA*	*1720075-02*		*$44,142*	*$645,934*	*OTHER PROGRAMS*	*$14,438,000*
ACADEMIC-PRACTICE PARTNERSHIP FOR THE UNDERSERVED IN PHILADELPHIA, PA	93.247	D09HP28672				$201,159	$973,488	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCED NURSING EDUCATION WORKFORCE (ANEW) PROGRAM	93.247	T94HP30898-01-00				$2,177	$973,488	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCED NURSING EDUCATION WORKFORCE (ANEW) PROGRAM	93.247	T94HP30898-01-00				$770,152	$973,488	RESEARCH AND DEVELOPMENT	$706,379,077
OCCUPATIONAL MEDICINE RESIDENCY TRAINING GRANT	93.262	2-T01-OH-008628-05				-$2,324	$119,882	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN OCCUPATIONAL MEDICINE	93.262	T03OH008628				$1,080	$119,882	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN OCCUPATIONAL MEDICINE	93.262	T03OH008628				$121,126	$119,882	RESEARCH AND DEVELOPMENT	$706,379,077
NURSE FACULTY LOAN PROGRAM ISSUED DURING 2019	93.264					$446,016	$1,968,531	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
NURSE FACULTY LOAN PROGRAM OUTSTANDING AS OF 07/01/2018	93.264					$1,522,515	$1,968,531	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
EVALUATION OF THE GROUP DECISION MAKING PROCESS OF CLINICAL GUIDELINE	*93.266*		*BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE*	*R01HS024917*		*$11,999*	*$25,211*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF THE GROUP DECISION MAKING PROCESS OF CLINICAL GUIDELINE	*93.266*		*BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE*	*R01HS024917*		*$13,212*	*$25,211*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SEROTONIN 2A RECEPTOR ACTIVATION ATTENUATES ALCOHOL CONSUMPTION FOLLOW	93.273	F31AA026766				$25,242	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
THE REGULATION OF LIPID DROPLET BIOGENESIS IN ALCOHOLIC LIVER DISEASE	93.273	F32AA024347				$63,336	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
THE PATHOGENESIS OF INSULIN RESISTANCE IN ALCOHOLIC LIVER DISEASE	93.273	K08AA021424				$8,919	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTIVENESS OF TOPIRAMATE: CHARACTERIZING INDIVIDUAL DIFFERENCES	93.273	K23AA023894				$222,055	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
2/2 PHARMACOGENETIC TREATMENT FOR ALCOHOLISM	93.273	R01AA021164				$302,303	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF ENHANCEMENTS TO SMARTPHONE-BASED CONTINUING CARE FOR ALCOHOL	93.273	R01AA022595			$169,854	$521,302	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
CYP2E1 MEDIATED MITOCHONDRIAL INJURY AND CELL DAMAGE IN ALCOHOL LIVER	93.273	R01AA022986			$178,697	$675,699	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
PHARMACOGENETIC ANALYSIS OF TOPIRAMATE TREATMENT OF AUD	93.273	R01AA023192				$426,890	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
A RANDOMIZED TRIAL OF ABANDONED HOUSING REMEDIATION, SUBSTANCE ABUSE A	93.273	R01AA024941			$113,625	$740,599	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
ALDH2 AND MITOCHONDRIAL HOMEOSTASIS IN ESOPHAGEAL PATHOBIOLOGY	93.273	R01AA026297				$244,228	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF POST-TRANSPLANT RECURRENT ALCOHOLIC LIVER DISE	93.273	R01AA026302				$552,612	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
THE METABOLIC-EPIGENETIC AXIS IN MEMORY	93.273	R01AA027202				$20,539	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSLATIONAL STUDY ON CHRNA5 VARIATION AND ALCOHOL REWARD MECHANISMS	93.273	U01AA025931				$259,012	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSLATIONAL STUDY ON CHRNA5 VARIATION AND ALCOHOL REWARD MECHANISMS	93.273	U01AA025931				$49,150	$4,453,034	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF BEHAVIOR CHANGE IN ALCOHOL USE DISORDER TREATMENT	*93.273*		*UNIVERSITY OF NEW MEXICO*	*R01AA025539*		*$64,292*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANISMS OF BEHAVIOR CHANGE IN ALCOHOL USE DISORDER TREATMENT	*93.273*		*UNIVERSITY OF NEW MEXICO*	*R01AA025539*		*-$14,569*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTERVENTIONS TO REDUCE ALCOHOL USE AND INCREASE ADHERENCE TO TB PREVE	*93.273*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*U01AA026221*		*$2,907*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CAN A GROUP RELAPSE PREVENTION TOOLKIT ENHANCE FIDELITY IN COMMUNITY T	*93.273*		*PUBLIC HEALTH MANAGEMENT CORPORATION*	*R01AA025957*		*$56,706*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTERVENTIONS TO REDUCE ALCOHOL USE AND INCREASE ADHERENCE TO TB PREVE	*93.273*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*U01AA026221*		*$16,371*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMMUNITY I-STAR MOZAMBIQUE: COMMUNITY IMPLEMENTATION OF SBIRT USING T	*93.273*		*RESEARCH FOUNDATION FOR MENTAL HYGIENE, INC.*	*R01AA025947*		*$29,113*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GENETICS OF ALCOHOL DEPENDENCE IN AFRICAN AMERICANS	*93.273*		*YALE UNIVERSITY*	*GR104469 (CON-80001475)*		*$147,389*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RELATING NEUROIMMUNE AND NEUROVASCULAR ALTERATIONS DURING ALZHEIMER'S	*93.273*		*MASSACHUSETTS GENERAL HOSPITAL*	*R01AA027097*		*$38,939*	*$4,453,034*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHROMATIN-MEDIATED ALTERNATIVE SPLICING IN REWARD PATHOPHYSIOLOGY	93.279	DP1DA044250				$553,599	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
DISSECTION OF THE ORGANIZATIONAL DIFFERENCES BETWEEN PAW AND TRUNK PAI	93.279	F31NS092297				-$30	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF THE DELTA-OPIOID RECEPTOR GENE, OPRD1, IN OPIOID ADDICTION	93.279	K01DA036751				$163,887	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
METHODOLOGY FOR PET IMAGING OF ROLE OF DOPAMINE D3 RECEPTOR IN ADDICTI	93.279	K01DA040023				$171,183	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
THE INFLUENCE OF NICOTINIC HEPATIC METABOLISM ON NEURORECEPTOR SUBSTRA	93.279	K23DA038726				$167,814	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
INCREASING THE UPTAKE OF MEDICATION-ASSISTED TREATMENT FOR OPIOID USE	93.279	K23DA048167				$18,058	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ADAPTIVE TREATMENT MODELS FOR THE MANAGEMENT OF DRUG USE DISORDERS	93.279	K24DA029062				$149,371	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
A PATIENT-ORIENTED RESEARCH MENTORING PROGRAM IN TOBACCO DEPENDENCE RE	93.279	K24DA045244				$177,047	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
DECONSTRUCTING THE NETWORK MECHANISMS OF THE CHRONIC PAIN AND REWARD I	93.279	R00DA043609				$18,403	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
ACUTE NICOTINE DECREASES ALCOHOL-INDUCED DOPAMINE RESPONSE & INCREASES	93.279	R01DA009411				$93,059	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
MPFC, N, ACCUMBENS AND REINSTATEMENT OF COCAINE SEEKING	93.279	R01DA015214				$263,642	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
PET RADIOTRACERS FOR IMAGING THE DOPAMINE D3 RECEPTOR	93.279	R01DA029840			$97,984	$448,196	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
GABA B AGONISTS REVISITED: BRAIN, BEHAVIORAL AND GENETIC EFFECTS IN SM	93.279	R01DA030394				-$57	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL AND GENETIC CHARACTERISTICS OF OPIOID ADDICTION IN CHRONIC PA	93.279	R01DA03277604				$27,287	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSGENERATIONAL INHERITANCE OF A COCAINE RESISTANCE PHENOTYPE	93.279	R01DA033641				$437,310	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
OPIOID RELAPS & HIV RISK: 48 VS. 24 WEEKS OF ER INJECTABLE NALTREXONE	93.279	R01DA033670			$32,954	$182,260	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
A PILOT IMPLEMENTATION PROJECT OF METHADONE AND SUBOXONE FOR INJECTING	93.279	R01DA033671				-$18,241	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
A PILOT IMPLEMENTATION PROJECT OF METHADONE AND SUBOXONE FOR INJECTING	93.279	R01DA033671				$1,610	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF A POINT-OF-CARE VOLUMETRIC BAR-CHART CHIP FOR DRUG QUAN	93.279	R01DA035868			$139,677	$534,152	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
THE PFT INTERVENTION: LINKING TRIPLY-DIAGNOSED INPATIENTS TO COMMUNITY	93.279	R01DA036503				$428,276	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
CAUSAL INFERENCES FOR TREATMENT MODERATORS ON ZERO-INFLATED OUTCOMES O	93.279	R01DA036557				$21,610	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
ALPHA 5 NACHR IS A RISK FACTOR WITHIN THE DOPAMINE SYSTEM FOR NICOTINE	93.279	R01DA036572				$497,925	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
MULTIMODAL IMAGING OF PROGESTERONE/NEUROSTEROID EFFECTS IN NICOTINE AD	93.279	R01DA037289			$46,459	$532,366	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF CENTRAL GLP-1 RECEPTORS IN ANIMAL MODELS OF COCAINE ADDICT	93.279	R01DA037897				$208,345	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING DOPAMINE D3 RECEPTORS IN COCAINE ADDICTION	93.279	R01DA039215				$626,566	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
PREDICTING AOD RELAPSE AND TREATMENT COMPLETION FROM SOCIAL MEDIA USE	93.279	R01DA039457				$273,634	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
INFLUENCE OF THE NATURAL HORMONAL MILIEU ON PERFUSION FMRI SMOKING CUE	93.279	R01DA040670				$550,288	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
MOBILE DNA IN DRUG ABUSE	93.279	R01DA040972			$43,976	$455,025	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
AMP-ACTIVATED PROTEIN KINASE (AMPK) AND NICOTINE DEPENDENCE	93.279	R01DA041180			$31,780	$365,860	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL BASIS OF SMOKING RELAPSE	93.279	R01DA041402				$611,408	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL BASIS OF EATING BEHAVIOR IN ABSTINENT SMOKERS	93.279	R01DA041409				$548,759	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE ROLE OF COGNITIVE DYSFUNCTION IN THE TREATMENT OF NI	93.279	R01DA042682				$557,435	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
FLAVORED E-CIGARETTE USE IN ADOLESCENTS: BEHAVIORAL, CELLULAR, AND EPI	93.279	R01DA044205				$378,956	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING THE CHOLINERGIC PATHWAY IN HIV-ASSOCIATED INFLAMMATION AND C	93.279	R01DA044906				$853,141	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
MINING SOCIAL MEDIA BIG DATA FOR TOXICOVIGILANCE: AUTOMATING THE MONIT	93.279	R01DA046619				$328,635	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROIMAGING STUDY OF HIV-PREVENTION PUBLIC SERVICE ANNOUNCEMENTS	93.279	R03DA035683				-$58	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
TRANS-GENERATIONAL EFFECTS OF NICOTINE SELF-ADMINISTRATION	93.279	R21DA039393				$19,974	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
COCAINE-INDUCED HISTONE POST-TRANSLATIONAL MODIFICATIONS	93.279	R21DA040837				$24,693	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
REPURPOSING MELATONIN RECEPTOR AGONISTS AS ADJUNCT TREATMENTS FOR SMOK	93.279	R21DA040902				$19,050	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROBIOLOGY OF CARE GIVING IN OPIOID DEPENDENT MOTHERS	93.279	R21DA043983			$16,582	$141,045	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
NICOTINE'S EFFECTS ON MEDIAL HABENULA NEUROPHYSIOLOGY	93.279	R21DA043993				$190,626	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL AND EPIGENETIC CHANGES FOLLOWING ADOLESCENT OXYCODONE EXPOS	93.279	R21DA044017				$240,026	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECT OF OPIOID TAPER ON PAIN RESPONSES IN PATIENTS WITH CHRONIC PAIN	93.279	R21DA046364				$55,935	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
COCAINE-INDUCED AXON MIGRATION IN THE NUCLEUS ACCUMBENS	93.279	R21DA046760				$41,309	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
REMOTE OBSERVED DOSING TO IMPROVE SUBOXONE COMPLIANCE IN CLINICAL PRAC	93.279	R34DA045177				$176,573	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
T32 TRANSLATIONAL ADDICTION RESEARCH FELLOWSHIP PROGRAM	93.279	T32DA028874				$919	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
T32 TRANSLATIONAL ADDICTION RESEARCH FELLOWSHIP PROGRAM	93.279	T32DA028874				$319,685	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
VARENICLINE FOR THE TREATMENT OF COCAINE DEPENDENCE: PHASE II	93.279	U01DA032629				-$38	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR THE DEVELOPMENT OF NOVEL MEDICATIONS FOR COCAINE DEPENDENCE	93.279	U54DA039002			$60,372	$144,087	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
CENTER FOR THE DEVELOPMENT OF NOVEL MEDICATIONS FOR COCAINE DEPENDENCE	93.279	U54DA039002				$796,839	$14,062,481	RESEARCH AND DEVELOPMENT	$706,379,077
FLORIDA NODE ALLIANCE OF DRUG ABUSE CLINICAL TRIALS NETWORK	*93.279*		*UNIVERSITY OF MIAMI*	*UG1DA013720*	*-$5,711*	*-$5,711*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FLORIDA NODE ALLIANCE OF DRUG ABUSE CLINICAL TRIALS NETWORK	*93.279*		*UNIVERSITY OF MIAMI*	*UG1DA013720*	*$90,989*	*$90,989*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GENETICS OF OPIOID DEPENDENCE	*93.279*		*YALE UNIVERSITY*	*M14A11735 (A09415)*		*$30,746*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
QUANTITATIVE METHODS TO SUBTYPE DRUG DEPENDENCE AND DETECT NOVEL GENE	*93.279*		*UNIVERSITY OF CONNECTICUT*	*81436*		*$9,593*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTIMIZING HIV COUNSELING TESTING AND REFERRAL THROUGH AN ADAPTIVE DRU	*93.279*		*UNIVERSITY OF MICHIGAN*	*R01DA041032*		*$363,582*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF NOVEL DOPAMINE D3 RECEPTOR SELECTIVE ANTIPSYCHOTICS	*93.279*		*UNIVERSITY OF NORTH TEXAS HEALTH SCIENCE CENTER AT FORT WORTH*	*RN0127-2015-0148*		*$1,451*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL TRIALS NETWORK MID-ATLANTIC INTEGRATED CARE RESEARCH COLLABOR	*93.279*		*JOHNS HOPKINS UNIVERSITY*	*UG1DA013034*		*-$2,000*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LINKAGE TO COMMUITY-BASED PRE-EXPOSURE PROPHYLAXIS CARE AMONG AT-RISK	*93.279*		*RHODE ISLAND HOSPITAL*	*R34DA045621*		*$31,092*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ACUTE PAIN MANAGEMENT AND LONG-TERM OPIOD USE AFTER SURGERY	*93.279*		*SUNNYBROOK RESEARCH INSTITUTE*	*R01DA042299*		*$305,722*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL AND GENETIC STUDY OF PRESCRIPTION OPIOID ADDICTION	*93.279*		*GEISINGER HEALTH SYSTEM*	*R01DA044015*		*$154,353*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL TRIALS NETWORK MID-ATLANTIC INTEGRATED CARE RESEARCH COLLABOR	*93.279*		*JOHNS HOPKINS UNIVERSITY*	*UG1DA013034*		*$23,787*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LIGHT ACTIVATED CRISPR EPIGENOME EDITING IN COCAINE ABUSE	*93.279*		*UNIVERSITY OF MARYLAND*	*R21DA046227*		*$11,958*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HEALTH ECONOMICS OF SUBSTANCE ABUSE AND HCV/HIV TREATMENT IN THE ERA O	*93.279*		*CORNELL UNIVERSITY*	*P30DA040500*		*$184,629*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INVESTIGATING THE SYSTEMS GENETICS OF THE PATTERNS OF POLYSUBSTANCE AB	*93.279*		*YALE UNIVERSITY*	*R21DA047527*		*$20,053*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL TRIALS NETWORK MID-ATLANTIC INTEGRATED CARE RESEARCH COLLABOR	*93.279*		*JOHNS HOPKINS UNIVERSITY*	*UG1DA013034*		*$600*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LIGHT ACTIVATED CRISPR EPIGENOME EDITING IN COCAINE ABUSE	*93.279*		*UNIVERSITY OF MARYLAND*	*R21DA046227*		*$3,749*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HEALTH ECONOMICS OF SUBSTANCE ABUSE AND HCV/HIV TREATMENT IN THE ERA O	*93.279*		*CORNELL UNIVERSITY*	*P30DA040500*		*$40,444*	*$14,062,481*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SOUTHEASTERN PENNSYLVANIA ADULT AND PEDIATRIC PREVENTION EPICENTER NET	93.283	1-U54-CK-000163-01			$42,020	$42,020	-$25,679	RESEARCH AND DEVELOPMENT	$706,379,077
SOUTHEASTERN PENNSYLVANIA ADULT AND PEDIATRIC PREVENTION EPICENTER NET	93.283	1-U54-CK-000163-01				-$67,699	-$25,679	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING NOVEL NEURONAL OPTICAL VOLTAGE-SENSING PROBES USING SYNTHE	93.286	F31EB024378				$46,592	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
A RESOURCE FOR MAGNETIC RESONANCE AND OPTICAL IMAGING	93.286	P41EB015893				$1,472,112	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
A RESOURCE FOR MAGNETIC RESONANCE AND OPTICAL IMAGING	93.286	P41EB015893				$21,037	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING DEVELOPMENTAL MICROENVIRONMENTS: CARTILAGE FORMATION AND M	93.286	R01EB008722				$115,595	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
ADAPTIVE LARGE-SCALE FRAMEWORK FOR AUTOMATIC BIOMEDICAL IMAGE SEGMENTA	93.286	R01EB017255				$594,661	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
PATHOLOGICAL CONSEQUENCES OF ALTERED TISSUE MECHANICS IN FIBROSIS	93.286	R01EB017753				$18,355	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
PATHOLOGICAL CONSEQUENCES OF ALTERED TISSUE MECHANICS IN FIBROSIS	93.286	R01EB017753				$255,368	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
DENDRITIC UPCONVERTING NANOPARTICLES FOR MULTIPHOTON IMAGING AND SENSI	93.286	R01EB018464			$29,911	$121,066	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
CERENKOV SPECIFIC CONTRAST AGENTS	93.286	R01EB018645				$54,918	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
UNCOVERING MECHANICAL MECHANISMS OF TRAUMATIC AXONAL INJURY	93.286	R01EB021293				$385,558	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
PATTERN ANALYSIS OF FMRI VIA MACHINE LEARNING/SPARSE MODELS: APPLICATI	93.286	R01EB022573				$454,933	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE BIOINFORMATICS APPROACHES TO HUMAN BRAIN GENOMICS AND CONN	93.286	R01EB022574			$314,348	$632,782	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
TUNABLE MICROBUBBLES FOR ANTIVASCULAR ULTRASOUND	93.286	R01EB022612				$451,935	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT AND APPLICATION OF 4D TOF RECONSTRUCTION FOR QUANTITATIVE	93.286	R01EB023274				$581,337	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
A REACTION- DIFFUSION-BASED APPROACH FOR NUCLEIC ACID QUANTIFICATION	93.286	R01EB023607				$48,516	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
QUANTITATIVE CONTROL OF CAR T CELLS VIA IMAGE-GUIDED DELIVERY AND MONI	93.286	R01EB026892				$485,030	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
MENTAL, MEASUREMENT, AND MODEL COMPLEXITY IN NEUROSCIENCE	93.286	R01EB026945				$249,992	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
IMAGING THE D2/A2A HETERODIMER WITH PET	93.286	R01EB026988				$305,840	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
ULTRA-HIGH RESOLUTION BOLD FMRI OF MEDIAL TEMPORAL LOBE AT 7 TESLA	93.286	R03EB016923				-$4,824	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
THE 2ND BRITTON CHANCE INTERNATIONAL SYMPOSIUM ON METABOLIC IMAGING AN	93.286	R13EB021825				$12,750	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
FIFTH INTERNATIONAL WORKSHOP ON METABOLIC IMAGING	93.286	R13EB026337				$10,000	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
DYNAMIC MRI MAPPING OF CMRO2 RESPONSES	93.286	R21EB022687				$160,177	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
SPATIALLY-TARGETED HEATING OF MAGNETIC NANOPARTICLES	93.286	R21EB023989				$169,879	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
A MOLECULAR PROBE FOR HIGH-RESOLUTION DUAL IMAGING OF TEMPERATURE AND	93.286	R21EB027397			$10,779	$109,779	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING SYNTHETIC PROTEINS FOR ELECTRON TRANSFER BASED ULTRAFAST S	93.286	R21EB027407				$81,367	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH TRACK RADIOLOGY RESIDENCY	93.286	T32EB004311				$15,550	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH TRACK RADIOLOGY RESIDENCY	93.286	T32EB004311				$194,437	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN BIOMEDICAL IMAGING AND INFORMATIONAL SCIENCES	93.286	T32EB009384				$18,558	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN BIOMEDICAL IMAGING AND INFORMATIONAL SCIENCES	93.286	T32EB009384				$249,141	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN STRUCTURAL, PHYSIOLOGIC AND FUNCTIONAL MRI	93.286	T32EB020087				$168	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN STRUCTURAL, PHYSIOLOGIC AND FUNCTIONAL MRI	93.286	T32EB020087				$137,816	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN STRUCTURAL, PHYSIOLOGIC AND FUNCTIONAL MRI	93.286	T32EB020087				$44,326	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
BRIDGING MULTIPLE SCALES IN MODELING TARGETED DRUG NANOCARRIER DELIVER	93.286	U01EB016027				$97,232	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
APPROXIMATING AND REASONING ABOUT DATA PROVENANCE	93.286	U01EB020954				$103,696	$8,262,135	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-SCALE BIOMECHANICS OF ENGINEERED AND NATIVE FIBROUS LOAD-BEARING	*93.286*		*UNIVERSITY OF DELAWARE*	*SUB TO 2-R01-EB-002425-01A1*		*$27,989*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASSESSMENT OF MEDICAL IMAGE QUALITY WITH FOVEATED SEARCH MODELS	*93.286*		*UNIVERSITY OF CALIFORNIA, SANTA BARBARA*	*KK1614*		*$102,916*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTISCALE MODELING OF FACET CAPSULE MECHANOBIOLOGY	*93.286*		*UNIVERSITY OF MINNESOTA*	*A003160902*		*$29,485*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MICROSCOPIC IMAGING OF TISSUE OXYGEN DELIVERY ALTERED BY MICROVASCULAR	*93.286*		*BOSTON UNIVERSITY*	*R01EB021018*		*$71,094*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NON-CONTRAST 4-D DYNAMIC MRA IN ARTERIOVENOUS MALFORMATION	*93.286*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*R01EB014922*		*$74,987*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INCREASING BIOCOMPATIBILITY OF STENTS VIA CD47 SURFACE FUNCTIONALIZATI	*93.286*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01EB023921*		*-$174,197*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CROSS-SCALE INTERACTIONS BETWEEN MINERAL AND COLLAGEN FOR TENDON-BONE	*93.286*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*U01EB016422*		*-$82*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BIODEGRADABLE GOLD NANOPARTICLES AS CONTRAST AGENTS FOR CT	*93.286*		*POLYAURUM LLC*	*1R41EB023169*		*$44,375*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
QUANTITATIVE IMAGE MODELING FOR BRAIN TUMOR ANALYSIS AND TRACKING	*93.286*		*OLD DOMINION UNIVERSITY RESEARCH FOUNDATION*	*16-249-100594-010*		*$24,199*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INCREASING BIOCOMPATIBILITY OF STENTS VIA CD47 SURFACE FUNCTIONALIZATI	*93.286*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01EB023921*		*$117,323*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT AND MAINTENANCE OF SOFTWARE FOR MR SPECTROSCOPIC IMAGING	*93.286*		*UNIVERSITY OF MIAMI*	*R01EB016064*		*$87,731*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIGH RESOLUTION OPTICAL MOLECULAR IMAGING WITH CHERENKOV EXCITED LUMIN	*93.286*		*DARTMOUTH COLLEGE*	*R01EB024498*		*$52,458*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOOLS FOR THE SITE-SPECIFIC LABELING AND IMMOBILIZATION OF ANTIBODIES	*93.286*		*ALPHATHERA*	*R44EB023750*		*$108,178*	*$8,262,135*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADDRESSING DISPARITIES IN PERTUSSIS EPIDEMIOLOGY	93.307	F31MD013358				$39,997	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
COMPREHENSIVE CENTER OF EXCELLENCE IN HEALTH DISPARITIES	93.307	P60MD006900			-$10,780	-$10,780	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
COMPREHENSIVE CENTER OF EXCELLENCE IN HEALTH DISPARITIES	93.307	P60MD006900				-$10,261	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
HEALTH PROMOTION FOR POSITIVES: A RANDOMIZED TRIAL WITH HIV POSITIVE B	93.307	R01MD006232				$61,145	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
DISPARITIES IN THE OUTCOMES AND PROCESSES OF CARE FOR IN-HOSPITAL CARD	93.307	R01MD011518			$22,767	$294,377	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
THE IMPACT OF NURSING ON RACIAL DISPARITIES IN SURGICAL OUTCOMES	93.307	R01MD011679			$404,197	$773,362	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
INCREASING ENGAGEMENT AND IMPROVING HIV CARE OUTCOMES VIA STIGMA REDUC	93.307	R01MD013623			$96,947	$415,767	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING HIV VULNERABILITY THROUGH A MULTILEVEL LIFE SKILLS INTERVENTI	93.307	U01MD011274			$74,930	$279,803	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING HIV VULNERABILITY THROUGH A MULTILEVEL LIFE SKILLS INTERVENTI	93.307	U01MD011274			$1,112,763	$1,545,338	$3,933,411	RESEARCH AND DEVELOPMENT	$706,379,077
PROSPECTIVE STUDY OF RACIAL AND ETHNIC DISPARITIES IN CHRONIC PAIN AND	*93.307*		*RAND CORPORATION*	*R01MD010372*		*$278,820*	*$3,933,411*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FEASIBILITY OF A PROTOCOL TO UNDERSTAND BIOLOGICAL, BEHAVIORAL, AND SO	*93.307*		*MEDICAL UNIVERSITY OF SOUTH CAROLINA*	*U54MD010706*		*$36,060*	*$3,933,411*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MUSC TRANSDISCIPLINARY COLLABORATIVE CENTER IN PRECISION MEDICINE AND	*93.307*		*MEDICAL UNIVERSITY OF SOUTH CAROLINA*	*MUSC16-081-8C186*		*$94,605*	*$3,933,411*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPENING DOORS TO EARLY INTERVENTION STUDY	*93.307*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01MD011597*		*$27,050*	*$3,933,411*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A RANDOMIZED CONTROLLED TRIAL OF WOMEN INVOLVED IN SUPPORTING HEALTH (	*93.307*		*DREXEL UNIVERSITY*	*800174*		*$73,600*	*$3,933,411*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPENING DOORS TO EARLY INTERVENTION STUDY	*93.307*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01MD011597*		*$18,761*	*$3,933,411*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MUSC TRANSDISCIPLINARY COLLABORATIVE CENTER IN PRECISION MEDICINE AND	*93.307*		*MEDICAL UNIVERSITY OF SOUTH CAROLINA*	*MUSC16-081-8C186*		*$15,767*	*$3,933,411*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENGINEERING 3-D EPIGENOME TOPOLOGY WITH LIGHT	93.310	DP2MH110247				$877,528	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
A DATA-DRIVEN DRUG DELIVERY (4D) PLATFORM FOR PROBING AND TREATING THE	93.310	DP2TR002776				$487,484	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
NEXT GENERATION TOOLS FOR IMAGING BACTERIAL INFECTION AND ITS RELATION	93.310	DP5DO026386				$305,033	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
IMAGE-BASED PHENOTYPING OF HEPATOCELLULAR CARCINOMA CELL SURVIVAL UNDE	93.310	DP5OD021391				$434,046	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
DO-IT-YOURSELF AND DIRECT-TO-CONSUMER MEDICINE AND SCIENCE: ASSESSING	93.310	DP5OD026420				$176,486	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
A RANDOMIZED CONTROLLED TRIAL OF INCENTIVES FOR HABIT FORMATION	93.310	R01AG043844				-$7,963	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSLATING CELLULAR IMMUNOTHERAPIES FOR AUTOIMMUNITY TO CANINE CLINIC	93.310	R01AR075337				$585,376	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
VALIDATION AND DEVELOPMENT OF SINGLE NUCLEOTIDE VARIANT RNA FISH IN SI	93.310	R33EB019767				$2,933	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF SINGLE CELL MRNA VARIATION IN SYSTEMS ASSOCIATED ELECTRICALLY	93.310	U01MH098953				$63	$4,974,619	RESEARCH AND DEVELOPMENT	$706,379,077
CROWDSOURCING MARK-UP OF THE MEDICAL LITERATURE TO SUPPORT EVIDENCE-BA	*93.310*		*NORTHEASTERN UNIV*	*UH2CA203711*		*$74,513*	*$4,974,619*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPACT OF RACIALLY TARGETED FOOD AND BEVERAGE ADS ON ADOLESCENT BEHAVI	*93.310*		*NEW YORK UNIVERSITY*	*DP5OD021373*		*$2,529*	*$4,974,619*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EXPLORER: CHANGING THE MOLECULAR IMAGING PARADIGM WITH TOTAL BODY PET	*93.310*		*UNIVERSITY OF CALIFORNIA, DAVIS*	*R01CA206187*		*$1,721,228*	*$4,974,619*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DYNAMIC NETWORK NEUROSCIENCE AND CONTROL THEORY: TOWARD INTERVENTIONS	*93.310*		*DREXEL UNIVERSITY*	*DP5OD21352*		*$172,572*	*$4,974,619*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMAGING CHROMOSOME DYNAMICS AND MEASURING ITS IMPACT ON TRANSCRIPTIONA	*93.310*		*PRINCETON UNIVERSITY*	*U01DA047730*		*$52,097*	*$4,974,619*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPACT OF RACIALLY TARGETED FOOD AND BEVERAGE ADS ON ADOLESCENT BEHAVI	*93.310*		*NEW YORK UNIVERSITY*	*DP5OD021373*		*$16,633*	*$4,974,619*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNDIAGNOSED DISEASES NETWORK CLINICAL SITE	*93.310*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U01HG010219*		*$74,061*	*$4,974,619*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HPL MEDICAL OUTSTANDING AS OF 07/01/2018	93.342					$196,835	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
HPL DENTAL ISSUED DURING 2019	93.342					$2,337,518	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
HPL DENTAL OUTSTANDING AS OF 07/01/2018	93.342					$8,456,863	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
LDS DENTAL OUTSTANDING AS OF 07/01/2018	93.342					$2,201	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
LDS DENTAL ISSUED DURING 2019	93.342					$3,243	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
HPL VET ISSUED DURING 2019	93.342					$1,507,919	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
LDS MEDICAL OUTSTANDING AS OF 07/01/2018	93.342					$1,317,482	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
LDS MEDICAL ISSUD DURING 2019	93.342					$1,021,424	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
HPL VET OUTSTANDING AS OF 07/01/2018	93.342					$2,360,977	$17,204,462	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
CONFERENCE ON CLINICAL RESEARCH FOR RARE DISEASES (CCRRD)	93.350	R13TR001587				$68,358	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
FOSTERING PARTICIPATION OF YOUNG INVESTIGATORS FOR THE 19TH INTERNATIO	93.350	R13TR002522				$25,000	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	TL1TR001880				$35,031	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	TL1TR001880				$1,442,440	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	TL1TR001880				$121,437	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879			$12,090	$21,411	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879			$183,325	$183,325	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879			$316,698	$316,698	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879			$545,741	$862,286	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879			$2,391,367	$9,220,059	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879				$14,998	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879				-$40,959	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879				$379,517	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.350	UL1TR001879				$13,066	$12,920,796	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFICATION OF SHARED MOLECULAR TARGETS	*93.350*		*UNIVERSITY OF SOUTH FLORIDA*	*U01TR001263*	*$5,600*	*$7,072*	*$12,920,796*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NATIONAL IPS CELL NETWORK WITH DEEP PHENOTYPING FOR TRANSLATIONAL RE	*93.350*		*BOSTON UNIVERSITY*	*U01TR001810*		*$1,766*	*$12,920,796*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE DYSTONIA COALITION PROJECT 1: NATURAL HISTORY AND BIOSPECIMEN REPO	*93.350*		*DYSTONIA MED RES FD*	*U54TR001456*		*-$48,034*	*$12,920,796*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LUNG HOST DEFENSE IN MICROGRAVITY	*93.350*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*UG3TR002198*		*$113,177*	*$12,920,796*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NATIONAL IPS CELL NETWORK WITH DEEP PHENOTYPING FOR TRANSLATIONAL RE	*93.350*		*BOSTON UNIVERSITY*	*U01TR001810*		*$150,921*	*$12,920,796*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INSTITUTIONAL CAREER DEVELOPMENT	*93.350*		*UNIVERSITY OF PITTSBURGH*	*UL1TR001857*		*$33,227*	*$12,920,796*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENHANCEMENT AND EXPANSION: PENN NEUROPHYSIOLOGY AND BEHAVIOR TESTING F	93.351	G20OD021951				$251,323	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZATION OF THE NOVEL PROTECTIVE ROLE OF THE MAST CELL IN COLI	93.351	K01OD019729				$49,054	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
REFERRAL CTR-ANIMAL MODELS OF HUMAN GENETIC DISEASE	93.351	P40OD010939			$9,704	$279,219	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
REFERRAL CTR-ANIMAL MODELS OF HUMAN GENETIC DISEASE	93.351	P40OD010939				$945,928	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
REFERRAL CTR-ANIMAL MODELS OF HUMAN GENETIC DISEASE	93.351	P40OD010939				-$124	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
REFERRAL CTR-ANIMAL MODELS OF HUMAN GENETIC DISEASE	93.351	P40OD010939				$121,119	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
ANTI-INFLAMMATORY ROLE OF MAST CELL-DERIVED BONE MORPHOGENETIC PROTEIN	93.351	R03OD026599				$9,805	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
RESOURCES FOR EDUCATION AND ACTION FOR COMMUNITY HEALTH IN AMBLER (REA	93.351	R25OD010521			$35,192	$35,192	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
RESOURCES FOR EDUCATION AND ACTION FOR COMMUNITY HEALTH IN AMBLER (REA	93.351	R25OD010521				-$3,870	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
APERIO VERSA DIGITAL SLIDE SCANNER, ESLIDE MANAGER DATABASE, AND ADVAN	93.351	S10OD023465				$1,032	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
BIOMEDICAL IMAGE COMPUTING AND INFORMATICS CLUSTER	93.351	S10OD023495				$691,383	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
COMPUTATIONAL RESOURCE FOR STRUCTURAL BIOLOGY AND MOLECULAR BIOPHYSICS	93.351	S10OD023592				-$50	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
MESO QUIKPLEX SQ 120 FOR THE MULTIPLEX QUANTIFICATION OF PROTEINS IN H	93.351	S10OD025172				$50,025	$2,451,568	RESEARCH AND DEVELOPMENT	$706,379,077
TCR AND BCR DEEP SEQUENCING TO DISTINGUISH AUTOIMMUNE RECURRENCE FROM	*93.351*		*COLUMBIA UNIVERSITY*	*R21TR002279*		*$21,532*	*$2,451,568*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RADIATION AND CHECKPOINT BLOCKADE FOR CANCER IMMUNE THERAPY	93.353	P01CA210944			28309	2097252	$6,561,264	RESEARCH AND DEVELOPMENT	706379077
ENHANCING CHIMERIC ANTIGEN RECEPTOR T CELL THERAPIES FOR HEMATOLOGIC M	93.353	P01CA214278			$234,230	$2,559,000	$6,561,264	RESEARCH AND DEVELOPMENT	$706,379,077
AREA B: MULTI-TRACER VOLUMETRIC PET (MTV-PET) TO MEASURE TUMOR GLUTAM	93.353	R33CA225310			$67,625	$517,907	$6,561,264	RESEARCH AND DEVELOPMENT	$706,379,077
COORDINATING CENTER FOR CANINE IMMUNOTHERAPY TRIALS AND CORRELATIVE ST	93.353	U24CA224122				$372,743	$6,561,264	RESEARCH AND DEVELOPMENT	$706,379,077
A PHASE II TRIAL OF MK-3475 (PEMBROLIZUMAB) AND INTERFERON GAMMA 1-B C	*93.353*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*0000916484*		*-$16,412*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISRUPTING THE IMMUNE AND DRUG-PRIVILEGED MICROENVIRONMENT IN PANCREAS	*93.353*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*U01CA224193*		*$36,620*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COTC026: EVALUATION OF A RECOMBINANT, ATTENUATED LISTERIA MONOCYTOGENE	*93.353*		*MORRIS ANIMAL FOUNDATION*	*U24CA224122*		*$35,804*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RATIONAL APPROACHES TO CANCER THERAPY	*93.353*		*WISTAR INSTITUTE*	*U54CA224070*		*$149,712*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RATIONAL APPROACHES TO CANCER THERAPY	*93.353*		*WISTAR INSTITUTE*	*U54CA224070*		*$111,576*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISRUPTING THE IMMUNE AND DRUG-PRIVILEGED MICROENVIRONMENT IN PANCREAS	*93.353*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*U01CA224193*		*$114,645*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CASSETTE EXONS IN NEOPLASTIC PRO-B-CELLS: IMPLICATIONS FOR IMMUNOTHERA	*93.353*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*SUB TO 1U01CA232563-01*		*$253,976*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTIDIMENSIONAL SINGLE-CELL ATLASES FOR PEDIATRIC TUMORS	*93.353*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U2CCA233285*		*$163,585*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISCOVERY AND DEVELOPMENT OF OPTIMAL IMMUNOTHERAPEUTIC STRATEGIES FOR	*93.353*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54CA232568*		*$23,063*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A PHASE II TRIAL OF MK-3475 (PEMBROLIZUMAB) AND INTERFERON GAMMA 1-B C	*93.353*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*0000916484*		*$13,144*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR PEDIATRIC TUMOR CELL ATLAS	*93.353*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U2CCA233285*		*$123,845*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A PHASE II STUDY OF MK-3475 FOR THE TREATMENT OF RELAPSED/REFRACTORY M	*93.353*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*0000920801*		*$4,804*	*$6,561,264*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN OBJECTIVE SNORING INDEX AND ITS ASSOCIATION WITH CAROTID ATHEROSCLE	93.361	1-K99-NR-013177-01				-$68	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROTE OF OPIOID ADHERENCE PROFILES IN CANCER PAIN SELF-MANAGEMENT A	93.361	1-R01-NR-017853-01A1				$9,620	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
FROM THE FRONT-LINE TO THE COMMUNITY: EVALUATING THE RELATIONSHIP OF P	93.361	F31NR017151				$2,221	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
HOME-BASED PEDIATRIC PALLIATIVE CARE OUTCOMES STUDY	93.361	F31NR017554				$42,901	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
THE INFLUENCE OF SOCIAL DETERMINANTS OF HEALTH ON FAMILY AND SELF-MANA	93.361	F31NR018097				$14,748	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
CARING FOR ACTIVELY DYING CHILDREN AND THEIR PARENTS IN THE PEDIATRIC	93.361	F31NR018104				$35,164	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
A MIXED METHODS STUDY TO UNDERSTAND THE RELATIONSHIP BETWEEN SOCIAL DE	93.361	F31NR018374				$36,554	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF A SYMPTOM CLUSTER: DYSPNEA, FATIGUE AND SLEEP DISTURBANC	93.361	K23NR014885				$15,071	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL RESPONSE TO FOOD STIMULI: FMRI CHANGES FOLLOWING COGNITIVE BEHA	93.361	K23NR017209				$156,929	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
PALLIATIVE CARE CONSULTATIONS FOR PERSONS IN THE MEDICARE SKILLED NURS	93.361	K23NR017663				$50,676	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
A PERSONALIZED BEHAVIORAL INTERVENTION TO IMPROVE PHYSICAL ACTIVITY, S	93.361	K99NR016484				$37,982	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
PROMOTING TEEN HEALTH: A WEB-BASED INTERVENTION TO PREVENT RISKY DRIVI	93.361	R00NR013548				$2,883	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
A PROBLEM SOLVING INTERVENTION FOR HOSPICE CAREGIVERS	93.361	R01NR012213			$109,197	$591,258	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
REVEALING THE ROLE OF THE CERVICO-VAGINAL MICROBIOME IN SPONTANEOUS PR	93.361	R01NR014784			$52,135	$195,617	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
PANEL STUDY OF EFFECTS OF CHANGES IN NURSING ON PATIENT OUTCOMES	93.361	R01NR014855			$103,520	$118,770	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
PANEL STUDY OF EFFECTS OF CHANGES IN NURSING ON PATIENT OUTCOMES	93.361	R01NR014855				$330,887	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF PALLIATIVE CARE INTERVENTIONS TO REDUCE CIRCADIAN RHYTHM D	93.361	R01NR015226				$741,027	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
DECODING THE MICROBIAL BIOBURDEN OF DIABETIC FOOT ULCERS: A METAGENOMI	93.361	R01NR015639				$13,121	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
THE IMPACT OF NURSING ON IN-HOSPITAL CARDIAC ARREST PATIENT OUTCOMES	93.361	R01NR016002			$18,048	$291,716	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING SELF-CARE OF INFORMAL CAREGIVERS OF ADULTS WITH HEART FAILUR	93.361	R01NR018196				$193,455	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH ON VULNERABLE WOMEN, CHILDREN AND FAMILIES	93.361	T32NR007100				$37	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH ON VULNERABLE WOMEN, CHILDREN AND FAMILIES	93.361	T32NR007100				-$1,931	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH ON VULNERABLE WOMEN, CHILDREN AND FAMILIES	93.361	T32NR007100				$557,126	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCED TRAINING IN NURSING OUTCOMES RESEARCH	93.361	T32NR007104				-$907	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCED TRAINING IN NURSING OUTCOMES RESEARCH	93.361	T32NR007104				$475,473	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
INDIVIDUALIZED CARE FOR AT RISK OLDER ADULTS	93.361	T32NR009356				$705	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
INDIVIDUALIZED CARE FOR AT RISK OLDER ADULTS	93.361	T32NR009356				$458,546	$4,895,608	RESEARCH AND DEVELOPMENT	$706,379,077
SEVERE PAIN DURING WOUND CARE PROCEDURES: MODEL AND MECHANISMS	*93.361*		*UNIVERSITY OF IOWA*	*W000711747*		*$105,136*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEGOTIATED DECISION-MAKING: FEASIBILITY OF THE BREATHE ASTHMA INTERVEN	*93.361*		*COLUMBIA UNIVERSITY*	*R21NR016507*		*$128,608*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENHANCED ULTRASOUND TREATMENT OF CHRONIC WOUNDS WITH MONITORING OF HEA	*93.361*		*DREXEL UNIVERSITY*	*R01NR015995*		*$28,684*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR INNOVATION IN SLEEP SELF MANAGEMENT (CISSM)	*93.361*		*UNIVERSITY OF WASHINGTON*	*P30NR016585*		*-$1*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFYING BARRIERS, FACILITATORS AND OUTCOMES OF ADVANCE CARE PLANNI	*93.361*		*BRIGHAM AND WOMEN'S HOSPITAL*	*R01NR017034*		*$38,351*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMPARING QUALITY AND COST OF CARE ACROSS NURSING ENVIRONMENTS	*93.361*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*1R01NR016019*		*$136,589*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR INNOVATION IN SLEEP SELF MANAGEMENT (CISSM)	*93.361*		*UNIVERSITY OF WASHINGTON*	*P30NR016585*		*$17,305*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PALLIATIVE CARE RESEARCH COOPERATIVE GROUP (PCRC): REFINEMENT AND EXPA	*93.361*		*UNIVERSITY OF COLORADO DENVER*	*U2CNR014637*		*$34,770*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CONNECT-HOME: TESTING THE EFFICACY OF TRANSITIONAL CARE OF PATIENTS AN	*93.361*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*R01NR017636*		*$11,868*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SLEEP SELF-MANAGEMENT INTERVENTION FOR CHILDREN WITH JIA (SMID)	*93.361*		*UNIVERSITY OF WASHINGTON*	*R21NR017471*		*$11,619*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SELF-MANAGEMENT OF ADOLESCENT AND YOUNG ADULT SURVIVORS OF CHILDHOOD C	*93.361*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01NR017429*		*$10,201*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR INNOVATION IN SLEEP SELF MANAGEMENT (CISSM)	*93.361*		*UNIVERSITY OF WASHINGTON*	*P30NR016585*		*$2,897*	*$4,895,608*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NURSING STUDENT LOAN GRADUATE OUTSTANDING NEW LOANS ISSUED DURING 2019	93.364					$158,500	$3,607,945	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
NURSING STUDENT LOAN UNDERGRADUATE NEW LOANS ISSUED DURING 2019	93.364					$737,200	$3,607,945	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
NURSING STUDENT LOAN GRADUATE OUTSTANDING LOANS AS OF 07/01/2018	93.364					$392,977	$3,607,945	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
NURSING STUDENT LOAN UNDERGRADUATE OUTSTANDING LOANS AS OF 07/01/2018	93.364					$2,319,268	$3,607,945	STUDENT FINANCIAL ASSISTANCE CLUSTER	$270,411,826
SURGERY TO PREVENT POST INFARCTION VENTRICULAR REMODELING	93.387	R01HL063954			$487,031	$519,086	$519,086	RESEARCH AND DEVELOPMENT	$706,379,077
INSTITUTIONAL CLINICAL AND TRANSLATIONAL SCIENCE AWARD	93.389	2-UL1-RR-024133-06				-$68	-$68	RESEARCH AND DEVELOPMENT	$706,379,077
PHASE III RANDOMIZED CLINICAL TRIAL OF PROTON THERAPY VS IMRT FOR LOW	*93.392*		*MASSACHUSETTS GENERAL HOSPITAL*	*C06CA059267*		*$28,163*	*$28,163*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INVESTIGATING MOLECULAR MECHANISM OF T CELL EXHAUSTION IN CHRONIC INFE	93.393	F99CA234842				$22,148	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY EVENTS IN KSHV INFECTION OF PRIMARY B-CELLS	93.393	P01CA174439			$247,121	$1,310,930	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
MYC--TRANSCRIPTION AND APOPTOSIS	93.393	R01CA051497				-$27,945	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION BY TUMOR SUPPRESSOR P53	93.393	R01CA078831				$372,307	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION BY TUMOR SUPPRESSOR P53	93.393	R01CA078831				$91,935	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF HOS IN CELL TRANSFORMATION AND APOPTOSIS	93.393	R01CA092900				$415,368	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
THE RAP80-BRCC36 DEUBIQUITINATING COMPLEX IN DNA REPAIR	93.393	R01CA138835			$61,696	$415,528	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR CANCER ABSOLUTE RISK PREDICTION	93.393	R01CA164305				$59,568	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
EXTENDED DURATION VARENICLINE FOR SMOKING AMONG CANCER PATIENTS: A CLI	93.393	R01CA165001			$16,143	$16,143	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF FYN AND SRCASM IN UVB-INDUCED CUTANEOUS NEOPLASIA	93.393	R01CA165836				-$12,033	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
RETRAINING NEUROCOGNITIVE MECHANISMS OF CANCER RISK BEHAVIOR (PQ4)	93.393	R01CA170297				-$462	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
GENOME PERSISTENCE OF KSHV	93.393	R01CA171979				$164,069	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF A DNA DAMAGE RESPONSE NETWORK IN GLIOBLASTOMA	93.393	R01CA172651				$55,166	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
USE OF GENETICALLY ENGINEERED T CELLS TARGETING TUMOR STROMA TO TREAT	93.393	R01CA172921				$89,603	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF ACETYL-COA IN LINKING CANCER CELL METABOLISM AND EPIGENETICS	93.393	R01CA174761				$176,412	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ROLES OF CHROMATIN MODIFICATION IN BRCA1 DEPENDENT DNA REPAIR	93.393	R01CA174904				-$7,947	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
ROLES OF CHROMATIN MODIFICATION IN BRCA1 DEPENDENT DNA REPAIR	93.393	R01CA174904				$198,420	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
MENIN-MEDIATED EPIGENETIC TUMOR SUPPRESSION	93.393	R01CA178856				$240,233	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
PQ3-A: NEURAL PREDICTORS OF RECEPTIVITY TO HEALTH COMMUNICATION AND BE	93.393	R01CA180015				$63,669	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
PLACEBO-CONTROLLED TRIAL OF BUPROPION FOR SMOKING CESSATION IN PREGNAN	93.393	R01CA184315			$177,065	$377,189	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
MERKEL CELL POLYOMAVIRUS INFECTION, DNA DAMAGE RESPONSE AND CANCER	93.393	R01CA187718				$286,781	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF ATR-CHK1 INHIBITION ON GENOME STABILITY AND CANCER PROGRESS	93.393	R01CA189743			$7,973	$414,721	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
THE EPIGENETIC MECHANISM OF LONG NON-CODING RNA IN CANCER	93.393	R01CA190415				$331,265	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
RETURNING GENETIC RESEARCH PANEL RESULTS FOR BREAST CANCER SUSCEPTIBIL	93.393	R01CA190871			$256,341	$705,030	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
RETENTION IN CANCER CLINICAL TRIALS: MODELING PATIENTS' RISK BENEFIT A	93.393	R01CA196131			$137,889	$388,939	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
THE IMPACT OF E-CIGARETTE USE ON ADOLESCENT UPTAKE AND PERSISTENCE OF	93.393	R01CA202262			$4,629	$683,826	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
TESTING AN ORGANIZATIONAL CHANGE MODEL TO ADDRESS SMOKING IN MENTAL HE	93.393	R01CA202699			$51,061	$546,466	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
OSTOMY TELEHEALTH SELF-MANAGEMENT TRAINING FOR CANCER SURVIVORS	93.393	R01CA204193				$13,808	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACTIVATION FOR SMOKING CESSATION AND THE PREVENTION OF POST	93.393	R01CA206058			$24,105	$790,134	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF KLHL6 INACTIVATION IN MATURE B-CELL MALIGNANCIES	93.393	R01CA207513				$349,122	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTIVENESS OF SCREENING FOR COLORECTAL CANCER IN AVERAGE RISK ADULT	93.393	R01CA213645			$269,367	$481,949	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING THE NOTCH:MYC AXIS IN LEUKEMIA/LYMPHOMA	93.393	R01CA215518			$26,222	$351,463	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-MODAL IMAGING OF PSYCHOSTIMULANT EFFECTS ON EXECUTIVE FUNCTION P	93.393	R01CA215587			$30,621	$490,301	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
USING NONCLASSICAL ESTROGEN SIGNALING TO PREVENT MELANOMA	93.393	R01CA227188				$88,048	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING CONFOUNDER CONTROL IN EHR-BASED STUDIES OF CANCER EPIDEMIOLO	93.393	R21CA227613				$38,584	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROSCIENCE-BASED INTERVENTIONS FOR CANCER RISK BEHAVIOR CHANGE	93.393	R35CA197461				$110,258	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROSCIENCE-BASED INTERVENTIONS FOR CANCER RISK BEHAVIOR CHANGE	93.393	R35CA197461				$631,517	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
POST GWA STUDIES IN TESTICULAR GERM CELL TUMORS	93.393	U01CA164947			$80,791	$287,396	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE HUMAN TISSUE NETWORK EASTERN DIVISION	93.393	UM1CA183711				$12,800	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE HUMAN TISSUE NETWORK EASTERN DIVISION	93.393	UM1CA183711				$798,336	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATIVE HUMAN TISSUE NETWORK EASTERN DIVISION	93.393	UM1CA183711				$35,626	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
COOPERATIVE HUMAN TISSUE NETWORK EASTERN DIVISION	93.393	UM1CA239745				$317,582	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
COOPERATIVE HUMAN TISSUE NETWORK EASTERN DIVISION	93.393	UM1CA239745				-$22,676	$14,372,429	RESEARCH AND DEVELOPMENT	$706,379,077
INFLUENCING CERVICAL CANCER PREVENTION AND DETECTION ONLINE THROUGH SO	*93.393*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*8361SC*		*$29,043*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EPIGENETIC REGULATION OF HUMAN TELOMERES	*93.393*		*WISTAR INSTITUTE*	*24512-02-319*		*$7,844*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE MECHANISMS DRIVING BRAIN ONCOGENESIS BY FGFR-TACC GENE FUSIONS	*93.393*		*COLUMBIA UNIVERSITY*	*2 (GG010414-01)*		*$13,765*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANISMS FOR DEVELOPMENT OF HCC IN HIV	*93.393*		*YALE UNIVERSITY*	*R01CA206465*		*$213,270*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MRI BACKGROUND PARENCHYMAL ENHANCEMENT AS A RISK FACTOR FOR BREAST CAN	*93.393*		*MEMORIAL SLOAN-KETTERING CANCER CENTER*	*BD517003*		*$1,960*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATIENT PERSPECTIVES ON THE ETHICAL IMPLEMENTATION OF ONCOLOGY LEARNIN	*93.393*		*UNIVERSITY OF MICHIGAN*	*3004298102*		*$47,819*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVARQUIT: EXTINGUISHING CIGARETTE SMOKING WITH EXTENDED PRE-QUIT VAREN	*93.393*		*RESEARCH FOUNDATION FOR THE STATE UNIVERSITY OF NEW YORK*	*R01CA206193*		*$19,544*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF NOVEL GPU MONTE CARLO AND ACTIVE PHOTONICS SIMULATION S	*93.393*		*SIMPHOTEK, INC.*	*R44CA183236*		*$75,602*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BEHAVIORAL ACTIVATION AND VARENICLINE FOR SMOKING CESSATION IN DEPRESS	*93.393*		*NORTHWESTERN UNIVERSITY*	*60038259 UP*		*$19,820*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ONCOHISTONES: ROLE OF HISTONE H3 MUTATIONS IN THE ONCOGENESIS OF PEDIA	*93.393*		*ROCKEFELLER UNIVERSITY*	*1-P01-CA-196539-01*		*$48,021*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPROVING HPV VACCINATION DELIVERY IN PEDIATRIC CARE: THE STOP-HPV TRA	*93.393*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*R01CA202261*		*$31,115*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNDERSTANDING PSYCHOSOCIAL AND IMMUNOLOGIC RESPONSES IN INDOLENT LYMPH	*93.393*		*FOX CHASE CANCER CENTER*	*R01CA194263*		*$33,796*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATING THE PROTECTIVE EFFORT OF A TISSUE SELECTIVE ESTROGEN COMPLE	*93.393*		*NORTHWESTERN UNIVERSITY*	*R01CA218436*		*-$3,123*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRECISION ASSESSMENT AND DELIVERY OF CANCER RISKS IN BRCA 1/2 MUTATION	*93.393*		*HARVARD MEDICAL SCHOOL*	*R01CA207365*		*$115,182*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RISK AND PENETRANCE OF MUTATIONS FROM BREAST CANCER TESTING PANELS	*93.393*		*MAYO CLINIC ROCHESTER*	*63846738*		*$130,028*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ACCESS (ACCESS FOR CANCER CAREGIVERS TO EDUCATION AND SUPPORT FOR SHAR	*93.393*		*UNIVERSITY OF MISSOURI-COLUMBIA*	*R01CA203999*		*$73,080*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NRG ONCOLOGY CENTER FOR INNOVATION IN RADIATION ONCOLOGY (CIRO)	*93.393*		*RTOG FOUNDATION, INC.*	*0004-NRG-16*		*$130,894*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTICENTER EVALUATION OF DIGITAL BREAST TOMOSYNTHESIS WITH SYNTHESIZE	*93.393*		*UNIVERSITY OF VERMONT*	*R03CA223735*		*$29,647*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RADIOMIC PHENOTYPES OF BREAST PARENCHYMA AND BREAST CANCER RISK AND DE	*93.393*		*MAYO CLINIC ROCHESTER*	*R01CA207084*		*$177,958*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TARGETING CELL CYCLE ALTERATIONS TO IMPROVE TREATMENT FOR ADVANCED PRO	*93.393*		*THOMAS JEFFERSON UNIVERSITY*	*R01CA217329*		*$21,811*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RISK-BASED BREAST CANCER SCREENING AND SURVEILLANCE IN COMMUNITY PRACT	*93.393*		*UNIVERSITY OF CALIFORNIA, DAVIS*	*P01CA154292*		*$20,715*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFYING AND VALIDATING NOVEL SUSCEPTIBILITY GENES FOR BREAST CANCE	*93.393*		*MAYO CLINIC ROCHESTER*	*R01CA176785*		*$58,629*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A RANDOMIZED CONTROLLED TRIAL OF AN HPV VACCINE INTERVENTION FOR YOUNG	*93.393*		*OHIO STATE UNIVERSITY*	*R01CA226682*		*$28,987*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RACIAL/ETHNIC DIFFERENCES IN MOLECULAR SUBTYPES OF OVARIAN CANCER, TRE	*93.393*		*UNIVERSITY OF UTAH*	*R01CA200854*		*$28,353*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BEHAVIORAL ACTIVATION AND VARENICLINE FOR SMOKING CESSATION IN DEPRESS	*93.393*		*NORTHWESTERN UNIVERSITY*	*60038259 UP*		*$120,032*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ONCOHISTONES: ROLE OF HISTONE H3 MUTATIONS IN THE ONCOGENESIS OF PEDIA	*93.393*		*ROCKEFELLER UNIVERSITY*	*1-P01-CA-196539-01*		*$271,093*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RISK AND PENETRANCE OF MUTATIONS FROM BREAST CANCER TESTING PANELS	*93.393*		*MAYO CLINIC ROCHESTER*	*63846738*		*$86,686*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THEORY AND METHODS FOR MEDIATION AND INTERACTION	*93.393*		*HARVARD UNIVERSITY*	*R01CA222147*		*$48,228*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AUTOMATED OBJECT CONTOURING METHODS & SOFTWARE FOR RADIOTHERAPY PLANNI	*93.393*		*QUANTITATIVE RADIOLOGY SOLUTIONS, LLC*	*R42CA199735*		*$175,755*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNDERSTANDING PSYCHOSOCIAL AND IMMUNOLOGIC RESPONSES IN INDOLENT LYMPH	*93.393*		*FOX CHASE CANCER CENTER*	*R01CA194263*		*$49,929*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUROSCIENCE-BASED INTERVENTIONS FOR CANCER RISK BEHAVIOR CHANGE	*93.393*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*7R35CA197461*		*$43,227*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RADIOMIC PHENOTYPES OF BREAST PARENCHYMA AND BREAST CANCER RISK AND DE	*93.393*		*MAYO CLINIC ROCHESTER*	*R01CA207084*		*$72,142*	*$14,372,429*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TIME-OF-FLIGHT PET FOR IMPROVED WHOLE-BODY IMAGING	93.394	R01CA113941				$461,149	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
DIGITAL BREAST TOMOSYNTHESIS IMAGING BIOMARKERS FOR BREAST CANCER RISK	93.394	R01CA161749			$181,720	$517,220	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
HLTF GENE SILENCING: A NOVEL DETERMINANT OF SENSITIVITY TO AUTOPHAGY I	93.394	R01CA169134				$29,616	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
TUMOR-TARGETED POLYMERSOMES TO IMAGE AND TREAT OVARIAN CANCER	93.394	R01CA175480			$18,555	$169,224	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
REDOX IMAGING FOR BREAST CANCER PROGNOSIS	93.394	R01CA191207			$105,319	$854,469	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
A NEW IMAGING APPROACH TO RADIOTHERAPY PLANNING FOR LUNG CANCER	93.394	R01CA193050				$655,442	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
NEAR INFRARED INTRAOPERATIVE MOLECULAR IMAGING OF LUNG ADENOCARCINOMA	93.394	R01CA193556			$63,139	$479,829	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH PERFORMANCE, QUANTITATIVE BREAST PET SCANNER INTEGRATED WITH TOMO	93.394	R01CA196528			$12,371	$598,796	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-PARAMETRIC 4-D IMAGING BIOMARKERS FOR NEOADJUVANT TREATMENT RESP	93.394	R01CA197000			$18,984	$345,821	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
PHOSPHOLIPASE-ACTIVATED THERANOSTICS FOR PDT OF BREAST CANCER	93.394	R01CA201328				$409,695	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATED DISCOVERY PIPELINE FOR TUMOR NEOANTIGENS	93.394	R01CA204261				$403,995	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
ANTIVASCULAR ULTRASOUND THERAPY OF PRIMARY LIVER NEOPLASIA	93.394	R01CA204446				$410,415	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
REAL-TIME MONITORING OF CIRCULATING PANCREATIC TUMOR CELLS AND CLUSTER	93.394	R01CA207643			$209,527	$539,225	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR IMAGING MARKERS FOR GLUTAMINOLYSIS IN BREAST CANCER	93.394	R01CA211337				$448,602	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
POINT OF CARE DIAGNOSTICS OF HPV-ASSOCIATED CERVICAL CANCER IN HIV EPI	93.394	R01CA214072				$37,252	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
RADIOGENOMIC BIOMARKERS OF BREAST CANCER RECURRENCE	93.394	R01CA223816				$413,481	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
PENNPET EXPLORER SCANNER WITH SCALABLE AXIAL LENGTH FOR TOTAL BODY PET	93.394	R01CA225874			$147,423	$368,388	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
NEAR-INFRARED CHOLINE KINASE SENSORS FOR INTRAOPERATIVE IDENTIFICATION	93.394	R01CA226412				$456,976	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
NANOPARTICLE CONTRAST AGENTS FOR EARLIER BREAST CANCER DETECTION	93.394	R01CA227142			$100,086	$441,480	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATED INFORMATIC AND EXPERIMENTAL EVALUATIONS OF CANCER CHRONOTHE	93.394	R01CA227485				$886	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
A RANDOMIZED TRIAL OF WEB-BASED BEHAVIORAL ECONOMIC INTERVENTIONS TO P	93.394	R01CA229502			$52,290	$374,450	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
PHOTODYNAMIC THERAPY WITH PRIOR INHIBITION OF EPIDERMAL GROWTH FACTOR	93.394	R01CA236362				$134,566	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
MICCAI 2018 - 21TH INTERNATIONAL CONFERENCE ON MEDICAL IMAGE COMPUTING	93.394	R13CA225202				$8,000	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
MUTATION PROFILE AS TRANSLATABLE PROGNOSTIC BIOMARKER OF UVEAL MELANOM	93.394	R21CA181935				$39,011	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
A MICRO HALL CHIP FOR CIRCULATING MICROVESICLE BASED CANCER MONITORING	93.394	R21CA182336				$3,503	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC IMAGING MARKER FOR TRIPLE NEGATIVE BREAST CANCER	93.394	R21CA198563				$36,981	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
LEARNING RADIOMIC SIGNATURES TO EARLY PREDICT RESPONSE OF RECTAL CANCE	93.394	R21CA223358				$183,433	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH SENSITIVITY DETECTION OF MUTANT CF-CTDNA WITH DNA-GUIDED ARGONAUT	93.394	R21CA227056			$13,920	$196,080	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
RAPID UNBIASED ISOLATION AND IN SITU RNA ANALYSIS OF CIRCULATING TUMOR	93.394	R33CA206907				$296,731	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
COOPERATIVE HUMAN TISSUE NETWORK EASTERN DIVISION	93.394	U01CA044974				$1	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER IMAGING PHENOMICS SOFTWARE SUITE: APPLICATION TO BRAIN AND BREA	93.394	U24CA189523				$107,599	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER IMAGING PHENOMICS SOFTWARE SUITE: APPLICATION TO BRAIN AND BREA	93.394	U24CA189523				$546,545	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
PENN QUANTITATIVE MRI RESOURCE FOR PANCREATIC CANCER	93.394	U24CA231858				$310,869	$11,143,888	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING DOSI TECHNOLOGY FOR MONITORING RESPONSE TO BREAST CANCER CH	*93.394*		*UNIVERSITY OF CALIFORNIA, IRVINE*	*R01CA142989*		*$6,176*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANSFORMING THE DIAGNOSIS AND CARE OF PATIENTS WITH CTCL USING TCR SE	*93.394*		*BRIGHAM AND WOMEN'S HOSPITAL*	*R01CA203721*		*$85,407*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMPUTERIZED HISTOLOGIC IMAGE PREDICTOR OF CANCER OUTCOME	*93.394*		*CASE WESTERN RESERVE UNIVERSITY*	*R01CA202752*		*$45,231*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
USING MARKERS TO IMPROVE PANCREATIC CANCER SCREENING AND SURVEILLANCE	*93.394*		*JOHNS HOPKINS UNIVERSITY*	*U01CA210170*		*$702*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HARMONIZED PET RECONSTRUCTIONS FOR CANCER CLINICAL TRIALS	*93.394*		*UNIVERSITY OF IOWA*	*W000420845/PO #1001078460*		*$44,376*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF BLOOD BIOMARKERS FOR THE EARLY DETECTION OF NON-SMALL C	*93.394*		*WISTAR INSTITUTE*	*R21CA198558*		*$1,364*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MAYO CLINIC PROSPECTIVE RESOURCE FOR BIOMARKER VALIDATION AND EARLY DE	*93.394*		*MAYO CLINIC ROCHESTER*	*THE-216870*		*$11,597*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MAYO CLINIC PROSPECTIVE RESOURCE FOR BIOMARKER VALIDATION AND EARLY DE	*93.394*		*MAYO CLINIC ROCHESTER*	*THE-216870*		*-$19,297*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADVANCED DEVELOPMENT OF TIES - ENHANCING ACCESS TO TISSUE FOR CANCER R	*93.394*		*UNIVERSITY OF PITTSBURGH*	*0035722 (123867-1)*		*$62,664*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATHOLOGY IMAGE INFORMATICS PLATFORM FOR VISUALIZATION, ANALYSIS AND M	*93.394*		*CASE WESTERN RESERVE UNIVERSITY*	*SUB TO RES510429*		*$2,443*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADVANCED PET/CT IMAGING FOR IMPROVING CLINICAL TRIALS	*93.394*		*UNIVERSITY OF WASHINGTON*	*U01CA148131*		*$6,609*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MODIFYING YOUNG ADULT SKIN CANCER RISK AND PROTECTIVE BEHAVIORS (UV4.M	*93.394*		*FOX CHASE CANCER CENTER*	*R01CA204271*		*-$2,818*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WEIGHT MANAGEMENT COUNSELING IN MEDICAL SCHOOLS: A RANDOMIZED CONTROLL	*93.394*		*UNIVERSITY OF MASSACHUSETTS*	*R01CA194787*		*$24,551*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN BIOREPOSITORIES TO SUPPORT NCTN	*93.394*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U24CA196172*		*$15,423*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
: I-SPY2 +: EVOLVING THE I-SPY 2 TRIAL TO INCLUDE MRI-DIRECTED, ADAPTI	*93.394*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*P01CA210961*		*$4,911*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN-BASED QIN RESOURCE FOR ADVANCING QUANTITATIVE CANCER IMAGIN	*93.394*		*AMERICAN COLLEGE OF RADIOLOGY*	*1672*		*$47,579*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN BIOREPOSITORIES TO SUPPORT NCTN	*93.394*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U24CA196172-01-UPA1*		*$9,680*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATHOLOGY IMAGE INFORMATICS PLATFORM FOR VISUALIZATION, ANALYSIS AND M	*93.394*		*CASE WESTERN RESERVE UNIVERSITY*	*SUB TO RES510429*		*$11,832*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
2D AND 4D CONTRAST-ENHANCED ULTRASOUND EVALUATION OF HEPATOCELLULAR CA	*93.394*		*THOMAS JEFFERSON UNIVERSITY*	*R01CA194307*		*$139,559*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MODIFYING YOUNG ADULT SKIN CANCER RISK AND PROTECTIVE BEHAVIORS (UV4.M	*93.394*		*RUTGERS UNIVERSITY*	*R01CA204271*		*$15,060*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MAYO CLINIC PROSPECTIVE RESOURCE FOR BIOMARKER VALIDATION AND EARLY DE	*93.394*		*MAYO CLINIC ROCHESTER*	*THE-216870*		*$165,655*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WEIGHT MANAGEMENT COUNSELING IN MEDICAL SCHOOLS: A RANDOMIZED CONTROLL	*93.394*		*UNIVERSITY OF MASSACHUSETTS*	*R01CA194787*		*$38,796*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF A URINE TEST FOR THE EARLY DETECTION OF LIVER CANCER	*93.394*		*JBS SCIENCE, INC.*	*R44CA165312*		*$52,932*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
: I-SPY2 +: EVOLVING THE I-SPY 2 TRIAL TO INCLUDE MRI-DIRECTED, ADAPTI	*93.394*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*P01CA210961*		*$34,630*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
USING MARKERS TO IMPROVE PANCREATIC CANCER SCREENING AND SURVEILLANCE	*93.394*		*JOHNS HOPKINS UNIVERSITY*	*U01CA210170*		*$39,336*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MODIFYING YOUNG ADULT SKIN CANCER RISK AND PROTECTIVE BEHAVIORS (UV4.M	*93.394*		*RUTGERS UNIVERSITY*	*R01CA204271*		*$11,758*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN BIOREPOSITORIES TO SUPPORT NCTN	*93.394*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U24CA196172*		*$4,975*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HISTOTOOLS: A SUITE OF DIGITAL PATHOLOGY TOOLS FOR QUALITY CONTROL, A	*93.394*		*CASE WESTERN RESERVE UNIVERSITY*	*U01CA239055*		*$3,027*	*$11,143,888*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A UNIVERSAL APPROACH TO PERSONALIZED ADOPTIVE T CELL THERAPY OF CANCER	93.395	1-R01-CA-168900-01				$141	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
IMMUNO/IMMUNO-GENE THERAPIES FOR THORACIC MALIGNANCIES	93.395	P01CA066726				-$24,522	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
BIOLOGICAL MECHANISMS INVOLVED WITH PDT IN THE TREATMENT OF MPM	93.395	P01CA087971			$19,219	$1,122,544	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
EXTENDING CHIMERIC ANTIGEN ()CAR) T CELL THERAPY TO THORACIC CANCERS	93.395	P01CA217805				$894,019	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ANTITUMOR AGENTS: STRUCTURE AND SYNTHESIS	93.395	R01CA019033				$62,803	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF PHOTODYNAMIC THERAPY ON TUMOR OXYGENATION AND BLOOD FLOW	93.395	R01CA085831				$203,818	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS IN GASTROINTESTINAL STROMAL TUMOR	93.395	R01CA102613				$305,190	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
A UNIVERSAL APPROACH TO PERSONALIZED ADOPTIVE T CELL THERAPY OF CANCER	93.395	R01CA168900				$4,484	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOBIOLOGY AND IMMUNOTHERAPY OF PANCREATIC CANCER	93.395	R01CA169123				$12,204	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM OF ACTIVITY OF LONIDAMINE	93.395	R01CA172820				-$2,169	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
USING 18F-EF5 PET TO MEASURE HYPOXIA MODULATION BY NELFINAVIR IN LARYN	93.395	R01CA174976				$305,836	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
RADIATION AND RECEPTOR TARGETED RADIOTHERANOSTIC NANOPARTICLES FOR GLI	93.395	R01CA181429				$422,536	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING RADIATION RESPONSE BY TARGETING O2 METABOLISM VIA THE PI3K/M	93.395	R01CA182747				$364,045	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
A RANDOMIZED TRIAL OF INCENTIVES FOR RESEARCH PARTICIPATION	93.395	R01CA197332			$21,047	$702,269	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF BRAF INHIBITOR INDUCED UPR AND AUTOPHAGY	93.395	R01CA198015				$275,070	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
CIRCULATING TUMOR CELLS ANALYSES AND MOLECULAR PROFILING FOR PATIENTS	93.395	R01CA201071				$387,058	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
SECONDARY PREVENTION THROUGH SURVEILLANCE AND INTERVENTION	93.395	R01CA208273				$829,971	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL MORE EFFECTIVE GENOTOXIC THERAPY FOR OVARIAN CANCER	93.395	R01CA215436				$389,468	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
PARP-1 AS A NOVEL TARGET FOR ALPHA-PARTICLE THERAPY IN HIGH-RISK NEURO	93.395	R01CA219006			$43,526	$732,385	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOLOGIC ASPECTS OF TARGETED THERAPY OF ERBB TUMORS	93.395	R01CA219034				$318,338	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
(PQ10) THE IMPACT OF THE GUT MICROBIOME ON THE ANTI-TUMOR EFFECTS OF R	93.395	R01CA219871			$47,022	$406,542	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER PREVENTION THROUGH NEURAL AND GEOSPATIAL EXAMINATION OF TOBACCO	93.395	R01CA229305				$14,178	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR DETERMINANTS AND THERAPEUTIC CONSEQUENCES OF IMMUNE HETEROGE	93.395	R01CA229803				$552,257	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
DENDRITIC CELL-MEDIATED ORAL ANTIGEN TOLERANCE AND THE LUNG	93.395	R21AI123771				$34,979	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
PROTOACOUSTICS - CLINICAL BASED RANGE VERIFICATION FOR CANCER TREATMEN	93.395	R21CA205063				$55,499	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
PD-1 BLOCKADE AND NEOANTIGEN-SPECIFIC T CELL IMMUNITY	93.395	R21CA205794				$168,048	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
NANOSCALE ENCAPSULATION FOR FRAGMENT BASED DRUG DISCOVERY	93.395	R21CA206958				-$2,200	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TYPE III COLLAGEN AS A SUPPRESSOR OF BREAST CANCER PROGRESSION AND MET	93.395	R21CA216552				$148,073	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TREATING HIGH GRADE INTRAEPITHELIAL LESIONS OF THE ANUS WITH PHOTODYNA	93.395	R21CA223366				$122,332	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECT OF RADIATION THERAPY ON SLEEPINESS AND ACTIVITY IN PROSTATE CAN	93.395	R21CA224267				$120,395	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
FRONTIER SCIENCE AND TECHNOLOGY/CGOP OUTREACH	*93.395*		*FRONTIER SCIENCE & TECHNOLOGY RESEARCH FDN*	*ECOG PURCHASE SERVICE AGREEMENT*		*$72,468*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GYNECOLOGIC ONCOLOGY GROUP	*93.395*		*GOG FOUNDATION*	*27469-025*		*$377,640*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NCI COMMUNITY ONCOLOGY RESEARCH PROGRAM (NCORP) RESEARCH BASES (UM1)	*93.395*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*UG1CA189828*		*-$41,963*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
(PQA2) MAMMALIAN REGENERATION, HIGH FAT DIETS, AND BREAST CANCER: A CO	*93.395*		*LANKENAU INSTITUTE FOR MEDICAL RESEARCH*	*06297-0791*		*-$2,343*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HSP70 AND MELANOMA	*93.395*		*WISTAR INSTITUTE*	*24672-02-366*		*$15,342*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PIPERLONGUMINE AS A NOVEL RADIOSENSITIZER FOR LUNG CANCER	*93.395*		*NORTH DAKOTA STATE UNIVERSITY*	*R21CA178654*		*-$12*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN OPERATIONS CENTER	*93.395*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U10CA180820-01-UPA2*		*$8,052*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UPCC# 20214; PHASE I STUDY OF NEO-ADJUVANT RO7009789 ALONE OR NEO-ADJU	*93.395*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*0000843306*		*-$2,520*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AIDS MALIGNANCY CLINICAL TRIALS CONSORTIUM STUDY (AMC)	*93.395*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*UM1CA121947*		*$2,132*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIGHLY SPECIFIC ATR INHIBITORS FOR THE TARGETED TREATMENT OF A BROAD S	*93.395*		*ATRIN PHARMACEUTICALS*	*R41CA203436*		*-$381*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UPCC 19316, ABTC-1501: A PHASE I TRIAL OF ANTI-LAG-3 OR ANTI-CD137 ALO	*93.395*		*JOHNS HOPKINS UNIVERSITY*	*U01CA137443*		*$39,780*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECON-ACRIN NICORP RESEARCH BASE	*93.395*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*1-UG-1CA-189828-01-UPA2*		*$1,887*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHASE I STUDY OF MK-1775 WITH RADIATION AND TEMOZOLOMIDE IN PATIENTS W	*93.395*		*JOHNS HOPKINS UNIVERSITY*	*UM1CA137433*		*$840*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
TARGETED THERAPIES IN MELANOMA	93.395		WISTAR INSTITUTE	24921-11-314; XU		$17,781	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED THERAPIES IN MELANOMA	93.395		WISTAR INSTITUTE	P01CA114046		$93,961	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED THERAPIES IN MELANOMA	93.395		WISTAR INSTITUTE	P01CA114046		$167,177	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED THERAPIES IN MELANOMA	93.395		WISTAR INSTITUTE	24921-13-314; NATHANSON		$27,124	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED THERAPIES IN MELANOMA	93.395		WISTAR INSTITUTE	24921-07-314; MARMORSTEIN		$76,996	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED THERAPIES IN MELANOMA	93.395		WISTAR INSTITUTE	P01CA114046		$55,974	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED THERAPIES IN MELANOMA; CHARACTERIZATION OF DIMERIC QUINACRINE	93.395		WISTAR INSTITUTE	P01CA114046		$9,927	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN NCORP RESEARCH BASE - CT	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1UG1CA189828-01-UPA1		$8,068	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN NCORP RESEARCH BASE - CCDR	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1UG1CA189828-01-UPA3		$1,631	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
SMALL MOLECULE UBIQUITIN LIGASE MODULATORS FOR IMMUNOTHERAPY OF CANCER	93.395		PROGENRA, INC.	R34CA213582		$3,667	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
AIDS MALIGNANCY CLINICAL TRIALS CONSORTIUM STUDY (AMC)	93.395		UNIVERSITY OF CALIFORNIA, LOS ANGELES	UM1CA121947		$59,962	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL INJECTABLE RESIQUIMOD FORMULATION FOR TREATMENT OF METASTATIC CA	93.395		CUREBIOTECH, INC.	R43CA217489		$16,221	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN OPERATIONS CENTER	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U10CA180820		$119,404	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
UPCC# 20214; PHASE I STUDY OF NEO-ADJUVANT RO7009789 ALONE OR NEO-ADJU	93.395		HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000843306		$10,875	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
IROC - IMAGING & RADIATION ONCOLOGY CORE - CORE LAB PHYSICIST	93.395		AMERICAN COLLEGE OF RADIOLOGY	SUB TO U24-CA-180803		$325,184	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN OPERATIONS CENTER	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U10CA180820		$14,228	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN OPERATIONS CENTER	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U10CA180820		$12,296	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC MECHANISMS OF DRUG RESISTANCE IN RENAL CELL CARCINOMA	93.395		INDIANA UNIVERSITY	R01CA224342		$32,491	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
NRG ONCOLOGY NETWORK GROUP OPERATIONS CENTER	93.395		NRG ONCOLOGY	UOFP-YR 1		$5,086	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ABTC 1604: TESTING THE ABILITY OF AMG 232 TO GET INTO THE TUMOR IN PAT	93.395		JOHNS HOPKINS UNIVERSITY	UM1CA137443		$2,580	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN NCORP RESEARCH BASE	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	UG1CA189828		$19,794	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN OPERATIONS CENTER	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U10CA180820-02-UPA10		$40,227	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF GPER AGONISTS AS CANCER THERAPEUTICS	93.395		LINNAEUS THERAPEUTICS	R41CA228695		$105,595	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
IMAGING & RADIATION ONCOLOGY CORE - PHILADELPHIA IMAGING CORE LAB DIRE	93.395		AMERICAN COLLEGE OF RADIOLOGY	U24CA180803		$153,118	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
1602:SINGLE-ARM, OPEN-LABEL PHASE 2 EFFICACY STUDY OF FIRST-IN-CLASS H	93.395		JOHNS HOPKINS UNIVERSITY	U01CA137443		$13,967	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
DOSE-DISTRIBUTION RADIOMICS TO PREDICT MORBIDITY RISK IN RADIOTHERAPY	93.395		RADIATION THERAPY ONCOLOGY GROUP	R01CA198121		$30,600	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
POST-POLYPECTOMY SURVEILLANCE COLONOSCOPY FOR REDUCING COLORECTAL CANC	93.395		VETERANS MEDICAL RESEARCH FOUNDATION	R01CA222866		$29,589	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECON-ACRIN NICORP RESEARCH BASE	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1-UG-1CA-189828-01-UPA2		$21,662	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
NRG ONCOLOGY NCORP RESEARCH BASE (WISER-NET)	93.395		PENNSYLVANIA STATE UNIVERSITY COLLEGE OF MEDICINE	UG1CA189867		$12,987	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN NCORP RESEARCH BASE	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	UG1CA189828		$36,183	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN OPERATIONS CENTER	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U10CA180820		$18,675	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
1401: PHASE 1 DOSE ESCALATION AND DRUG DISTRIBUTION STUDY OF ORAL TERA	93.395		JOHNS HOPKINS UNIVERSITY	U01CA137443		$3,000	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN OPERATIONS CENTER	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U10CA180820		$17,970	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
AIDS MALIGNANCY CLINICAL TRIALS CONSORTIUM STUDY (AMC)	93.395		UNIVERSITY OF CALIFORNIA, LOS ANGELES	UM1CA121947		$65,237	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
COG NCTN NETWORK GROUP OPERATIONS CENTER COMMITTEE LEADERSHIP	93.395		CHILDREN'S HOSPITAL OF PHILADELPHIA	U10CA180886		$15,000	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
COG NCTN NETWORK GROUP OPERATIONS CENTER	93.395		CHILDREN'S HOSPITAL OF PHILADELPHIA	U10CA180886		$7,500	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
HOST FACTORS, TUMOR MICROENVIRONMENT AND SURVIVAL IN A MULTIETHNIC STU	93.395		UNIVERSITY OF SOUTHERN CALIFORNIA	R01CA206019		$7,967	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
RANDOMIZED TRIAL OF EARLY INTEGRATED VERSUS STEPPED PALLIATIVE CARE IN	93.395		MASSACHUSETTS GENERAL HOSPITAL	R01CA215188		$72,492	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN NCORP RESEARCH BASE - CCDR	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1UG1CA189828-01-UPA3		$17,366	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN NCORP RESEARCH BASE - CT	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1UG1CA189828-01-UPA1		$41,683	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077
ECOG-ACRIN OPERATIONS CENTER	93.395		ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U10CA180820		$116,193	$11,824,664	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ALLIANCE IN CLINICAL TRIALS IN ONCOLOGY OPERATIONS CENTER - SUPPLEMENT	*93.395*		*DANA-FARBER CANCER INSTITUTE*	*U10CA180821*		*$19,826*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN OPERATIONS CENTER	*93.395*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U10CA180820*		*$20,000*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MATCH PROJECT FUNDING FOR GENETIC COUNSELING- NATIONAL CLINICAL TRIALS	*93.395*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U01CA180886*		*$14,189*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NCI COMMUNITY ONCOLOLGY RESEARCH PROGRAM (NCORP) RESEARCH BASE	*93.395*		*OREGON HEALTH & SCIENCE UNIVERSITY*	*UG1CA189974*		*$29,517*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
1603: PHASE I STUDY OF NEOADJUVANT GMCITM PLUS IMMUNE CHECKPOINT INHIB	*93.395*		*JOHNS HOPKINS UNIVERSITY*	*UM1CA137443*		*$1,747*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AKR1C3 INHIBITORS AS CHEMOTHERAPEUTIC POTENTIATORS	*93.395*		*TEXAS TECH UNIVERSITY*	*R01CA226436*		*$33,381*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN OPERATIONS CENTER - MATCH	*93.395*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U10-CA-180820-05UPA11*		*$27,885*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN OPERATIONS CENTER	*93.395*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U10CA180820-01-UPA8*		*$50,000*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NRG ONCOLOGY NCORP RESEARCH BASE (WISER-NET)	*93.395*		*PENNSYLVANIA STATE UNIVERSITY COLLEGE OF MEDICINE*	*UG1CA189867*		*$1,232*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IROC - IMAGING & RADIATION ONCOLOGY CORE - CORE LAB PHYSICIST	*93.395*		*AMERICAN COLLEGE OF RADIOLOGY*	*U24CA180803*		*$171,736*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NRG ONCOLOGY CENTER FOR INNOVATION IN RADIATION ONCOLOGY (CIRO)	*93.395*		*RTOG FOUNDATION, INC.*	*U10CA180868*		*$60,515*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AIDS MALIGNANCY CONSORTIUM	*93.395*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*UM1CA121947*		*$68,121*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ECOG-ACRIN OPERATIONS CENTER	*93.395*		*ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC*	*U01CA180820*		*$6,666*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DOSE-DISTRIBUTION RADIOMICS TO PREDICT MORBIDITY RISK IN RADIOTHERAPY	*93.395*		*RADIATION THERAPY ONCOLOGY GROUP*	*R01CA198121*		*$8,898*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NRG ONCOLOGY NETWORK GROUP OPERATIONS CENTER	*93.395*		*NRG ONCOLOGY*	*U10CA180868*		*$7,000*	*$11,824,664*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANISMS OF ESOPHAGEAL CARCINOGENESIS	93.396	P01CA098101			$654,386	$1,513,219	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER CELL ADAPTATION TO METABOLIC STRESS	93.396	P01CA104838			$743,472	$969,861	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
THE UNFOLDED PROTEIN RESPONSE IN CANCER	93.396	P01CA165997			$133,337	$401,708	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
PHYSIOLOGICAL ROLE OF THE TNKS-PI31 DEPENDENT PROTEASOME REGULATION	93.396	R00CA190658				$229,825	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
RESISTANCE TO TARGETED IMMUNOTHERAPIES:CART19 AS A PARADIGM	93.396	R00CA212302				$242,113	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
IN VIVO ONCOGENE-INDUCED TUMORIGENESIS AND ESCAPE	93.396	R01CA098371				$405,474	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
CALCINEURIN-NFAT REGULATES ENDOTHELIAL ACTIVATION IN PRE-METASTATIC SI	93.396	R01CA118374				$360,141	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
CALCINEURIN-NFAT REGULATES ENDOTHELIAL ACTIVATION IN PRE-METASTATIC SI	93.396	R01CA118374				$52,706	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
MINIMAL RESIDUAL DISEASE AND MECHANISMS OF BREAST CANCER RECURRENCE	93.396	R01CA143296				$532,439	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
SURVIVAL AND RECURRENCE OF DORMANT CANCER CELLS	93.396	R01CA148774				$437,109	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
HIF-1ALPHA AND FBP2 IN SARCOMA METABOLISM, PROGRESSION, AND METASTASIS	93.396	R01CA158301			$177,633	$417,863	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
CELL TYPE AND MOLECULAR DETERMINANTS OF COLORECTAL CANCER INITIATION D	93.396	R01CA168654				$389,076	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING WNT5A REGULATION OF PROTEIN DEPALMITOYLATION DURING CELL	93.396	R01CA181633				$214,516	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING WNT5A REGULATION OF PROTEIN DEPALMITOYLATION DURING CELL	93.396	R01CA181633				$3,792	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
P53 AND TUMOR CELL METABOLISM	93.396	R01CA182675				$377,225	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF P53 FAMILY PROTEINS IN GLUCOSE METABOLISM	93.396	R01CA184867				$12,865	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
TUMOR-ASSOCIATED NEUTROPHILS IN HUMAN LUNG CANCER	93.396	R01CA187392				$543,225	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
CXCL13: A MEDIATOR OF PROSTATE CANCER PROGRESSION	93.396	R01CA189765				$444,104	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
P53-MEDIATED TUMOR IMMUNE SURVEILLANCE	93.396	R01CA193602				$492,872	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
P53-MEDIATED TUMOR IMMUNE SURVEILLANCE	93.396	R01CA193602				$52,250	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTORS OF PROTEIN KINASE C-MEDIATED TUMOR PROGRESSION	93.396	R01CA196232				$329,368	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING MACROPHAGES FOR IMMUNOTHERAPY IN PANCREATIC CANCER	93.396	R01CA197916				$304,645	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING AND TARGETING CHEMOTHERAPY RESISTANCE IN ACUTE MYELOID L	93.396	R01CA198089			$320,157	$664,360	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
(PQ5) MITOCHONDRIA ARE ENDOCELLULAR SYMBIONTS THAT SERVE AS TARGETS FO	93.396	R01CA206012			$129,540	$405,487	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF TIM3 AND CEACAM1 IN ANTI-TUMOR FUNCTION OF HUMAN EFFECTOR	93.396	R01CA219083				$355,098	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
DECONSTRUCTING THE MULTI-FACETED ROLES OF RB IN TUMOR PROGRESSION	93.396	R01CA222503				$288,141	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
DIRECTING THE METABOLIC FATE OF CAR T CELLS	93.396	R01CA226983				$471,615	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING AN ACETYL-COA SENSING MECHANISM AS A FORM OF INTER-ORGANELLE	93.396	R01CA228339			$44,735	$328,628	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE AND REGULATION OF HIPPO PATHWAY IN SARCOMAGENESIS	93.396	R01CA229688				$72,490	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZATION OF HIGH-GRADE SEROUS OVARIAN CANCER SUBTYPES VIA SING	93.396	R01CA237170				$3,354	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ROLE OF THE PENTOSE PHOSPHATE PATHWAY IN TUMORIGENESIS	93.396	R21CA195360				$5,821	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINING AND ENHANCING METABOLITE FITNESS FOR METABOLOMICS MEASUREM	93.396	R21CA213234				$196,676	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC TUMOR SUPPRESSORS IN RENAL CANCER: UNPRECEDENTED ROLES IN DI	93.396	R35CA220483				$108,546	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC TUMOR SUPPRESSORS IN RENAL CANCER: UNPRECEDENTED ROLES IN DI	93.396	R35CA220483				$957,859	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF ANTIGEN PRESENTING CELLS IN THE TUMOR MICROENVIRONMENT B	93.396	R37CA234027				$145,940	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
CELL TYPE AND MOLECULAR DETERMINANTS OF COLORECTAL CANCER INITIATION D	93.396	R50CA221841				$107,577	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
A PLASTICITY AND REPROGRAMMING PARADIGM FOR THERAPY RESISTANCE AT THE	93.396	U01CA227550			$122,008	$451,788	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
A PLASTICITY AND REPROGRAMMING PARADIGM FOR THERAPY RESISTANCE AT THE	93.396	U01CA227550				$3,111	$14,935,356	RESEARCH AND DEVELOPMENT	$706,379,077
HAT INHIBITION TO IMPAIR FOXP3+ TREG FUNCTION AND BOOST ANTI-TUMOR IMM	*93.396*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01CA158941*		*-$2*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
(PQC2) LOCALIZATION AS A DETERMINANT OF CANCER DORMANCY	*93.396*		*MASSACHUSETTS GENERAL HOSPITAL*	*226262*		*$71,081*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE ROLE OF DCLK1 IN THE INITIATION OF PANCREATIC DUCTAL ADENOCARCINOM	*93.396*		*UNIVERSITY OF OKLAHOMA*	*RS20150916-01*		*-$39,778*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATION OF MULTIPLE MYELOMA BY S100A9 PROTEIN	*93.396*		*WISTAR INSTITUTE*	*25231-02-370*		*-$11*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EXTRACELLULAR DNA IN REGULATION OF MULTIPLE MYELOMA	*93.396*		*WISTAR INSTITUTE*	*R01CA196788*		*$2,999*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREPARATION OF SITE-SPECIFIC ANTIBODY-DRUG CONJUGATES BY PROXIMITY-BAS	*93.396*		*ALPHATHERA*	*R41CA221374*		*$13,479*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EXTRACELLULAR DNA IN REGULATION OF MULTIPLE MYELOMA	*93.396*		*WISTAR INSTITUTE*	*R01CA196788*		*-$31,870*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
C-MYC TARGETS IN THE PATHOGENESIS OF HUMAN CANCERS	*93.396*		*WISTAR INSTITUTE*	*R01CA057341*		*$159,112*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
QUANTITATIVE ANALYSES OF TUMOR CELL EXTRAVASATION	*93.396*		*MASSACHUSETTS INSTITUTE OF TECHNOLOGY*	*5710004020*		*$2,488*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEGATIVE REGULATION OF MYELOID-DERIVED SUPPRESSIVE CELLS IN CANCER	*93.396*		*WISTAR INSTITUTE*	*R01CA216936*		*$234,918*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INHIBITION OF A TREG DEUBIQUITINASE, USP7, PROMOTES ANTI-TUMOR IMMUNIT	*93.396*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*ACTIVITY 321068(PO#961564RSUB*		*$15,106*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ER STRESS AND MITOCHONDRIAL BIOGENESIS IN MELANOMA	*93.396*		*SANFORD BURNHAM PREBYS MEDICAL DISCOVERY INSTITUTE*	*P01CA128814*		*$178,875*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE METABOLIC PATHOGENESIS OF CHROMOPHOBE RENAL CELL CARCINOMA	*93.396*		*BRIGHAM AND WOMEN'S HOSPITAL*	*R01CA216922*		*$11,297*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROLACTIN PATHWAYS AND METASTATIC PROGRESSION OF ER-POSITIVE BREAST CA	*93.396*		*MEDICAL COLLEGE OF WISCONSIN*	*SUB TO 7R01CA188575*		*$101,192*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR RESEARCH TO OPTIMIZE PRECISION LUNG CANCER SCREENING IN DIV	*93.396*		*KAISER PERMANENTE*	*UM1CA221939*		*$463,913*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPLEMENTATION OF SURVIVORSHIP CARE PLANS FOR ADOLESCENT AND YOUNG ADU	*93.396*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R21CA219371*		*$31,220*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
QUANTITATIVE ANALYSES OF TUMOR CELL EXTRAVASATION	*93.396*		*MASSACHUSETTS INSTITUTE OF TECHNOLOGY*	*5710004020*		*$149,754*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ER STRESS AND MITOCHONDRIAL BIOGENESIS IN MELANOMA (PROJECT 3)	*93.396*		*SANFORD BURNHAM PREBYS MEDICAL DISCOVERY INSTITUTE*	*P01CA128814*		*$125,043*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ER STRESS AND MITOCHONDRIAL BIOGENESIS IN MELANOMA	*93.396*		*SANFORD BURNHAM PREBYS MEDICAL DISCOVERY INSTITUTE*	*P01CA128814*		*$24,845*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTER FOR RESEARCH TO OPTIMIZE PRECISION LUNG CANCER SCREENING IN DIV	*93.396*		*KAISER PERMANENTE*	*UM1CA221939*		*$89,811*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ER STRESS AND MITOCHONDRIAL BIOGENESIS IN MELANOMA (PROJECT 3)	*93.396*		*SANFORD BURNHAM PREBYS MEDICAL DISCOVERY INSTITUTE*	*P01CA128814*		*$29,918*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPLEMENTATION OF SURVIVORSHIP CARE PLANS FOR ADOLESCENT AND YOUNG ADU	*93.396*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R21CA219371*		*$9,079*	*$14,935,356*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ABRAMSON CANCER CENTER CORE SUPPORT GRANT	93.397	2-P30-CA-016520-35				-$9,875	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
ABRAMSON CANCER CENTER SUPPORT GRANT	93.397	P30CA016520			$261,971	$8,024,041	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
PENN CENTER FOR INNOVATION IN PERSONALIZED BREAST SCREENING	93.397	U54CA163313			-$1,360	$18,743	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
PENN CENTER FOR INNOVATION IN PERSONALIZED BREAST SCREENING	93.397	U54CA163313				-$1,280	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
PENN CENTER FOR INNOVATION IN PERSONALIZED BREAST SCREENING	93.397	U54CA163313				-$19,103	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
BOTSWANA-UPENN: RESEARCH CONSORTIUM OF HPV-RELATED CERVICAL CANCER IN	93.397	U54CA190158			$365,953	$659,521	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
BOTSWANA-UPENN: RESEARCH CONSORTIUM OF HPV-RELATED CERVICAL CANCER IN	93.397	U54CA190158				$75,840	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
LIVER CANCER: PRE-MALIGNANT STIFFENING, MEMBRANE TRANSDUCTION, & NUCLE	93.397	U54CA193417			$51,272	$1,675,556	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
LIVER CANCER: PRE-MALIGNANT STIFFENING, MEMBRANE TRANSDUCTION, & NUCLE	93.397	U54CA193417				$26,091	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
LIVER CANCER: PRE-MALIGNANT STIFFENING, MEMBRANE TRANSDUCTION, & NUCLE	93.397	U54CA193417				$137,655	$13,050,848	RESEARCH AND DEVELOPMENT	$706,379,077
STEM CELLS AND THE ORIGINS OF BARRETT'S ESOPHAGUS	*93.397*		*COLUMBIA UNIVERSITY*	*1 (ACCT #5-30761)*		*-$3,544*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
CSHL CANCER CENTER SUPPORT GRANT	*93.397*		*COLD SPRING HARBOR LABORATORY*	*P30CA045508*		*-$37*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PLANNING A SOUTHERN AFRICAN REGIONAL CENTER OF RESEARCH EXCELLENCE IN	*93.397*		*BOTSWANA HARVARD AIDS INSTITUTE*	*920CA210283*		*$40,928*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTIMIZING COLONOSCOPY & FECAL IMMUNOCHEMICAL TESTS FOR COMMUNITY-BASE	*93.397*		*KAISER PERMANENTE*	*115-9064-05*		*-$357*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*SUB TO 5-P50-CA174523*		*$52,269*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-04-314*		*$37,539*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*P50CA174523*		*$34,004*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-05-314*		*$105,198*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-02-314*		*$55,141*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE JOHNS HOPKINS PHYSICAL SCIENCES-ONCOLOGY CENTER	*93.397*		*JOHNS HOPKINS UNIVERSITY*	*U54CA210173*		*$29,852*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CANCER RISKS FOR MUTATIONS IN BREAST CANCER PREDISPOSITION GENES	*93.397*		*MAYO CLINIC ROCHESTER*	*UOP-182363*		*$58,063*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CSHL CANCER CENTER SUPPORT GRANT	*93.397*		*COLD SPRING HARBOR LABORATORY*	*P30CA045508*		*$4,902*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-10-314*		*$57,559*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NON-GENETIC RARE CELL VARIABILITY AND RESISTANCE TO TARGETED THERAPY I	*93.397*		*WISTAR INSTITUTE*	*R01CA174523*		*$39,920*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HUMAN PAPILLOMAVIRUS INFECTION IN HIV-INFECTED AND HIV-UNINFECTED WOME	*93.397*		*INDIANA UNIVERSITY*	*U54CA190151*		*$18,943*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STEM CELLS AND THE ORIGINS OF BARRETT'S ESOPHAGUS	*93.397*		*COLUMBIA UNIVERSITY*	*U54CA163004*		*$110,961*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANICS OF THE CELL NUCLEUS AND THE 3D CHROMOSOME	*93.397*		*JOHNS HOPKINS UNIVERSITY*	*U54CA210173*		*$31,307*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CSHL CANCER CENTER SUPPORT GRANT	*93.397*		*COLD SPRING HARBOR LABORATORY*	*P30CA045508*		*$76,797*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-04-314*		*$64,712*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE JOHNS HOPKINS PHYSICAL SCIENCES-ONCOLOGY CENTER	*93.397*		*JOHNS HOPKINS UNIVERSITY*	*U54CA210173*		*$131,981*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STEM CELLS AND THE ORIGINS OF BARRETT'S ESOPHAGUS	*93.397*		*COLUMBIA UNIVERSITY*	*U54CA163004-06*		*$46,911*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STEM CELLS AND THE ORIGINS OF BARRETT'S ESOPHAGUS	*93.397*		*COLUMBIA UNIVERSITY*	*U54CA163004*		*$42,835*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*P50CA174523*		*$191,178*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-05-314*		*$192,518*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*SUB TO 5-P50-CA174523*		*$289,976*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-10-314*		*$191,178*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GLYCAN-LECTIN INTERACTIONS IN THE DEVELOPMENT OF NON-AIDS-DEFINING MAL	*93.397*		*WISTAR INSTITUTE*	*P30CA010815*		*$26,349*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CANCER RISKS FOR MUTATIONS IN BREAST CANCER PREDISPOSITION GENES	*93.397*		*MAYO CLINIC ROCHESTER*	*UOP-182363*		*$70,996*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STEM CELLS AND THE ORIGINS OF BARRETT'S ESOPHAGUS	*93.397*		*COLUMBIA UNIVERSITY*	*U54CA163004*		*$93,257*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN SKIN CANCER	*93.397*		*WISTAR INSTITUTE*	*24961-02-314*		*$101,252*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STEM CELLS AND THE ORIGINS OF BARRETT'S ESOPHAGUS	*93.397*		*COLUMBIA UNIVERSITY*	*U54CA163004*		*$39,677*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPORE IN OVARIAN CANCER	*93.397*		*JOHNS HOPKINS UNIVERSITY*	*P50CA228991*		*$224,881*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STEM CELLS AND THE ORIGINS OF BARRETT'S ESOPHAGUS	*93.397*		*COLUMBIA UNIVERSITY*	*U54CA163004*		*$6,513*	*$13,050,848*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CD40 PATHWAY IN PANCREATIC ADENOCARCINOMA	93.398	1-K08-CA-138907-01A2				-$887	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CN/NFAT SIGNALING IN FIBROBLAST ACTIVATION AND METASTASIS	93.398	F30CA196079				$22,608	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING ANTIBODIES FOR INTRACELLULAR TARGETING	93.398	F30CA221385				$31,471	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE ROLE OF C1-INH IN PANCREATIC DUCTAL ADENOCARCINOMA P	93.398	F30CA224970				$36,239	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR IMAGING MEETS BIG DATA: A SYSTEMS-LEVEL APPROACH FOR APPLICA	93.398	F30CA232388				$49,523	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CONNECTING MOLECULAR PHENOTYPE WITH CELL FATE USING SINGLE-CELL BARCOD	93.398	F30CA236129				$2,068	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS AND FUNCTION OF SUPPRESSED RAG EXPRESSION BY DNA DOUBLE STR	93.398	F31CA183551				-$2,696	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
MYC TRANSCRIPTIONAL REGULATION IN T-ALL	93.398	F31CA206338				$33,751	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE ROLE OF PPAR GAMMA IN CLEAR CELL RENAL CELL CARCINOM	93.398	F31CA206381				$28,214	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CERENKOV IMAGING FOR IN VIVO PH DETERMINATION OF THE TUMOR MICROENVIRO	93.398	F31CA206453				$30,829	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF THE T CELL REPERTOIRE IN IMMUNE CHECKPOINT BLOCKADE THERAP	93.398	F31CA213915				$33,986	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
ELUCIDATING THE MECHANISM OF ANTI-GSK3 ADJUVANT THERAPY FOR MYC-DRIVEN	93.398	F31CA217004				$35,070	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF THE HEXOSAMINE BIOSYNTHESIS PATHWAY IN PANCREATIC CANCER	93.398	F31CA217070				$43,118	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
EXPLOITING RESISTANCE MECHANISMS TO RAS-MAPK INHIBITION IN RELAPSED NE	93.398	F31CA220844				$44,663	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
AN INTEGRATIVE APPROACH TO IDENTIFY NEUROBLASTOMA IMMUNOTHERAPEUTIC TA	93.398	F31CA225069				$42,315	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
INTRATUMORAL IMMUNE ACTIVATION INFORMS RATIONAL CAR-T CELL DESIGN	93.398	F31CA228455				$41,877	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC AND EFFECTOR PROPERTIES OF INVARIANT NATURAL KILLER T CELLS	93.398	F31CA232468				$42,435	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CALCIUM-SIGNALING INDUCED EPITHELIAL-MESENCHYMAL PLASTICITY IN PANCREA	93.398	F31CA236269				$23,491	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
INVESTIGATING TOX2 AS A NOVEL REGULATOR OF T CELL MEMORY DIFFERENTIATI	93.398	F31CA239428				$4,161	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF MUTANT P53 AND ENDOCYTIC RECYCLING IN ESCC INVASION AND ME	93.398	F32CA206264				$12,001	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
OPTIMIZING IMMUNOTHERAPY STRATEGIES TO ELIMINATE RECURRENCES AFTER CAN	93.398	F32CA210409				-$11,007	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC ALTERATIONS IN SOFT TISSUE SARCOMA INITIATION AND PROGRESSIO	93.398	F32CA217185				$50,881	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
MODULATION OF WILD TYPE AND MUTANT P53 BY HMGA1	93.398	F32CA221010				$56,506	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
AN IN VIVO MODEL FOR CCNE1 AMPLIFIED TUMORIGENESIS	93.398	F32CA221093				$66,888	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF P120CTN IN PDAC EPITHELIAL-TO-MESENCHYMAL TRANSITION AND M	93.398	F32CA221094				$62,558	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
BIOMATERIAL APPROACHES TO ATTENUATE MACROPHAGE RECOGNITION OF "SELF"-S	93.398	F32CA228285				$56,967	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL ROLES OF P53 POST TRANSLATIONAL MODIFICATIONS IN CANCER	93.398	F32CA232466				$14,523	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC REWIRING REGULATES CANCER GROWTH AND TUMOR-ASSOCIATED IMMUNE	93.398	F99CA222741				$32,220	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
SINGLE CELL AND EPIGENETIC ANALYSIS IN METASTASIS	93.398	K00CA212437				$69,907	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE FUNCTIONAL SIGNIFICANCE OF ACLY SPLICE ISOFORMS IN PANCRE	93.398	K00CA212455				$73,118	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTIVENESS OF RADIOTHERAPY FOR PROSTATE CANCER	93.398	K07CA163616				$7,687	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
LABORATORY-BASED APPROACHES TO UNDERSTANDING THE IMPACT OF LOW NICOTIN	93.398	K07CA218366				$112,379	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CHIMERIC ANTIGEN RECEPTOR T CELL THERAPY FOR ACUTE MYELOID LEUKEMIA (A	93.398	K08CA194256				$147,865	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
A GENOTYPE-PHENOTYPE STUDY OF TUMORS FROM PATIENTS WITH INHERITED MUTA	93.398	K08CA215312				$191,482	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
PROGNOSTIC VALUE OF QUANTITATIVE HPV VIRAL LOAD IN DETERMINING CERVICA	93.398	K08CA230170				$44,358	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ECONOMICS AND POPULATION-BASED COLORECTAL CANCER SCREENING	93.398	K08CA234326				$191,227	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
A MULTIMODAL APPROACH TO DEVELOP MOLECULAR MARKERS TO PREDICT RESPONSE	93.398	K08CA234335				$132,109	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CELLULAR MOLECULAR BIOLOGICS IN CLINICAL CANCER RESEARCH	93.398	K12CA076931			-$101,839	-$98,593	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CELLULAR MOLECULAR BIOLOGICS IN CLINICAL CANCER RESEARCH	93.398	K12CA076931			$291,328	$691,280	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CELLULAR MOLECULAR BIOLOGICS IN CLINICAL CANCER RESEARCH	93.398	K12CA076931				-$437	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
PROBING THE ROLE OF TUMOR SUPPRESSIVE FUNCTIONS OF ELF5 IN BREAST CANC	93.398	K22CA193661				$158,484	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF THE HISTONE CHAPERONE CHAF1B IN SUSTAINING THE HOXA9-DRIVE	93.398	K22CA214849				$136,808	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
INSULIN RESISTANCE IN THE DEVELOPMENT AND PROGRESSION OF INVASIVE BLAD	93.398	K23CA187185				$174,511	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
RESISTANCE TO TARGETED IMMUNOTHERAPIES:CART19 AS A PARADIGM	93.398	K99CA212302				$3,350	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZATION OF EPIGENETIC TARGETS IN PROSTATE CANCER	93.398	R00CA187664				-$15,231	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
SUMMER UNDERGRADUATE PROGRAM TO EDUCATE RADIATION SCIENTISTS (SUPERS)	93.398	R25CA140116				$549	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
SUMMER UNDERGRADUATE PROGRAM TO EDUCATE RADIATION SCIENTISTS (SUPERS)	93.398	R25CA140116				$138,378	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
SUMMER UNDERGRADUATE PROGRAM TO EDUCATE RADIATION SCIENTISTS (SUPERS)	93.398	R25CA140116				$52,021	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOBIOLOGY OF NORMAL AND NEOPLASTIC LYMPHOCYTES	93.398	T32CA009140				$99,173	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOBIOLOGY OF NORMAL AND NEOPLASTIC LYMPHOCYTES	93.398	T32CA009140				$453,083	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER CENTER RESEARCH TRAINING PROGRAM	93.398	T32CA009615				$515	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER CENTER RESEARCH TRAINING PROGRAM	93.398	T32CA009615				$22,462	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER CENTER RESEARCH TRAINING PROGRAM	93.398	T32CA009615				$371,405	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER CLINICAL EPIDEMIOLOGY TRAINING GRANT	93.398	T32CA009679				-$23,474	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
CANCER CLINICAL EPIDEMIOLOGY TRAINING GRANT	93.398	T32CA009679				$426,483	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN TUMOR VIROLOGY	93.398	T32CA115299				-$325	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN TUMOR VIROLOGY	93.398	T32CA115299				$101,334	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN TUMOR VIROLOGY	93.398	T32CA115299				$213,094	$4,753,749	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING COMMUNITY NURSES AND ADMINISTRATORS TO IMPLEMENT CANCER CLINI	*93.398*		*MOUNT SINAI MEDICAL CENTER*	*0253-6571-4609*		*-$5,026*	*$4,753,749*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR MECHANISM AND PRECLINICAL DEVELOPMENT OF BETI AND PARPI COMB	93.399	R01CA225929				$134,149	$760,071	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF BRAF DIMER INHIBITORS TO TREAT DRUG RESISTANT MELANOMA	93.399	R01CA226888			$40,538	$292,261	$760,071	RESEARCH AND DEVELOPMENT	$706,379,077
NRG ONCOLOGY CAPITATION FUND	*93.399*		*NRG ONCOLOGY*	*NRG ONCOLOGY FOUNDATION*		*$252,956*	*$760,071*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RANDOMIZED PHASE II/III TRIAL OF PROPHYLACTIC CRANIAL IRRADIATION WITH	*93.399*		*NRG ONCOLOGY*	*UPENN CC003 - NCORP-02*		*$19,293*	*$760,071*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NRG ONCOLOGY NETWORK GROUP OPERATIONS CENTER	*93.399*		*NRG ONCOLOGY*	*XIAO-YR. 3*		*$7,000*	*$760,071*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RANDOMIZED PHASE II/III TRIAL OF PROPHYLACTIC CRANIAL IRRADIATION WITH	*93.399*		*NRG ONCOLOGY*	*UPENN CC003 - NCORP-02*		*$54,412*	*$760,071*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AFFORDABLE CARE ACT (ACA) MATERNAL, INFANT AND EARLY CHILDHOOD HOME VISITING PROGRAM	*93.505*		*UNITED WAY OF LANCASTER COUNTY*	*4100070333*		*$682,752*	*$682,752*	*OTHER PROGRAMS*	*$14,438,000*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
CAREER EXPOSURE-RISING 8TH GRADERS	*93.558*		*PHILADELPHIA YOUTH NETWORK*	*10573/C113*		*-$1,472*	*-$1,472*	*TANF CLUSTER*	*-$1,472*
MH BASE UNITARY	*93.667*		*CITY OF PHILADELPHIA*	*1720075-02*		*$207,583*	*$207,583*	*OTHER PROGRAMS*	*$14,438,000*
TOBACCO POLICY AND CONTROL INITIATIVE - COMMUNITIES PUTTING PREVENTION	*93.724*		*CITY OF PHILADELPHIA*	*U58DP002626*		*$6,496*	*$6,496*	*OTHER PROGRAMS*	*$14,438,000*
FY 2017 BHWET COMPETITION	93.732	M01HP31346				$16,230	$295,420	RESEARCH AND DEVELOPMENT	$706,379,077
FY 2017 BHWET COMPETITION	93.732	M01HP31346				$279,190	$295,420	RESEARCH AND DEVELOPMENT	$706,379,077
THE CALIFORNIA APS DECISIONAL ABILITY ASSESSMENT PROJECT	*93.747*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*90EJIG0009-01-00*		*$19,645*	*$35,992*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE CALIFORNIA APS DECISIONAL ABILITY ASSESSMENT PROJECT	*93.747*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*90EJIG0009-01-00*		*$16,347*	*$35,992*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF MEDICAID WORK REQUIREMENTS IN PENNSYLVANIA	*93.778*		*COMMONWEALTH OF PENNSYLVANIA*	*4400016165*		*$94,109*	*$249,700*	*MEDICAID CLUSTER*	*$249,700*
IDS BASE UNITARY	*93.778*		*CITY OF PHILADELPHIA*	*1720074-02*		*$155,591*	*$249,700*	*MEDICAID CLUSTER*	*$249,700*
RESOURCE DEVELOPMENT AND DISSEMINATION FOR PA'S CERTIFIED OLDER ADULT	*93.829*		*COMMONWEALTH OF PENNSYLVANIA*	*1LICMS030173*		*$50,731*	*$50,731*	*OTHER PROGRAMS*	*$14,438,000*
STATISTICAL METHODS FOR ANALYZING ELECTRONIC HEALTH RECORD DATA	93.837	R01HL138306			$80,637	$252,119	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF CCM SIGNALING	93.837	1-R01-HL-102138-01				-$170	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE CONTRIBUTION OF MELANOCYTE-LIKE CELLS TO ATRIAL FUNCTION AND DEVEL	93.837	1-R01-HL-105734-01A1				-$2,945	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
SEMAPHORIN3D AND ANOMALOUS PULMONARY VENOUS RETURN	93.837	1-R01-HL-118768-01A1				-$94	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
GLYCOMICS OF HEART AND LUNG DISEASE IN THE GENOMIC ERA	93.837	1-U01-HL-108636-01				-$3,968	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CHARTING OXYGEN-SENSING GENE REGULATORY NETWORK IN CARDIOMYOCYTES THRO	93.837	DP2HL142044				$323,323	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DECIPHERING NUCLEAR LAMINA-CHROMATIN ORGANIZATION IN CELLULAR COMPETEN	93.837	DP2HL147123				$205,802	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
INJECTABLE HYDROGELS FOR MIR302 MIMIC DELIVERY AFTER MYOCARDIAL INFARC	93.837	F30HL134255				$31,626	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF TRIB1 IN GRANULOCYTE IDENTITY AND ACTIVATION	93.837	F30HL136127				$9,993	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
4D VENTRICLE-VALVE MODEL RISK STRATIFICATION FOR PLANNING SURGICAL TRE	93.837	F30HL142138				$49,327	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
BRANCHED CHAIN AMINO ACIDS AND HEART FAILURE	93.837	F30HL142186				$12,998	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF CAR-EXPRESSING TREGS ON ANTIGEN-SPECIFIC IMMUNE SUPPRESSIO	93.837	F31HL134325				$39,707	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ENHANCING ELECTRONIC HEALTH RECORD-DERIVED DATA WITH GEOSPATIAL INFORM	93.837	F31HL142153				$36,218	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ARTERIAL STIFFENING AND MECHANICS IN HUTCHINSON-GILFORD PROGERIA SYNDR	93.837	F31HL142160				$39,844	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANICAL REGULATION OF GENE EXPRESSION IN VENTRICULAR MYOCYTES	93.837	F31HL142238				$21,133	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS BY WHICH TRIB1 REGULATES PLASMA LIPIDS AND GLUCOSE METABOLI	93.837	F31HL143857				$42,485	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE-FUNCTION STUDY OF ARP2/3 COMPLEX AND A NOVEL ROLE FOR ACTIN	93.837	F31HL146077				$23,462	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE ROLE OF HOPX AND GENOME-NUCLEAR LAMINA INTERACTIONS IN CA	93.837	F31HL147416				$4,426	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF SORTILIN IN THE REGULATION OF APOLIPOPROTEIN B SECRETION	93.837	F32HL134564				$50,780	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MICROTUBULE BUNDLING: EFFECTS OF DETYROSINATION AND CHANGES IN CARDIOM	93.837	F32HL136071				$313	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING MEASURES OF STRAIN ON HOSPITAL WARDS AND THEIR INFLUENCE ON S	93.837	F32HL139107				$30,341	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
A PLATFORM FOR OUTCOMES DATA SHARING AND PRE-OPERATIVE IMAGE-GUIDED ME	93.837	K01HL141643				$76,394	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY TREATMENT-RELATED CARDIOTOXICITY AND SUBSEQUENT OUTCOMES IN PEDI	93.837	K01HL143153				$119,866	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE ROLE OF HOPX IN CARDIAC PROGENITOR PROLIFERATION	93.837	K08HL119553				-$27	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING MORTALITY ATTRIBUTABLE TO CARDIAC AND PULMONARY COMPLICATIONS	93.837	K08HL131995				$118,292	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY CLONAL EVOLUTION IN ACQUIRED APLASTIC ANEMIA	93.837	K08HL132101			$7,778	$176,785	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ABNORMAL MITOCHONDRIAL BIOENERGETIC AND MOTILITY SIGNATURES IN HUMAN B	93.837	K08HL136858				$182,448	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF THE CARDIOMYOCYTE HIF PATHWAY AND FOG2 IN CORONARY MICROVA	93.837	K08HL136890				$150,070	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
NANONSCALE DRUG CARRIERS FOR THE TREATMENT OF ACUTE RESPIRATORY DISTRE	93.837	K08HL138269				$160,840	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
LONG PENTRAXIN-3 GENOMICS AND OUTCOMES AFTER LUNG TRANSPLANTATION	93.837	K23HL121406				$12,212	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF ABO GLYCOSYLTRANSFERASES IN THE ACUTE RESPIRATORY DISTRESS	93.837	K23HL125723				$180,565	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MODIFYING BEHAVIORAL RESPONSE TO FAILURE AMONG PATIENTS WITH CARDIOVAS	93.837	K23HL128837				$145,101	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
HFPEF: MORE THAN JUST THE HEART - WHY THE MITOCHONDRIA AND CAPILLARIES	93.837	K23HL130551				$139,618	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
MANAGEMENT OF HYPERTENSION IN OBESITY: ANTIHYPERTENSIVE CLASS EFFECTS,	93.837	K23HL133843				$176,802	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING WEIGHT STIGMA TO IMPROVE LONG-TERM WEIGHT LOSS	93.837	K23HL140176				$169,624	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION OF ENDOTHELIAL PHENOTYPE BY FLOW AND HYPERCHOLES	93.837	K99HL127272				$8,825	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
AAV GENE THERAPY FOR LIPID DISORDERS	93.837	P01HL059407			$8,652	$3,618,781	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
HETEROGENEITY AND BIAS OF LINEAGE NEGATIVE PROGENITORS IN LUNG EPITHEL	93.837	R00HL131817				$292,822	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
PROBING THE CARDIAC PGC-1 REGULATORY CASCADE	93.837	R01HL058493				$711,790	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
QUANTITATIVE METHODS FOR OPTIMIZING IMR REPAIR	93.837	R01HL073021				$29,539	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
HEG-CCM SIGNALING IN CARDIOVASCULAR DEVELOPMENT AND DISEASE	93.837	R01HL094326				$101,173	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
PGC-1 COACTIVATORS IN MUSCLE ANGIOGENESIS AND ISCHEMIA	93.837	R01HL094499				$275,497	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
BLOOD SYSTEMS BIOLOGY	93.837	R01HL103419			$89,177	$811,107	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
3D ECHOCARDIOGRAPHY TO IMPROVE CLINICAL OUTCOMES AFTER SURGERY FOR ISC	93.837	R01HL103723			$196,972	$351,887	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
AFFORDABLE ORAL DELIVERY OF HUMAN BLOOD PROTEIN DRUGS BIOENCAPSULATED	93.837	R01HL107904			$65,997	$806,547	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF A HIGH PERFORMANCE CLINICAL CARDIAC SPECT/TCT SYSTEM	93.837	R01HL108119				$672,093	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
PRECLINICAL CARDIAC IMAGING PACKAGE FOR CLINICAL SPECT SYSTEMS	93.837	R01HL111883				$17,937	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL METHODS FOR THE CONDUCT OF CLINICAL TRIALS	93.837	R01HL115041			$56,944	$119,538	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ANCILLARY STUDY OF SUBSTRATE AND INTERVENTION MECHANISMS FOR MALIGNANT	93.837	R01HL116280-04			$44,164	$104,084	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MULTIMARKER RISK PREDICTION IN CANCER THERAPY CARDIOTOXICITY	93.837	R01HL118018			$64,015	$488,404	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF PROCESS AND OUTCOMES INCENTIVES FOR LIPID	93.837	R01HL118195				$294,053	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF PROCESS AND OUTCOMES INCENTIVES FOR LIPID	93.837	R01HL118195				$299,738	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
STEM CELLS MODELS OF FAMILIAL COMBINED HYPOLIPIDEMIA	93.837	R01HL118744				$138,332	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
APOE, ARTERIAL BIOMECHANICS, AND CARDIOVASCULAR DISEASE	93.837	R01HL119346			$14,377	$42,949	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EFFICACY OF POTASSIUM NITRATE IN HEART FAILURE WITH PRESERVED EJECTION	93.837	R01HL121510			$63,307	$643,234	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EFFICACY OF POTASSIUM NITRATE IN HEART FAILURE WITH PRESERVED EJECTION	93.837	R01HL121510			$98,463	$98,463	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EFFICACY OF POTASSIUM NITRATE IN HEART FAILURE WITH PRESERVED EJECTION	93.837	R01HL121510				-$951	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EFFICACY OF POTASSIUM NITRATE IN HEART FAILURE WITH PRESERVED EJECTION	93.837	R01HL121510				-$10,854	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TWITTER AND CARDIOVASCULAR HEALTH	93.837	R01HL122457				$86,708	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF RAGE IN BICUSPID AORTIC VALVE SYNDROME	93.837	R01HL122805				-$25,958	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS LINKING THE CXCL12 PATHWAY TO ATHEROSCLEROSIS	93.837	R01HL122843			$364,650	$864,215	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF RAGE AND NECROPTOSIS IN TRANSFUSION MEDIATED LUNG INFLAMMATION	93.837	R01HL126788				$362,883	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
SFLT AND METABOLIC MECHANISMS OF PERIPARTIUM CARDIOMYOPATHY	93.837	R01HL126797				$485,361	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ENDOTHELIAL TARGETING OF ANTIOXIDANTS	93.837	R01HL126874				$348,252	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
PERMANENT ALTERATION OF PCSK9 IN VIVO GENOME EDITING	93.837	R01HL126875				$179,162	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
PROBING THE ROLE OF MITOCHONDRIAL SHORT-CHAIN CARBON HOMEOSTASIS IN TH	93.837	R01HL128349			$341,794	$783,545	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
RCT OF AUTOMATED HOVERING FOR CONGESTIVE HEART FAILURE MANAGEMENT	93.837	R01HL128465			$5,637	$189,905	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
RCT OF AUTOMATED HOVERING FOR CONGESTIVE HEART FAILURE MANAGEMENT	93.837	R01HL128465			$15,776	$650,687	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE BIOLOGY OF THE ABCA3 LIPID TRANSPORTER IN HEALTH AND DISEASE	93.837	R01HL129150				$548,609	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
PREDICTION AND ASSESSMENT OF COPD LUNG VOLUME REDUCTION OUTCOMES WITH	93.837	R01HL129805				$778,928	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
BIODEGRADABLE POLYMETAL NANOPARTICLE CT CONTRAST AGENTS FOR VASCULAR I	93.837	R01HL131557				$570,705	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF NUCLEAR ARCHITECTURE IN CARDIAC DEVELOPMENT	93.837	R01HL131611				$7,596	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
BROWN ADIPOSE TISSUE AND CARDIOPROTECTION	93.837	R01HL131613			$68,818	$462,474	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
LYMPHANGIOGENESIS IN PULMONARY LYMPHANGIOLEIOMYOMATOSIS (LAM)	93.837	R01HL131626			$46,435	$647,615	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENTAL PATHWAYS REGULATING ADULT LUNG QUIESCENCE	93.837	R01HL132349				$582,861	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR PATHWAYS CONTROLLING ALVEOLAR EPITHELIAL REMODELING IN DEVEL	93.837	R01HL132999				$694,255	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DETYROSINATED MICROTUBULES IN CARDIOMYOCYTE MECHANICS	93.837	R01HL133080				$413,641	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC FINE-MAPPING OF CARDIOMETABOLIC DISEASE LOCI IN THE HUMAN L	93.837	R01HL133218			$319,845	$671,519	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DEEP PHENOTYPING OF HUMAN KNOCKOUTS AND POPULATION STUDIES OF THE APOC	93.837	R01HL133339			$73,623	$442,856	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
STRUCTURE-FUNCTION ANALYSIS OF TRIGLYCERIDE REGULATORS APOC-III AND AP	93.837	R01HL133502				$385,829	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF EARLY DIAGNOSTIC AND DISPOSITION STRATEGI	93.837	R01HL134647			$352,653	$484,449	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF EARLY DIAGNOSTIC AND DISPOSITION STRATEGI	93.837	R01HL134647				$14,421	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRIB1 REGULATION OF HEPATIC LIPID METABOLISM AND ATHEROGENESIS	93.837	R01HL134853				$318,153	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ANASTROZOLE IN PULMONARY ARTERIAL HYPERTENSION (AIPH2) - DCC	93.837	R01HL134904				$174,166	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ANASTROZOLE IN PULMONARY ARTERIAL HYPERTENSION (AIPH2) - CCC (LEAD)	93.837	R01HL134905			$80,115	$322,604	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ANASTROZOLE IN PULMONARY ARTERIAL HYPERTENSION (AIPH2) - CCC (LEAD)	93.837	R01HL134905			$407,549	$626,225	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF CAP2 IN SEX-RELATED MYOCARDIAL FUNCTION	93.837	R01HL134923				$352,525	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL SHEAR THINNING HYDROGEL SYSTEM FOR ADVANCED CELLULAR THERAPY I	93.837	R01HL135090			$8,487	$568,139	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
BENEFITS OF ICU ADMISSION FOR PATIENTS WITH ACUTE RESPIRATORY FAILURE	93.837	R01HL136719			$329,967	$811,873	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ECM STIFFNESS, MECHANOTRANSDUCTION, AND CELL CYCLING	93.837	R01HL137232				$456,303	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIAC MR IMAGING OF HEMORRHAGIC REPERFUSION INJURY AFTER MYOCARDIAL	93.837	R01HL137984			$58,915	$522,605	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MRI AND SERUM MARKERS OF ENDOTHELIAL STRESS RESULTING FROM E-CIGARETTE	93.837	R01HL139358				$488,243	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF BRD4 IN CARDIAC SPECIFICATION	93.837	R01HL139783				$149,264	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DYNAMIC PREDICTION MODELING TO IMPROVE CLINICAL PREDICTIONS	93.837	R01HL141294				$411,174	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
UROKINASE-TYPE PLASMINOGEN ACTIVATOR (UPA) IN PATHOGENESIS OF LYMPHANG	93.837	R01HL141462				$203,422	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MAINTENANCE AND EXPANSION OF LONG-TERM HEMATOPOIETIC STEM CELLS	93.837	R01HL141759				$205,692	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ATHEROSCLEROSIS, PROSTAGLANDIN INHIBITION AND CHECKPOINT BLOCKADE	93.837	R01HL141912				$153,314	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
IMPLICATIONS OF INTRA-MYOCARDIAL FAT DEPOSITION UPON PROPENSITY FOR MA	93.837	R01HL142893			$178,646	$356,993	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DEEP PHENOTYPING OF ANGPTL3, ANGPTL4 AND ANGPTL8 HUMAN KNOCKOUTS AND P	93.837	R01HL145437				$98,774	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
OPTIMIZED MITRAL ANNULOPLASTY	93.837	R01HL147256				$18,189	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
VOLTAGE-GATED SODIUM CHANNELS IN LYSOSOMAL PHYSIOLOGY	93.837	R01HL147379				$25,149	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
ADVANCED DIAGNOSTICS FOR DONOR LUNG ASSESSMENT AND EX VIVO LUNG PERFUS	93.837	R03HL135227				$18,575	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
NUCLEAR MECHANICS VARIES WITH TISSUE MECHANICS & REGULATES CYTOSKELETO	93.837	R21HL128187				$2,676	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MARKERS OF OXIDATIVE AND NITROSATIVE STRESS IN ANTHRACYCLINE CARDIOTOX	93.837	R21HL141802			$2,427	$39,095	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
SHORT-TERM RESEARCH EDUCATION PROGRAM TO INCREASE DIVERSITY IN HEALTH-	93.837	R25HL084665				$142,640	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH ALTITUDE ADAPTATION: A MODEL FOR CHRONIC HYPOXIA	93.837	R33HL120751			$21,750	$260,168	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIAC LINEAGE DETERMINATION AND NUCLEAR ARCHITECTURE	93.837	R35HL140018				$498,449	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIAC LINEAGE DETERMINATION AND NUCLEAR ARCHITECTURE	93.837	R35HL140018				$484,048	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DIAGNOSIS, PREVENTION, AND TREATMENT OF CARDIOVASCULAR DISEASES WITH G	93.837	R35HL145203				$147,372	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
HDL METABOLISM: INFLUENCE OF EXTRACELLULAR LIPASES	93.837	R37HL055323				$214,843	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIOVASCULAR RISK AFTER PREECLAMPSIA - THE CRISP STUDY	93.837	R56HL136730				$305,948	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR ANALYZING ELECTRONIC HEALTH RECORD DATA	93.837	R56HL138306			$51,654	$105,605	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ECONOMIC APPROACHES TO INCREASE PHYSICAL ACTIVITY AMONG PAT	93.837	R61HL141440				$333,564	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING ORAL LT3 THERAPY FOR HEART FAILURE	93.837	R61HL146390				$53,127	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN PULMONARY IMMUNOLOGY	93.837	T32HL007586				-$2,415	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN PULMONARY IMMUNOLOGY	93.837	T32HL007586				$394,318	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN RESPIRATORY NEUROBIOLOGY AND SLEEP	93.837	T32HL007713				$18,123	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN CARDIOVASCULAR BIOLOGY AND MEDICINE	93.837	T32HL007843				-$41	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN CARDIOVASCULAR BIOLOGY AND MEDICINE	93.837	T32HL007843				$466,667	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIOLOGY AND PULMONARY CLINICAL RESEARCH TRAINING PROGRAM	93.837	T32HL007891				$157	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIOLOGY AND PULMONARY CLINICAL RESEARCH TRAINING PROGRAM	93.837	T32HL007891				$3,852	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIOLOGY AND PULMONARY CLINICAL RESEARCH TRAINING PROGRAM	93.837	T32HL007891				$499,578	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MULTIDISCIPLINARY TRAINING IN CARDIOVASCULAR BIOLOGY	93.837	T32HL007954				$16,101	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MULTIDISCIPLINARY TRAINING IN CARDIOVASCULAR BIOLOGY	93.837	T32HL007954				$577,820	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN CRITICAL CARE HEALTH POLICY RESEARCH	93.837	T32HL098054				$487,037	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN CRITICAL CARE HEALTH POLICY RESEARCH	93.837	T32HL098054				$55,967	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-INSTITUTIONAL TRAINING IN GENETIC/GENOMIC APPROACHES TO SLEEP DI	93.837	T32HL110952			-$1,259	-$1,259	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
MULTI-INSTITUTIONAL TRAINING IN GENETIC/GENOMIC APPROACHES TO SLEEP DI	93.837	T32HL110952			$207,203	$207,203	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MID-ATLANTIC HEART FAILURE NETWORK	93.837	U10HL110338			$77,759	$249,863	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
PERSONALIZATION OF THERAPEUTIC EFFICACY AND RISK	93.837	U54HL117798			-$15,439	-$15,439	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIAC SURGICAL TECHNIQUES TO TREAT VENTRICULAR AND AORTIC REMODELING	93.837	UM1HL088957				$87,589	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
CARDIOTHORACIC SURGICAL TRIALS NETWORK (CTSN) LINKED CLINICAL RESEARCH	93.837	UM1HL088957				$8,285	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
SORAFENIB IN HEPATOPULMONARY SYNDROME	93.837	UM1HL116886				$374,435	$39,408,617	RESEARCH AND DEVELOPMENT	$706,379,077
MINDFULNESS-BASED STRESS REDUCTION FOR HIGH BLOOD PRESSURE: A TWO-SITE	*93.837*		*KENT STATE UNIVERSITY*	*R01HL119977*	*$21,885*	*$210,615*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RELIABLE EVALUATION OF DYSPNEA IN THE HEART FAILURE NETWORK ROSE STUDY	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*$1,749*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RENAL OPTIMIZATION STRATEGIES EVALUATION IN ACUTE HEART FAILURE (ROSE	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*-$7,646*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
XANTHINE OXIDASE INHIBITION FOR HYPERURICEMIC HEART FAILURE PATIENTS:	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*$250*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NOVEL APPROACH FOR THE DESIGN SIMULATION OF VALVULAR REPLACEMENT BIO	*93.837*		*UNIVERSITY OF TEXAS AT AUSTIN*	*UTA12-000569*		*-$59,989*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CARDIOVASCULAR INFLAMMATION REDUCTION TRIAL (CIRT): A RANDOMIZED, DOUB	*93.837*		*BRIGHAM AND WOMEN'S HOSPITAL*	*U01HL101422*		*$32,163*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FUNCTIONAL IMPACT OF GLP-1 FOR HEART FAILURE TREATMENT (FIGHT)	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*-$4*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NHLBI PROGENITOR CELL BIOLOGY CONSORTIUM ADMINISTRATIVE COORDINATING C	*93.837*		*UNIVERSITY OF MARYLAND*	*8382 / PO #SR00002870*		*-$40*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NITRATES EFFECT ON ACTIVITY TOLERANCE IN HEART FAILURE WITH PRESERVED	*93.837*		*DUKE UNIVERSITY*	*052 NEAT-HFPEF*		*-$4,449*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ANALYSIS AND CHARACTERIZATION OF TRAUMA-INDUCED COAGULOPATHY	*93.837*		*UNIVERSITY OF VERMONT*	*SUB51510 U OF PENN*		*-$148*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NHLBI PROGENITOR CELL BIOLOGY CONSORTIUM ADMINISTRATIVE COORDINATING C	*93.837*		*UNIVERSITY OF MARYLAND*	*8382 / PO #SR00002870*		*-$20*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PULMONARY HYPERTENSION BREAKTHROUGH INITIATIVE	*93.837*		*UNIVERSITY OF COLORADO*	*SUB TO R24-HL-123767*		*-$511*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NUMOM2B HEART HEALTH STUDY CAPITATION FUNDING	*93.837*		*RESEARCH TRIANGLE INSTITUTE*	*U10HL11991*		*$55,476*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GENETICS, MECHANISMS AND CLINICAL PHENOTYPES OF ARRHYTHMOGENIC CARDIOM	*93.837*		*CINCINNATI CHILDREN'S HOSPTIAL MEDICAL CENTER*	*131950*		*$72*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ALDOSTERONE TARGETED NEUROHORMONAL COMBINED WITH NATRIURESIS THERAPY -	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*-$602*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SAFETY & EFFICACY OF INTRAMYOCARDIAL INJECTION OF MESENCHYMAL PRECURSO	*93.837*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*0255-3106-4605*		*$106,181*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUROPROTECTION IN PATIENTS UNDERGOING AORTIC VALVE REPLACEMENT	*93.837*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*U01HL088942*		*$1,315*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RANDOMIZED TRIAL TO PREVENT VASCULAR EVENTS IN HIV REPRIEVE (A5332)	*93.837*		*BRIGHAM AND WOMEN'S HOSPITAL*	*SUB TO 1U01HL23336/A5332/A5333*		*$84,505*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHASE II RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE BLIND CLINICAL TRIAL O	*93.837*		*BRIGHAM AND WOMEN'S HOSPITAL*	*SUB TO 5-P50-HL-1123349-02*		*$4,024*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LIPIDOMIC SCREENING FOR FUNCTIONAL SURFACTANT GENE MUTATIONS	*93.837*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*R21HL120760*		*$104,571*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHRONIC HYPERTENSION AND PREGNANCY (CHAP)	*93.837*		*UNIVERSITY OF ALABAMA AT BIRMINGHAM*	*000503570-010*		*$638*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIPPO SIGNALING IN PULMONARY ARTERIAL HYPERTENSION	*93.837*		*UNIVERSITY OF PITTSBURGH*	*SUB TO 1-R01-HL-130261-01*		*$53,720*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STRUCTURAL, BIOCHEMICAL, AND MECHANICAL EFFECTS OF MYOSIN CARDIOMYOPAT	*93.837*		*RUTGERS UNIVERSITY*	*R01HL133863*		*$152,037*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTISCALE MODELING AND EMPIRICAL STUDY OF A MECHANISM LIMITING BLOOD	*93.837*		*UNIVERSITY OF CALIFORNIA, RIVERSIDE*	*U01HL116330*		*$309,999*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHARACTERIZING HIV-RELATED DIASTOLIC DYSFUNCTION	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*$27,691*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
METABOLIC CONTROL OF DNA REPAIR IN PULMONARY FIBROSIS	*93.837*		*THOMAS JEFFERSON UNIVERSITY*	*R01HL131784*		*$17,407*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE EFFECT OF RS-PRASUGREL, R-PRASUGREL AND S-PRASUGREL ON PLATELET AC	*93.837*		*DEUTERX*	*1R43HL131158*		*$147*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENTRESTOTM (LCZ696) IN ADVANCED HEART FAILURE (LIFE STUDY)	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*$4,298*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COGNITIVE EFFECTS OF BODY TEMPERATURE DURING HYPOTHERMIC CIRCULATORY A	*93.837*		*DUKE UNIVERSITY*	*R01HL130443*		*$7,200*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STOP-CA STATINS TO PREVENT CARDIOTOXICITY FROM ANTHRACYCLINES	*93.837*		*MASSACHUSETTS GENERAL HOSPITAL*	*R01HL130539*		*$108,269*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTICENTER INTERVENTIONAL LYMPHANGIOLEIOMYOMATOSIS EARLY DISEASE TRIA	*93.837*		*UNIVERSITY OF CINCINNATI*	*U01HL131755*		*$21,124*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
APTAMER-ENABLED HIGH-SENSITIVITY TROPONIN ASSAY FOR RAPID POC DIAGNOSI	*93.837*		*APTITUDE MEDICAL SYSTEMS*	*R43HL133305*		*$4,810*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTEGRATIVE ANALYSIS OF ELECTROPHYSIOLOGY IN THE HEALED MYOCARDIAL INF	*93.837*		*UNIVERSITY OF MASSACHUSETTS*	*R01HL134185*		*$81,090*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ATRIAL FIBRILLATION BURDEN, VASCULAR DISEASE OF THE BRAIN AND CARDIAC	*93.837*		*UNIVERSITY OF WASHINGTON*	*R01HL127659*		*$1,578*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PULMONARY HYPERTENSION BREAKTHROUGH INITIATIVE	*93.837*		*INDIANA UNIVERSITY*	*R24HL123767*		*$96,642*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PULMONARY HYPERTENSION BREAKTHROUGH INITIATIVE	*93.837*		*INDIANA UNIVERSITY*	*R24HL123767*		*$49,734*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
THE MOLECULAR AND GENETIC PATHOGENESIS OF LAM	*93.837*		*BRIGHAM AND WOMEN'S HOSPITAL*	*U01HL131022*		*$17,898*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OXIDATION RESISTANT APOA1 GENE DELIVERY STENTS	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL137762*		*-$115,649*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
VASCULAR EFFECTS OF DIETARY SALT IN HUMANS WITH SALT-RESISTANT BP	*93.837*		*UNIVERSITY OF DELAWARE*	*R01HL104106B*		*$38,890*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GENOMEWIDE ASSOCIATION STUDY OF LIPID RESPONSE TO FENOFIBRATE AND DIET	*93.837*		*UNIVERSITY OF KENTUCKY*	*R01HL091357*		*$214,245*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SUBCUTANEOUS FUROSEMIDE IN ACUTE DECOMPENSATED HEART FAILURE: THE SUBQ	*93.837*		*DUKE UNIVERSITY*	*U10HL084904*		*-$3,198*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
JUNCTIONAL AV ABLATION IN CRT-D PATIENTS WITH ATRIAL FIBRILLATION (JAV	*93.837*		*UNIVERSITY OF ROCHESTER*	*R34HL133526*		*$11*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATING THE BENEFIT OF CONCURRENT TRICUPSID VALVE REPAIR DURING MIT	*93.837*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*U01HL088942*		*$20,171*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHRONIC HYPERTENSION AND PREGNANCY (CHAP)	*93.837*		*UNIVERSITY OF ALABAMA AT BIRMINGHAM*	*000503570-010*		*$56,381*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BLOOD PRESSURE AND KIDNEY FUNCTION - SPRINT VS ELECTRONIC HEALTH RECOR	*93.837*		*UNIVERSITY OF MINNESOTA*	*R01HL136679*		*-$2,412*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THERAPEUTIC TARGETING OF TISSUE INHIBITOR-4 IN HYPERTROPHY FAILURE	*93.837*		*UNIVERSITY OF SOUTH CAROLINA*	*R01HL130972*		*$90,275*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATION OF DISTAL LUNG EPITHELIAL REGENERATION BY MICRORNA-HIPPO PA	*93.837*		*TEMPLE UNIVERSITY*	*361262-04710-02*		*$2,203*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMAGE GUIDED DELIVERY OF BIORESPONSIVE HYDROGELS	*93.837*		*YALE UNIVERSITY*	*R01HL137365*		*$124,085*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OUTCOMES IN CHILDREN UNDERGOING CARDIAC CATHETERIZATION	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*K23HL130420*		*$10,620*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREGNANCY AS A WINDOW TO FUTURE CARDIOVASCULAR HEALTH	*93.837*		*RESEARCH TRIANGLE INSTITUTE*	*U01HL119991*		*$15,971*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CEREBRAL ANATOMY, HEMODYNAMICS AND METABOLISM IN SINGLE VENTRICLES: RE	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3207950619*		*$60,534*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CEREBRAL ANATOMY, HEMODYNAMICS AND METABOLISM IN SINGLE VENTRICLES: RE	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3207950619*		*$28,750*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ATRIAL FIBRILLATION BURDEN, VASCULAR DISEASE OF THE BRAIN AND CARDIAC	*93.837*		*UNIVERSITY OF WASHINGTON*	*R01HL127659*		*$360,473*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HYBIRD CORONARY REVASCULARIZATION TRIAL - CCC	*93.837*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*U01HL125488*		*$7,709*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE MOLECULAR AND GENETIC PATHOGENESIS OF LAM	*93.837*		*BRIGHAM AND WOMEN'S HOSPITAL*	*U01HL131022*		*$71,452*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRECISION MEDICINE FOR DILATED CARDIOMYOPATHY IN EUROPEAN AND AFRICAN	*93.837*		*OHIO STATE UNIVERSITY*	*6008444*		*$39,929*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A POPULATION BASED APPROACH TO IMPROVE OUTCOMES AFTER OUT-OF-HOSPITAL	*93.837*		*THOMAS JEFFERSON UNIVERSITY*	*R01HL141841*		*$146,483*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OXIDATION RESISTANT APOA1 GENE DELIVERY STENTS	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL137762*		*$204,604*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BIOMEDICAL INDICATORS OF BICUSPID AORTIC VALVE DYSFUNCTION	*93.837*		*UNIVERSITY OF TEXAS AT AUSTIN*	*R01HL142504*		*$180,346*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OXIDATION-MEDIATED STRUCTURAL DEGENERATION OF BIOPROSTHETIC HEART VALV	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL143008*		*$56,924*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ELUCIDATION OF TISSUE-SPECFIC TRANSCRIPTOMIC PROFILES IN CARDIOMETABOL	*93.837*		*COLUMBIA UNIVERSITY*	*R01HL113147*		*$62,273*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SEROTONIN SIGNALING IN MITRAL VALVE HOMEOSTASIS MAINTENANCE AND RESTOR	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL131872*		*$19,645*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HEMOSTASIS AND THROMBOSIS: CHEMISTRY, BIOLOGY AND PHYSIOLOGY	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*P01HL139420*		*$184,647*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OXIDATION-MEDIATED STRUCTURAL DEGENERATION OF BIOPROSTHETIC HEART VALV	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL143008*		*$19,826*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHRONIC HYPERTENSION AND PREGNANCY (CHAP)	*93.837*		*UNIVERSITY OF ALABAMA AT BIRMINGHAM*	*000503570-010*		*$77,951*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MYOCARDIAL DELIVERY OF MMP INHIBITING HYDROGELS	*93.837*		*PROHIBIX, LLC*	*R41HL140645*		*$11,000*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COGNITIVE EFFECTS OF BODY TEMPERATURE DURING HYPOTHERMIC CIRCULATORY A	*93.837*		*DUKE UNIVERSITY*	*R01HL130443*		*$19,627*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREGNANCY AS A WINDOW TO FUTURE CARDIOVASCULAR HEALTH	*93.837*		*RESEARCH TRIANGLE INSTITUTE*	*U01HL119991*		*$10,452*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OUTCOMES IN CHILDREN UNDERGOING CARDIAC CATHETERIZATION	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*K23HL130420*		*$4,389*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SEROTONIN SIGNALING IN MITRAL VALVE HOMEOSTASIS MAINTENANCE AND RESTOR	*93.837*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL131872*		*$5,043*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HDL CHOLESTEROL EFFLUX CAPACITY AND CARDIOVASCULAR DISEASE IN HIV	*93.837*		*UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER*	*R21HL137450*		*$4,430*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RURAL: RISK UNDERLYING RURAL AREAS LONGITUDINAL COHORT STUDY	*93.837*		*BOSTON UNIVERSITY*	*U01HL146382*		*$69,382*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PERI-PROCEDURAL TRANSMURAL ELECTROPHYSIOLOGICAL IMAGING OF SCAR-RELATE	*93.837*		*ROCHESTER INSTITUTE OF TECHNOLOGY*	*R01HL145590*		*$11,787*	*$39,408,617*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROBING THE PHYSICS OF CHRONIC LUNG DISEASE USING MICROPHYSIOLOGICAL B	93.838	DP2HL127720				$274,439	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
TEMPORAL AND TRANSCRIPTIONAL CONTROL OF ALVEOLAR EPITHELIAL TYPE 1 CEL	93.838	F31HL140785				$37,309	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
PREDICTORS OF RESPIRATORY INSUFFICIENCY IN AMYOTROPHIC LATERAL SCLEROS	93.838	F32HL144145				$31,693	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINANTS OF IDIOPATHIC INFLAMMATORY MYOPATHY ASSOCIATED INTERSTITI	93.838	K01HL135459				$117,450	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF PHYSICIAN EXPERIENCE IN OUTCOMES OF PATIENTS WITH ACUTE RE	93.838	K08HL116771				$29,819	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
ICAM-1 TARGETED THROMBOMODULIN: AN EXPERIMENTAL THERAPEUTIC FOR THE AC	93.838	K08HL130430				$2,607	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
DONOR SPECIFIC EXTRACELLULAR VESICLE CHARACTERIZATION FOR MONITORING L	93.838	K08HL132099				$159,543	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
G-CSF AND STAT3 LINK INFLAMMATION TO ALVEOLAR EPITHELIAL REGENERATION	93.838	K08HL136698				$160,773	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
OPTIMIZING OUTCOME PREDICTIONS AMONG PATIENTS WITH SMOKING-ASSOCIATED	93.838	K23HL132065				$170,476	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROCOGNITIVE IMPAIRMENT IN ACUTE RESPIRATORY FAILURE AND SHOCK: UND	93.838	K23HL140482				$170,356	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
OBESITY IN PULMONARY ARTERIAL HYPERTENSION	93.838	K23HL141584				$159,714	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
USING NATURAL LANGUAGE PROCESSING AND MACHINE LEARNING TO IDENTIFY POT	93.838	K23HL141639				$170,020	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING PALLIATIVE CARE NEEDS AMONG HOSPITALIZED PATIENTS WITH CHR	93.838	K23HL143181				$119,810	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
MENTORED PATIENT-ORIENTED RESEARCH IN PULMONARY ARTERIAL HYPERTENSION	93.838	K24HL103844				$144,174	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
MENTORED PATIENT ORIENTED RESEARCH IN LUNG TRANSPLANTATION	93.838	K24HL115354				$96,316	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING THE EFFICIENCY OF RANDOMIZED TRIALS OF BEHAVIORAL INTERVENTI	93.838	K24HL143289				$112,899	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING THE MEASUREMENT AND ANALYSIS OF LONG-TERM, PATIENT-CENTERED	93.838	K99HL141678				$99,526	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE MOLECULAR DETERMINANTS OF MESENCHYMAL LINEAGE ALLOCATION	93.838	K99HL141684				$132,888	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE MOLECULAR DETERMINANTS OF MESENCHYMAL LINEAGE ALLOCATION	93.838	K99HL141684				$10,042	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL RISK FACTORS FOR PRIMARY GRAFT DYSFUNCTION	93.838	R01HL087115			$128,375	$169,953	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF AIRWAY MORPHOGENESIS AND DIFFERENTIATION BY WNT SIGNALIN	93.838	R01HL087825				-$403	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF AIRWAY MORPHOGENESIS AND DIFFERENTIATION BY WNT SIGNALIN	93.838	R01HL087825				$85,797	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
WNT SIGNALING IN THE ALVEOLAR NICHE	93.838	R01HL087825				$679,751	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF PEROXIREDOXIN 6 IN THE REPAIR OF PEROXIDIZED CELL MEMBRANES	93.838	R01HL102016				$315,981	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
LUNG TRANSPLANT MICROBIOME AND CHRONIC ALLOGRAFT DYSFUNCTION	93.838	R01HL113252				$26,466	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
ESTROGEN SIGNALING IN PORTOPULMONARY HYPERTENSION	93.838	R01HL113988				$287,042	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
BIOSYNTHESIS AND TRAFFICKING OF SURFACTANT PROTEIN C IN HEALTH AND DIS	93.838	R01HL119436				$233,460	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC INVESTIGATION OF PULMONARY LYMPHATIC DEVELOPMENT AND FUNCTION	93.838	R01HL120872				$451,183	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
DRUG DELIVERY BY CARRIER ERYTHROCYTES	93.838	R01HL121134				$271,496	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTION OF THE INCRNA TRANSCRIPTOME IN LUNG DEVELOPMENT AND REGENERAT	93.838	R01HL122993				$252,891	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
A NEW APPROACH FOR THE ASSESSMENT OF PULMONARY INFLAMMATION	93.838	R01HL124986				$495,702	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED NANOMEDICINE FOR ALI AND I/R	93.838	R01HL125462				$401,496	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
IMAGING-BASED CHARACTERIZATION OF THE COPDGENE COHORT	93.838	R01HL127969			$47,494	$485,163	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING NOVEL BIOTHERAPEUTICS TO ENDOTHELIUM	93.838	R01HL128398				$241,790	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
CEBPD-MEDIATED MECHANISMS OF GLUCOCORTICOID INSENSITIVITY IN SEVERE AS	93.838	R01HL133433			$344,283	$767,207	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
ITK-LUNG: A SOFTWARE FRAMEWORK FOR LUNG IMAGE PROCESSING AND ANALYSIS	93.838	R01HL133889			$234,250	$458,136	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING ANGIOPOIETIN-2 IN ARDS	93.838	R01HL137006			$28,654	$386,248	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
AN INTEGRATED APPROACH TO PREDICT AND IMPROVE THE OUTCOMES OF LUNG INJ	93.838	R01HL137389				$496,203	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
RECONSIDERING THE IL-1 AXIS IN SEPSIS-ASSOCIATED ARDS	93.838	R01HL137915			$30,964	$566,894	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
ASSESSMENT OF LUNG INJURY WITH INTEGRATED IMAGING TECHNIQUES	93.838	R01HL139066				$457,388	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
IMPLEMENTATION OF BEHAVIORAL ECONOMIC APPROACHES TO IMPROVE EVIDENCE U	93.838	R01HL141608				$74,135	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE ANALYSES TO UNCOVER BIOLOGICAL MECHANISMS MEDIATING GENE A	93.838	R01HL141992			$160,607	$383,421	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING LUNG TRANSPLANT OUTCOMES THROUGH THE USE OF IMAGING IN A DBD	93.838	R01HL142258				$320,248	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL MECHANISMS OF HEPATOPULMONARY SYNDROME	93.838	R01HL142269			$168,874	$582,919	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
CLINIC NAVIGATION AND HOME VISITS TO IMPROVE GUIDELINE-BASED CARE AND	93.838	R01HL143364				$9,982	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING FACTORS UNDERLYING LOW UTILIZATION OF PRONE POSITIONING	93.838	R03HL144890				$57,741	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
2018 INTERNATIONAL MOLECULAR AND FUNCTIONAL PULMONARY IMAGING WORKSHOP	93.838	R13HL144010				$11,946	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
A PATIENT ADVOCATE TO IMPROVE REAL-WORLD ASTHMA MANAGEMENT FOR INNER C	93.838	R18HL116285				$286,844	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN-STARR PROGRAM FOR RESEARCH IN RESIDENCY	93.838	R38HL143613				$128,255	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECT OF OSA & CHRONIC INTERMITTENT HYPOXIA ON CEREBRAL METABOLIC O2	93.838	R56HL127020				$167,135	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
THE LUNG DNA VIROME IN HEALTH AND DISEASE	93.838	R61HL137063				$361,783	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
THE LUNG DNA VIROME IN HEALTH AND DISEASE	93.838	R61HL137063				$11,521	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING AND VISUALIZING GENOME FOLDING AT HIGH SPATIOTEMPORAL RESO	93.838	U01HL129998			$31,721	$77,444	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING AND VISUALIZING GENOME FOLDING AT HIGH SPATIOTEMPORAL RESO	93.838	U01HL129998			$215,530	$608,010	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
1/2 PROSPECT: PRONE AND OSCILLATION PEDIATRIC CLINICAL TRIAL (CCC)	93.838	UG3HL141736			$113,844	$989,599	$15,263,925	RESEARCH AND DEVELOPMENT	$706,379,077
OBESITY, INFLAMMATION, AND LUNG INJURY AFTER LUNG TRANSPLANTATION	*93.838*		*COLUMBIA UNIVERSITY*	*4(GG007576)*		*-$787*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NOVEL PLATFORM TO ASSESS GENE FUNCTION IN HUMAN AIRWAY BASAL CELLS	*93.838*		*DUKE UNIVERSITY*	*5-U01-HL-110967-04*		*-$5,040*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EDITING ALVEOLAR PROGENITOR CELLS FOR CORRECTION OF MONOGENIC DISEASE	*93.838*		*CINCINNATI CHILDREN'S HOSPTIAL MEDICAL CENTER*	*U01HL134745*		*-$5,868*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FRAILTY IN LUNG TRANSPLANTATION	*93.838*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*R01HL134851*		*$102,239*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WEST PHILADELPHIA ASTHMA CARE COLLABORATIVE ASTHMA IMPLEMENTATION PLAN	*93.838*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U01HL138687*		*$1,121*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EDITING ALVEOLAR PROGENITOR CELLS FOR CORRECTION OF MONOGENIC DISEASE	*93.838*		*CINCINNATI CHILDREN'S HOSPTIAL MEDICAL CENTER*	*U01HL134745*		*$370,886*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WEST PHILADELPHIA ASTHMA CARE COLLABORATIVE ASTHMA IMPLEMENTATION PLAN	*93.838*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U01HL138687*		*$164,592*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A COMPUTATIONAL BIOMECHANICAL AIRWAY MODEL FOR OBESE CHILDREN AT RISK	*93.838*		*ALBERT EINSTEIN COLLEGE OF MEDICINE, INC*	*R01HL130468*		*$204,544*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREPARING FOR A HYBRID TRIAL OF PULSE OXIMETRY DE-IMPLEMENTATION IN ST	*93.838*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3201160619*		*$40,323*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR AND CELLULAR MECHANISMS OF THE FACTOR VIII IMMUNE RESPONSE	*93.838*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HL142012*		*$133,436*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ICOMPAREDCC	*93.838*		*JOHNS HOPKINS UNIVERSITY*	*U01HL126088*		*$30,742*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFYING AND PREVENTING VENTILATOR INDUCED DIAPHRAGM WEAKNESS IN CH	*93.838*		*CHILDREN'S HOSPITAL OF LOS ANGELES*	*R01HL134666*		*$39,086*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMPLEMENT DRIVEN INNATE AND ADAPTIVE AUTOREACTIVITY IN LUNG TRANSPLAN	*93.838*		*MEDICAL UNIVERSITY OF SOUTH CAROLINA*	*R01HL140470*		*$39,842*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LGM2605: NOVEL AGENT FOR DUAL USE IN DONOR/RECIPIENT PROTECTION FROM L	*93.838*		*LIGNAMED*	*R44HL140680*		*$37,283*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL AND PROTEOMIC CHARACTERIZATION OF NUCLEOSOMES IN PEDIATRIC AC	*93.838*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*K23HL136688*		*$7,848*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GRAFT-PROTECTIVE PROPERTIES OF LGM2605 IN LUNG TRANSPLANTATION	*93.838*		*LIGNAMED*	*R41HL142384*		*$154,684*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT AND FUNCTION OF INFLAMMATORY INNATE LYMPHOID CELLS	*93.838*		*ALBANY MEDICAL COLLEGE*	*R01HL137813*		*$11,887*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DIACYLGLYCEROL KINASE IN AIRWAY SMOOTH MUSCLE FUNCTIONS	*93.838*		*THOMAS JEFFERSON UNIVERSITY*	*R01HL146645*		*$88,595*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR AND CELLULAR MECHANISMS OF THE FACTOR VIII IMMUNE RESPONSE	*93.838*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HL142012*		*$23,629*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A COMPUTATIONAL BIOMECHANICAL AIRWAY MODEL FOR OBESE CHILDREN AT RISK	*93.838*		*ALBERT EINSTEIN COLLEGE OF MEDICINE, INC*	*R01HL130468*		*$16,195*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EDITING ALVEOLAR PROGENITOR CELLS FOR CORRECTION OF MONOGENIC DISEASE	*93.838*		*CINCINNATI CHILDREN'S HOSPTIAL MEDICAL CENTER*	*U01HL134745*		*$8,007*	*$15,263,925*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LONG NON-CODING RNA REGULATION OF SHORT-LIVED MYELOID HOMEOSTASIS	93.839	F30HL138739				$6,881	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE ROLE OF SH2B3 IN HUMAN HEMATOPOIETIC STEM AND PROGEN	93.839	F31HL139091				$44,801	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE MECHANISM OF THROMBOCYTOPENIA DUE TO ETV6 OR RUNX1 M	93.839	F31HL140774				$44,593	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
LIGAND MEDIATED CONTROL OF ERYTHROCYTE DEFORMABILITY FOR OPTIMIZED DEL	93.839	K08HL140164				-$495	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
MENTORED CAREER DEVELOPMENT IN CLINICAL RESEARCH IN NON-MALIGNANT HEMA	93.839	K12HL087064			-$3,182	-$3,182	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF PLATELET AND ENDOTHELIAL CELL FUNCTION	93.839	P01HL040387			$439,816	$1,635,914	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
PLATELET SIGNALS AND THEIR INTERFACE WITH EXTERNAL ENVIRONMENT	93.839	P01HL120846			$178,985	$228,978	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
PLATELET SIGNALS AND THEIR INTERFACE WITH EXTERNAL ENVIRONMENT	93.839	P01HL120846			$676,289	$2,340,053	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
PLATELET SIGNALS AND THEIR INTERFACE WITH EXTERNAL ENVIRONMENT	93.839	P01HL120846				-$72	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
POST-TRANSCRIPTIONAL CONTROLS IN MAMMALIAN ERYTHROID DIFFERENTIATION	93.839	R01HL065449				$577,758	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
BIOCHEMISTRY OF LEUKEMIA VIRUS CORE BINDING FACTOR	93.839	R01HL091724			$23,996	$657,116	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL STRATEGIES FOR REGULATORY T CELL EXPANSION	93.839	R01HL111501				$438,520	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
SPATIAL REGULATION OF PLATELET ACTIVATION BY PODOPLANIN-CLEC2 SIGNALIN	93.839	R01HL121650			$47,709	$47,709	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
SPATIAL REGULATION OF PLATELET ACTIVATION BY PODOPLANIN-CLEC2 SIGNALIN	93.839	R01HL121650				-$153	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
ALPHA-DEFENSINS IN PERIOPERATIVE THROMBOSIS	93.839	R01HL123912				$410,105	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
NANOSCIENCE OF 'SELF' - REDUCTIONIST APPROACHES TO HCD47 INHIBITION OF	93.839	R01HL124106				-$1,392	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
NANOSCIENCE OF SELF 2.0: BLOCKING CD47 RECOGNITION BY PHAGOCYTES IN BL	93.839	R01HL124106				$181,070	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL ANALYSIS OF THE HIT IMMUNE COMPLEX	93.839	R01HL128895				$314,127	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
IN VIVO RNA-MEDIATED GENE EDITING OF HEMOPHILIA A	93.839	R01HL134839			$164,638	$562,702	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
EXPERIMENT-BASED MULTI-SCALE MODELING OF THE TENSILE AND COMPRESSIVE D	93.839	R01HL135254				$308,729	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF SHORT-LIVED MYELOID CELLS BY THE NOVEL LONG NON-CODING R	93.839	R01HL136572				$451,948	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR AND GENETIC BASIS OF DEEP VENOUS THROMBOSIS	93.839	R01HL139552				$570,056	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
MTOR AS A CENTRAL REGULATOR OF IMCD PATHOGENESIS AND NOVEL THERAPEUTIC	93.839	R01HL141408			$65,897	$722,879	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE-BASED DESIGN OF RATIONAL PF4 INHIBITORS IN HIT	93.839	R01HL142122			$114,066	$480,594	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
MEKK3 SIGNALING IN HEMOGENIC ENDOTHELIUM	93.839	R01HL142976			$37,474	$623,951	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
VASCULAR DELIVERY OF NANOCARRIERS BY ERYTHROCYRES	93.839	R01HL143806			$154,212	$616,980	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
CRITICAL ROLE OF TCF-1 ON THE EPIGENETIC IDENTITY OF MEMORY T CELLS	93.839	R01HL145754				$121,069	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERED PROTEIN OXYGEN CARRIERS: A NOVEL BLOOD SUBSTITUTE FOR TRAUM	93.839	R21HL144224				$1,779	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOLOGY CLINICAL RESEARCH TRAINING PROGRAM	93.839	T32HL007439				-$333	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOLOGY CLINICAL RESEARCH TRAINING PROGRAM	93.839	T32HL007439				-$9,385	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOLOGY CLINICAL RESEARCH TRAINING PROGRAM	93.839	T32HL007439				$77,281	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOLOGY CLINICAL RESEARCH TRAINING PROGRAM	93.839	T32HL007439				$685,694	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSFUSION MEDICINE RESEARCH TRAINING PROGRAM	93.839	T32HL007775				$140,344	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING GRANT IN HEMOSTASIS AND THROMBOSIS	93.839	T32HL007971				$14,587	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING GRANT IN HEMOSTASIS AND THROMBOSIS	93.839	T32HL007971				$309,930	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING GRANT IN HEMOSTASIS AND THROMBOSIS	93.839	T32HL007971				$5,260	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
MULTISCALE ANALYSIS OF TRAUMA	93.839	U01HL131053			$76,455	$549,132	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
MULTISCALE ANALYSIS OF TRAUMA	93.839	U01HL131053				$152,571	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
ABRAMSON CANCER CENTER BMT/CTN CORE CLINICAL CENTER	93.839	UG1HL069286				$201,351	$14,400,173	RESEARCH AND DEVELOPMENT	$706,379,077
INHIBITORS OF THE PHD2 ZINC FINGER TO TREAT ANEMIA	*93.839*		*FOX CHASE CHEMICAL DIVERSITY CENTER*	*R43HL137458*		*$14,251*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ORAL TOLERANCE FOR HEMOPHILIA	*93.839*		*UNIVERSITY OF FLORIDA*	*R01HL133191*		*-$5,508*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MYOCARDIAL ISCHEMIA AND TRANSFUSION (MINT) TRIAL	*93.839*		*RUTGERS UNIVERSITY*	*U01HL133817*		*$21,000*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENGINEERING CELLULAR IMMUNOTHERAPY TO MODULATE IMMUNE RESPONSES IN HEM	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL137335*		*$1,917*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EPO REGULATED ERYTHROPOIESIS	*93.839*		*UNIVERSITY OF NEW HAMPSHIRE*	*R01HL044491*		*$51,111*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LNK REGULATORY FUNCTIONS IN HEMATOPOIETIC STEM CELLS	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL095675*		*$9,851*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ROLE OF THE ENDOTHELIUM AND NEUTROPHILS IN THE PROTHROMBOTIC NATURE OF	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL139448*		*$106,058*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATION OF PROTEIN UBIQUITINATION IN HEMATOPOIETIC CYTOKINE SIGNALI	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL133828*		*$30,544*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENGINEERING CELLULAR IMMUNOTHERAPY TO MODULATE IMMUNE RESPONSES IN HEM	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL137335*		*$194,399*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ORAL TOLERANCE FOR HEMOPHILIA	*93.839*		*INDIANA UNIVERSITY*	*R01HL133191*		*$111,441*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ANALYSIS AND CHARACTERIZATION OF TRAUMA-INDUCED COAGULOPATHY	*93.839*		*UNIVERSITY OF MICHIGAN*	*UM1HL120877*		*$204,375*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MYOCARDIAL ISCHEMIA AND TRANSFUSION (MINT) TRIAL	*93.839*		*RUTGERS UNIVERSITY*	*U01HL133817*		*$23,998*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
1/2 CATHETER-DIRECTED THERAPY FOR CHRONIC DVT (C-TRACT TRIAL)	*93.839*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*UG3HL138325*		*$4,500*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE ROLE OF P53 IN IRON OVERLOAD	*93.839*		*WISTAR INSTITUTE*	*R21HL144991*		*$6,164*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ROLE OF THE ENDOTHELIUM AND NEUTROPHILS IN THE PROTHROMBOTIC NATURE OF	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL139448*		*$70,220*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATION OF PROTEIN UBIQUITINATION IN HEMATOPOIETIC CYTOKINE SIGNALI	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL133828*		*$23,669*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE ROLE OF THE PAFC SUBUNIT CDC73 IN NORMAL HEMATOPOIESIS AND TRANSFO	*93.839*		*UNIVERSITY OF MICHIGAN*	*R01HL136420*		*$9,959*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FUNCTIONS, MECHANISMS, AND THERAPEUTIC POTENTIAL OF FETAL HEMOGLOBIN I	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL119479*		*$12,711*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ENGINEERING CELLULAR IMMUNOTHERAPY TO MODULATE IMMUNE RESPONSES IN HEM	*93.839*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HL137335*		*$63*	*$14,400,173*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DETERMINING THE IMPORTANCE OF TEMPORAL REGULATION OF THE BLOOD-BRAIN B	93.840	K99HL147212				$6,071	$6,071	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
CHALLENGING TREATMENT PARADIGMS FOR ACHILLES TENDON RUPTURES IN AN ANI	93.846	1-R01-AR-064216-01A1				-$1,794	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
INTERSECTION OF UPREGULATED BMP SIGNALING & CELLULAR MECHANOTRANSDUCTI	93.846	F31AR069982				$34,866	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION OF KERATINOCYTE-MEDIATED INNATE IMMUNITY	93.846	F31AR072461				$23,179	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF CELL FATE DECISION IN HETEROTOPIC OSSIFACATION	93.846	F31AR073103				$39,884	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINING THE FUNCTION OF TRPC3 IN ALLERGIC CONTACT DERMATITIS INDUC	93.846	F31AR075436				$8,462	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
SKIN-ON-A-CHIP: A MICROFLUIDIC ORGAN MODEL TO STUDY THE MECHANOBIOLOGY	93.846	F32AR068838				$309	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
IMPAIRED BMP SIGNALING AND FAILED BONE FORMATION IN MUCOPOLYSACCHARIDO	93.846	F32AR071298				$70,208	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ALTERED MECHANICAL SIGNALING IN THE ANNULUS FIBROSUS IN INTERVERTEBRAL	93.846	F32AR072478				$58,492	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
THE EFFECT OF PARATHYROID HORMONE ON MODELING-BASED BONE FORMATION	93.846	K01AR066743				$113,591	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFICATION OF THE MOLECULAR INTERACTION BETWEEN JOINT TISSUES AS A	93.846	K01AR069002				$153,734	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING APPENDAGE REGENERATION IN MICE	93.846	K08AR066661				$159,100	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENOMIC MECHANISMS OF SKIN CARCINOGENESIS	93.846	K08AR070289				$161,015	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFICATION OF EARLY PSORIATIC ARTHRITIS	93.846	K23AR063764				$77,150	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
RACIAL DISPARITIES IN THE TREATMENT OF PSORIASIS: A MIXED METHODS APPR	93.846	K23AR068433				$117,991	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
NASAL MICROBIOME AND HOST IMMUNITY IN GRANULOMATOSIS WITH POLYANGIITIS	93.846	K23AR071514				$149,287	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
RISK AND IMPACT OF INFECTION RESULTING FROM TREATMENT WITH CHRONIC GLU	93.846	K23AR073931				$152,315	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
RESPIRATORY INFECTIONS AND VACCINATION BEHAVIORS IN PATIENTS WITH CHRO	93.846	K23AR073932				$115,072	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
RACIAL DISPARITY IN THE UTILIZATION OF JOINT REPLACEMENT FOR OSTEOARTH	93.846	K24AR055259				-$961	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF COLLAGEN ORGANIZATION IN DETERMINATION OF FIBROTIC MUSCLE	93.846	K99AR067867				$19,105	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
SKIN BIOLOGY AND DISEASES RESOURCE-BASED CENTER (SBDRC)	93.846	P30AR069589				$154,239	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
SKIN BIOLOGY AND DISEASES RESOURCE-BASED CENTER (SBDRC)	93.846	P30AR069589				$620,855	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
RESOURCE-BASED CENTER FOR MUSCULOSKELETAL DISORDERS RESEARCH	93.846	P30AR069619			$1,504	$1,504	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
RESOURCE-BASED CENTER FOR MUSCULOSKELETAL DISORDERS RESEARCH	93.846	P30AR069619			$16,614	$840,579	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
RESOURCE-BASED CENTER FOR MUSCULOSKELETAL DISORDERS RESEARCH	93.846	P30AR069619				-$26,191	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE TENDON LINEAGE TO IMPROVE TISSUE ENGINEERING STRATEGIES	93.846	R00AR067283				$222,468	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
BONE WATER AND MINERALIZATION MEASURED BY NUCLEAR MAGNETIC RESONANCE	93.846	R01AR050068				$347,225	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
HAIR FOLLICLE NEOGENESIS IN RESPONSE TO WOUNDING	93.846	R01AR055309				$2,262	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
OSTEOPOROSIS TREATMENT RESPONSE ASSESSED BY MICROMECHANICAL MODELING O	93.846	R01AR055647			$13,008	$87,404	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DYNAMIC FIBROUS SCAFFOLDS FOR REPAIRING DENSE CONNECTIVE TISSUES	93.846	R01AR056624				$395,491	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DIABETIC FRACTURE HEALING	93.846	R01AR060055				$42,004	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
HDAC FUNCTIONS IN SKIN DEVELOPMENT, RENEWAL AND DISEASE	93.846	R01AR063146				$57,846	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ADAPTION AND VALIDATION OF PROMIS FOR USE IN VASCULITIS	93.846	R01AR064153			$58,539	$139,714	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
CHALLENGING TREATMENT PARADIGMS FOR ACHILLES TENDON RUPTURES IN AN ANI	93.846	R01AR064216				$221,460	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
INJURY RESPONSE IN NORMAL AND EDS TENDONS: REGULATORY ROLES OF COLLAGE	93.846	R01AR065995			$160,068	$376,488	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM OF RADIOTHERAPY-INDUCED OSTEOPOROSIS AND ITS TREATMENT	93.846	R01AR066098			$11,018	$376,236	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF RGS12, A REGULATOR OF G PROTEIN SIGNALING, IN BONE REMODELING	93.846	R01AR066101				$350,653	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ENDOTHELIAL CELL-INTRINSIC NON-CANONICAL NF-KB IN CHRONIC INFLAMMATION	93.846	R01AR066567				$425,908	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
SKIN MICROBIOME INTERACTIONS WITH COMPLEMENT	93.846	R01AR066663				$462,444	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ESRP REGULATED PROGRAMS OF ALTERNATIVE SPLICING IN SKIN DEVELOPMENT AN	93.846	R01AR066741			$80,094	$394,885	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR REGULATION OF OSTEOCLAST MATURATION	93.846	R01AR067726				$250,538	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
MOUSE MODELS FOR SLRP ROLES IN TENDON AGING AND IMPAIRED HEALING IN AG	93.846	R01AR068057			$161,460	$357,749	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING DISEASE-SPECIFIC T CELLS FOR PEMPHIGUS THERAPY	93.846	R01AR068288				$414,237	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL ASSESSMENT OF HIP FRACTURE BIOMECHANICS USING MRI	93.846	R01AR068382			$130,032	$338,702	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
AFRICAN-AMERICANS WITH ATOPIC DERMATITIS: SKIN BARRIER AND IMMUNE	93.846	R01AR069062			$99,608	$379,100	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
CELL ADHESION REGULATION OF OSTEOCLAST MATURATION	93.846	R01AR069546				$362,440	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
DIFFERENTIAL ROLES OF COLLAGEN V IN ESTABLISHING THE REGIONAL PROPERTI	93.846	R01AR070750			$96,910	$334,752	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ATOPIC DERMATITIS AND HIGH RESOLUTION HLA	93.846	R01AR070873			$326,436	$474,308	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TUNABLE MECHANO-ACTIVATED MICROCAPSULES FOR THERAPEUTIC DELIVERY	93.846	R01AR071340				$374,900	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANOBIOLOGY OF PROGENITOR CELLS IN HETEROTOPIC OSSIFICATION	93.846	R01AR071399				$248,110	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF REPRODUCTION AND LACTATION ON POSTMENOPAUSAL BONE HEALTH	93.846	R01AR071718			$7,764	$375,139	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
PATHOGENESIS AND TREATMENT OF BONE DISEASE IN THE MUCOPOLYSACCHARIDOSE	93.846	R01AR071975			-$1,701	$483,721	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
REFINING OUTCOME MEASUREMENT IN PSORIATIC ARTHRITIS: PREPARATION FOR	93.846	R01AR072363			$136,697	$252,672	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
COLLAGEN XI AND XI/V REGULATORY MECHANISMS IN ASSEMBLY OF TENDON HIERA	93.846	R01AR073231			$42,507	$206,821	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
OSTEOPROGENITOR MOBILIZATION FOR BONE DEVELOPMENT AND REPAIR	93.846	R01AR073809				$48,544	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANICAL REGULATION OF ENDOCHONDRAL BONE REGENERATION	93.846	R01AR074948				$32,203	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANICAL REGULATION OF CELL FATE AND MULTI-SCALE FUNCTION IN THE DEV	93.846	R01AR075418				$42,624	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TREATMENT OF DERMATOMYOSITIS WITH AJULEMIC ACID, A NON-PSYCHOACTIVE CA	93.846	R21AR066286				$289	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
REGENERATIVE POTENTIAL OF EMBRYONIC NOTOCHORDAL NUCLEUS PULPOSUS PROGE	93.846	R21AR070959			$13,190	$170,168	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF OSTEOCYTE MECHANOTRANSDUCTION IN DYNAMIC BONE ADAPTATION	93.846	R21AR071559			$29,184	$153,656	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ADAM8 IN INTERVERTEBRAL DISC DEGENERATION	93.846	R21AR071623			$12,970	$134,526	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ADAM8 IN INTERVERTEBRAL DISC DEGENERATION	93.846	R21AR071623				$46,793	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DISSECTING THE HETEROGENEITY OF BONE MARROW MESENCHYMAL LINEAGE PROGEN	93.846	R21AR074570				$8,624	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
WNT SIGNALS IN SKIN AND HAIR DEVELOPMENT AND HAIR GROWTH	93.846	R37AR047709				$372,559	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MUSCULOSKELETAL RESEARCH	93.846	T32AR007132				$771	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MUSCULOSKELETAL RESEARCH	93.846	T32AR007132				$168,474	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MUSCULOSKELETAL RESEARCH	93.846	T32AR007132				$17,513	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM/RHEUMATIC DISEASES	93.846	T32AR007442				$211,841	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DERMATOLOGY RESEARCH TRAINING GRANT	93.846	T32AR007465				-$593	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DERMATOLOGY RESEARCH TRAINING GRANT	93.846	T32AR007465				-$1,206	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DERMATOLOGY RESEARCH TRAINING GRANT	93.846	T32AR007465				$316,470	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
DERMATOLOGY RESEARCH TRAINING GRANT	93.846	T32AR007465				$64,844	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MUSCLE BIOLOGY AND MUSCLE DISEASE	93.846	T32AR053461				-$2,323	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MUSCLE BIOLOGY AND MUSCLE DISEASE	93.846	T32AR053461				$5,636	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MUSCLE BIOLOGY AND MUSCLE DISEASE	93.846	T32AR053461				$227,559	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MUSCLE BIOLOGY AND MUSCLE DISEASE	93.846	T32AR053461				$35,784	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
VASCULITIS CLINICAL RESEARCH CONSORTIUM	93.846	U54AR057319			$59,528	$78,431	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
VASCULITIS CLINICAL RESEARCH CONSORTIUM	93.846	U54AR057319			$306,034	$307,900	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
VASCULITIS CLINICAL RESEARCH CONSORTIUM	93.846	U54AR057319			$316,907	$320,520	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
VASCULITIS CLINICAL RESEARCH CONSORTIUM	93.846	U54AR057319				$70,268	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
VASCULITIS CLINICAL RESEARCH CONSORTIUM	93.846	U54AR057319				$454,252	$16,121,513	RESEARCH AND DEVELOPMENT	$706,379,077
ESTABLISHING A BIOMARKER FRAMEWORK FOR FEASIBILITY STUDIES OF VAMOROLO	*93.846*		*REVERAGEN BIOPHARMA*	*R43AR073541*	*$5,951*	*$40,585*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A CLINICAL TRIAL FOR THE SURGICAL TREATMENT OF ELDERLY DISTAL RADIUS F	*93.846*		*UNIVERSITY OF MICHIGAN*	*R01AR062066*		*-$71*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISRUPTION OF OSMOREGULATION PROMOTES DEGENERATIVE DISC DISEASE	*93.846*		*THOMAS JEFFERSON UNIVERSITY*	*R01AR064733*		*$32,583*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANOSENSING IN THE BONE LACUNAR-CANALICULAR SYSTEM	*93.846*		*UNIVERSITY OF DELAWARE*	*R01AR054385*		*$4,516*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COLLAGEN TURNOVER-STIMULATED GENE DELIVERY TO ENHANCE CHRONIC WOUND RE	*93.846*		*UNIVERSITY OF DELAWARE*	*R01AR067247*		*$25,079*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANICAL REGULATION OF VASCULAR GROWTH AND REMODELING	*93.846*		*GEORGIA INSTITUTE OF TECHNOLOGY*	*R01AR06297*		*-$624*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATORS OF ISCHEMIC FRACTURE HEALING	*93.846*		*UNIVERSITY OF MICHIGAN*	*R01AR066028*		*-$5,413*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MIGRATION AND FUNCTION OF SKIN B CELLS	*93.846*		*THOMAS JEFFERSON UNIVERSITY*	*R01AR067751*		*-$69*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STIMULATION OF TENDON REPAIR BY METABOLIC MODIFIERS	*93.846*		*UNIVERSITY OF MARYLAND-BALTIMORE COUNTY*	*R01AR070099*		*$28,954*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANSLATION OF HIP MICROARCHITECTURAL ASSESSMENT TECHNOLOGY TO THE CLI	*93.846*		*NEW YORK UNIVERSITY*	*R01AR070131*		*$22,262*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AHR AND OSTEOPOROSIS	*93.846*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*0255-7261-4609*		*$7,779*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MRI OF PROXIMAL FEMUR MICROARCHITECTURE AS A BIOMARKER OF BONE QUALITY	*93.846*		*NEW YORK UNIVERSITY*	*14-A1-00-001693-01*		*$5,978*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ELUCIDATING THE FUNCTION OF A DISTINCT CELL POPULATION IN ADULT MAMMAL	*93.846*		*MASSACHUSETTS GENERAL HOSPITAL*	*R21AR072294*		*$6,792*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TREATMENTS AGAINST RA AND EFFECT ON FDG PET CT: THE TARGET TRIAL	*93.846*		*BRIGHAM AND WOMEN'S HOSPITAL*	*1U01AR068043*		*$4,480*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATORS OF ISCHEMIC FRACTURE HEALING	*93.846*		*UNIVERSITY OF MICHIGAN*	*R01AR066028*		*$24,516*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
MECHANISMS REGULATING NORMAL AND ECTOPIC ENDOCHONDRAL OSSIFICATION	*93.846*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01AR071946*		*$23,688*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A TRANSLATIONAL APPROACH TOWARDS LIGAMENT REGENERATION	*93.846*		*UNIVERSITY OF CONNECTICUT HEALTH CENTER*	*R01AR063698*		*$7,946*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SYNOVIAL FLUID AND THE SEPTIC JOINT	*93.846*		*THOMAS JEFFERSON UNIVERSITY*	*R01AR072513*		*$127,063*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANSLATION OF HIP MICROARCHITECTURAL ASSESSMENT TECHNOLOGY TO THE CLI	*93.846*		*NEW YORK UNIVERSITY*	*R01AR070131*		*$91,131*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AHR AND OSTEOPOROSIS	*93.846*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*0255-7261-4609*		*$273,252*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MRI OF PROXIMAL FEMUR MICROARCHITECTURE AS A BIOMARKER OF BONE QUALITY	*93.846*		*NEW YORK UNIVERSITY*	*14-A1-00-001693-01*		*$33,170*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTIMIZATION OF CLINICAL TRIAL DESIGN IN CUTANEOUS LUPUS	*93.846*		*UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER*	*R01AR071653*		*$110,917*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF CARTILAGE TISSUE ENGINEERING STRATEGIES BY IR IMAGING	*93.846*		*TEMPLE UNIVERSITY*	*R01AR056145*		*$72,250*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REVERSING IMMUNE EVASION AND ENHANCING IMMUNE DETECTION WITH TOPICAL R	*93.846*		*BRIGHAM AND WOMEN'S HOSPITAL*	*R01AR074797*		*$82,855*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TEAM-BASED CONNECTED HEALTH TO IMPROVE ACCESS AND OUTCOMES IN ATOPIC D	*93.846*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*R01AR073486*		*$6,639*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF CARTILAGE TISSUE ENGINEERING STRATEGIES BY IR IMAGING	*93.846*		*TEMPLE UNIVERSITY*	*R01AR056145*		*$8,127*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANISMS REGULATING NORMAL AND ECTOPIC ENDOCHONDRAL OSSIFICATION	*93.846*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01AR071946*		*$856*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATORS OF ISCHEMIC FRACTURE HEALING	*93.846*		*UNIVERSITY OF MICHIGAN*	*R01AR066028*		*$2,477*	*$16,121,513*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CATALYTIC INDEPENDENT FUNCTIONS OF HISTONE DEACETYLASE 3 IN METABOLISM	93.847	1-F32-DK-102284-01				-$1	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
KLF4 AND WNT5A IN ESOPHAGEAL EPITHELIAL DIFFERENTIATION AND STRATIFICA	93.847	1-R01-DK-119314-01				$62,483	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOPOIESIS TRAINING GRANT	93.847	2-T32-DK-007780-11				-$2,943	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC DRIVERS AND BIOMARKERS OF DIABETIC KIDNEY DISEASE	93.847	DP3DK108220				$914,023	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNIQUE AND OVERLAPPING FUNCTIONS OF BET PROTEINS DURING ERYTHROID DIFF	93.847	F30DK112573				$28,875	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZATION OF THE ROLE OF DLX1 AND DLX2 IN THE ENTERIC NERVOUS S	93.847	F30DK117546				$31,946	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF ACTG2 MUTATIONS IN VISCERAL MYOPATHY	93.847	F30DK118827				$49,565	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF BROWN ADIPOCYTE METABOLISM THROUGH A KININOGEN-BRADYKININ R	93.847	F30DK120062				$15,006	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
COORDINATED SUPPRESSION OF HEPATIC STEATOSIS VIA TARGETING OF FLCN	93.847	F30DK120096				$2,068	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PHYLOGENETIC RECONSTRUCTION OF THE INTESTINAL EPITHELIUM VIA EVOLVING	93.847	F30DK120135				$7,336	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF TRANS-ENDOTHELIAL FATTY ACID TRANSPORT IN INSULIN RESISTANCE	93.847	F31DK111091				$43,898	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ELUCIDATING REDOX REGULATION IN THE REPOPULATING LIVER	93.847	F31DK113666				$44,265	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
SEROTONERGIC MODULATION OF THE CENTRAL GLUCAGON-LIKE PEPTIDE-1 SYSTEM	93.847	F31DK118816				$42,489	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROBEHAVIORAL CORRELATES OF INDIVIDUAL DIFFERENCES IN OBESITY SUSCEP	93.847	F31DK120162				$39,816	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ADIPOSITY-OBESITY-RELATED SUBGROUPS DISCOVERY AND METABOLOMICS ANALYSI	93.847	F31DK122683				$2,068	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF PRDM16 IN MAINTAINING SMALL INTESTINAL CRYPT INTEGRITY	93.847	F32DK105743				$55	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GENDER DISPARITIES IN LIVER TRANSPLANT: EXAMINING ORGAN ACCEPTANCE PAT	93.847	F32DK108527				-$2,455	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF AGRP NEURONS IN MEDIATING FOOD INTAKE, VALENCE, AND OBESIT	93.847	F32DK112561				$11,685	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
SELF-MANAGEMENT IN CHRONIC KIDNEY DISEASE	93.847	F32DK113681				$308	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF HIGH FAT DIET-INDUCED CIRCADIAN HEPATIC TRANSCRIPTION AN	93.847	F32DK116519				$64,174	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE AND MECHANISM OF TNFAIP8 IN INTESTINAL INFLAMMATION AND WOUND	93.847	F32DK116528				$65,519	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TUNABLE SYNTHETIC ECMS FOR INVESTIGATING STELLATE CELL ACTIVATION AND	93.847	F32DK117568				$58,880	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HINDBRAIN ASTROCYTES MEDIATE THE ENERGY BALANCE EFFECTS OF LEPTIN	93.847	F32DK118818				$46,123	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NIDDK MENTORED RESEARCH SCIENTIST DEVELOPMENT AWARD	93.847	K01DK102868				$121,953	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GLUCOKINASE REGULATION OF HEPATIC METABOLISM	93.847	K01DK111715				$144,915	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MODIFYING REGULATORS OF HETEROCHROMATIN TO IMPROVE REPROGRAMMING TO FU	93.847	K01DK117970				$92,169	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
A POPULATION-BASED COHORT TO STUDY OUTCOMES IN END-STAGE LIVER DISEASE	93.847	K08DK098272				$11,735	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE ROLE OF DRIP27, A NOVEL LONG NONCODING RNA, IN ERYTHROPOI	93.847	K08DK102533				$174,936	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ROLE OF BACTERIAL UREASE IN HOST AND GUT MICROBIOTA AMINO ACID METABOL	93.847	K08DK106457				$151,582	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC BASIS OF LIVER REPOPULATION	93.847	K08DK106478				$174,063	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MENIN/MLL PROMOTES CELL SURVIVAL IN THE SETTING OF EGFR INHIBITION	93.847	K08DK106489				$173,468	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF TOXIN-INDUCED BILIARY ATRESIA	93.847	K08DK107910				$186,157	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF PROGENITOR CELLS IN PANCREATIC ACINAR RENEWAL AND PRE-MALI	93.847	K08DK109492			$31,332	$176,560	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF IMMUNOSUPPRESSION VARIABILITY ON OUTCOMES AFTER LIVER TRANSP	93.847	K08DK117013				$145,518	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATING CONSERVATIVE KIDNEY MANAGEMENT OPTIONS AND ADVANCE CARE PL	93.847	K23DK114526				$163,383	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING TECHNOLOGY-BASED APPROACHES TO IMPROVE ACCESS AND QUALITY O	93.847	K23DK115897				$185,061	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING WEIGHT LOSS IN EARLY NON-RESPONDERS TO BEHAVIORAL TREATMENT	93.847	K23DK116935				$56,679	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
A MIXED METHODS STUDY OF CHRONIC KIDNEY DISEASE (CKD) SELF-MANAGEMENT	93.847	K23DK118198				$52,737	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DIETARY PATTERNS AND THE COURSE OF INFLAMMATORY BOWEL DISEASE	93.847	K24DK078228				$64,631	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE GUT-BRAIN SIGNALING DYNAMICS REGULATING FOOD INTAKE	93.847	K99DK119574				$66,964	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE METABOLIC ADAPTIONS TO ENVIRONMENTAL AND NUTRITIONAL CHALL	93.847	P01DK049210			-$21,720	-$21,720	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE METABOLIC ADAPTIONS TO ENVIRONMENTAL AND NUTRITIONAL CHALL	93.847	P01DK049210				-$7,948	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA DIABETES RESEARCH CENTER	93.847	P30DK019525			$328,982	$1,867,695	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA DIABETES RESEARCH CENTER	93.847	P30DK019525				-$168	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR THERAPY FOR CYSTIC FIBROSIS	93.847	P30DK047757			$37,719	$444,604	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR MOLECULAR STUDIES IN DIGESTIVE AND LIVER DISEASES	93.847	P30DK050306			$25,000	$1,223,306	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR DIGESTIVE AND LIVER DISEASES	93.847	P30DK050306				-$1,812	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR MOLECULAR STUDIES IN DIGESTIVE AND LIVER DISEASES	93.847	P30DK050306				$115,085	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR MOLECULAR STUDIES IN DIGESTIVE AND LIVER DISEASES	93.847	P30DK050306				-$30,482	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL HIERARCHY IN THE MODULATION OF INGESTIVE BEHAVIOR	93.847	R01DK021397			$79	$134,216	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL HIERARCHY IN THE MODULATION OF INGESTIVE BEHAVIOR	93.847	R01DK021397				$72,920	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE PHYSIOLOGY OF THYROID HORMONE RECEPTORS AND NUCLEAR RECEPT	93.847	R01DK043806				$597,272	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR CONTROL OF MUSCLE FUEL METABOLISM	93.847	R01DK045416				$530,306	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
BIOLOGY OF THE ORPHAN RECEPTOR REV-ERB ALPHA	93.847	R01DK045586				$762,157	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NUCLEAR HORMONE RECEPTORS IN ADIPOCYTE DIFFERENTIATION	93.847	R01DK049780				$369,301	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GENE THERAPY FOR MUCOPOLYSACCHARIDOSIS	93.847	R01DK054481			$1,514	$12,380	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE LIN28B-LET7-IMP1 AXIS IN COLONIC EPITHELIAL BIOLOGY	93.847	R01DK056645			$15,316	$277,395	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TGF-BETA, MATRIX, AND MYOFIBROBLASTS IN HEPATIC FIBROSIS	93.847	R01DK058123				-$26,654	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NETWORKS FOR FUNCTIONAL REGULATION OF PANCREATIC ACINAR-DUCTAL METAPLA	93.847	R01DK060694				$416,515	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF NOTCH PATHWAY IN KIDNEY INJURY	93.847	R01DK076077				$445,361	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF BILE DUCT REPROGRAMMING	93.847	R01DK083355			$147,377	$366,407	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC LANDSCAPE OF CHRONIC KIDNEY DISEASE	93.847	R01DK087635				$422,918	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION AND FUNCTION OF THE MEG3 LOCUS IN HUMAN BETA-CELLS	93.847	R01DK088383				$319,507	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GLUCOSE COUNTERREGULATION IN LONG STANDING TYPE 1 DIABETES	93.847	R01DK091331				$305,413	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF EGFR SIGNALING IN BONE FORMATION AND THE ANABOLIC ACTIONS OF P	93.847	R01DK095803				$211,763	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
BETA CELL REGENERATION BY AN EPIGENETIC PATHWAY	93.847	R01DK097555				$13,525	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSCRIPTIONAL AND EPIGENOMIC CONTROL OF ADIPOSE TISSUE DEVELOPMENT A	93.847	R01DK098542				$120,265	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING NAD METABOLISM TO IMPROVE GLUCOSE HOMEOSTASIS IN OBESITY AND	93.847	R01DK098656			-$197	-$197	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING NAD METABOLISM TO IMPROVE GLUCOSE HOMEOSTASIS IN OBESITY AND	93.847	R01DK098656				-$12,354	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING NAD METABOLISM TO IMPROVE GLUCOSE HOMEOSTASIS IN OBESITY AND	93.847	R01DK098656				$392,184	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL STUDIES OF KLF-14, A PUTATIVE MASTER REGULATOR OF METABOLIS	93.847	R01DK099571				$184,940	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ALGORITHMS TO IDENTIFY NON-CODING MUTATIONAL BURDEN AND DISEASE-RELEVA	93.847	R01DK101478				$711,655	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EATING PHENOTYPES FOR CHILDHOOD OBESITY IN THE CONTEXT OF FAMILIAL OBE	93.847	R01DK101480			$37,081	$215,616	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE IMPACT OF HEALTHY FOOD MARKETING STRATEGIES IN SUPERMARKETS	93.847	R01DK101629			$25,806	$454,172	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INNOVATIVE GENETIC APPROACHES FOR HEPATIC REPOPULATION	93.847	R01DK102667				$234,400	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DRUG-DRUG INTERACTIONS INVOLVING ANTIDIABETIC AGENTS	93.847	R01DK102694			$21,312	$34,099	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
REGULATION OF BROWN AND BEIGE ADIPOCYTE DEVELOPMENT THROUGH EBF2	93.847	R01DK103008				-$1,451	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE NUTRIGENOMIC AND METABOLOMIC ANALYSES OF AFRICANS WITH VAR	93.847	R01DK104339			$65,687	$197,871	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MEASURES OF FIBROSIS AND CLINICAL OUTCOMES IN CHRONIC KIDNEY DISEASE	93.847	R01DK104730				$23,589	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF ERYTHROPOIESIS BY THE OXYGEN SENSOR PHD2	93.847	R01DK104796				$324,245	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
AMYLIN MODULATES FOOD REWARD	93.847	R01DK105155			$92,319	$234,247	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
FORMATION AND MATURATION OF ENDOCRINE PANCREAS PROGENITORS	93.847	R01DK105689			$106,817	$397,451	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
APOL1 ASSOCIATED KIDNEY DISEASE	93.847	R01DK105821				$572,264	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TRACING TRANSCRIPTOMIC CHANGES TO UNCOVER UNKNOWN ROLES OF TZDS	93.847	R01DK106027				$249,946	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HDAC2 INHIBITION MITIGATES RENAL ISCHEMIA REPERFUSION INJURY	93.847	R01DK106243			$3,558	$513,022	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF INTESTINAL REGENERATION BY AN MSI-MTORC1 SIGNALING AXIS	93.847	R01DK106309				$366,821	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINANTS OF HUMAN GROWTH HORMONE EXPRESSION AND PITUITARY CELL DIF	93.847	R01DK107453				$399,809	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE GUT MICROBIOME AND THE METABOLOME IN CHRONIC KIDNEY DISEASE	93.847	R01DK107566			$19,622	$23,403	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF ADIPOSE FUNCTION THROUGH A PRDM16/TYPE 1 INTERFERON AXIS	93.847	R01DK107589				$390,205	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATING CELLULAR METABOLIC PATHWAYS INTO BROWNING OF WHITE FAT	93.847	R01DK107667				$606,074	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF NOVEL MEANS TO STIMULATE CA2+-DEPENDENT EXOCYTOTIC SECR	93.847	R01DK109979				$467,494	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH REGULATION OF MATURE BETA CELL FUNCTION BY THE TRANSCRIPTION	93.847	R01DK110183				$365,470	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
REGIONAL CHOLANGIOCYTE STRESS RESPONSES IN BILIARY DISEASE	93.847	R01DK111547				$350,794	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
COMMUNICATING THE HEALTH RISKS OF SUGAR-SWEETENED BEVERAGES	93.847	R01DK111558			$70,832	$309,825	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL AND MOLECULAR EPIDEMIOLOGY OF ACUTE KIDNEY INJURY AFTER LUNG	93.847	R01DK111638			$229,775	$594,882	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL MECHANISMS OF NAUSEA, VOMITING, AND ENERGY BALANCE DYSREGULATIO	93.847	R01DK112812			$41,966	$271,938	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
A LARGE-SCALE, LONG-TERM, RANDOMIZED TRIAL OF NUTRITION LABELING INTER	93.847	R01DK113307			$35,295	$349,322	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS BY WHICH IUGR LEADS TO DIABETES	93.847	R01DK114054			$135,516	$475,552	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
KEEPING FAT OUT OF MUSCLE - ROLE OF BRANCHED AMINO ACIDS	93.847	R01DK114103				$472,096	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DECONSTRUCTING THE NEURAL CONTROL OF FOOD SEEKING	93.847	R01DK114104				$247,033	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS UNDERLYING THE GENETIC ASSOCIATION BETWEEN PPP1R3	93.847	R01DK114291				$524,172	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
AUTOPHAGY AND ESOPHAGEAL TISSUE REMODELING IN EOE	93.847	R01DK114436				$469,555	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ASTROCYTES MEDIATE GLP-1 EFFECTS ON ENERGY BALANCE	93.847	R01DK115762			$41,292	$374,467	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ACETYL-COA METABOLISM AND NUTRIENT SENSING IN ADIPOCYTES	93.847	R01DK116005			$1,519	$128,951	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NOS1AP AND CAPON ASSOCIATED IMPAIRED HEALING IN THOSE WITH DIABETIC FO	93.847	R01DK116199			$219,112	$411,075	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
SEMI-PARAMETRIC SUBGROUP ANALYSIS FOR LONGITUDINAL DATA WITH APPLICATI	93.847	R01DK117208				$72,273	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF DAYTIME VS. DELAYED EATING SCHEDULE ON WEIGHT AND METABOLIC	93.847	R01DK117488			$48,531	$601,298	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
COMPUTATIONAL PATHOLOGY FOR PROTEINURIC GLOMERULOPATHIES	93.847	R01DK118431			$110,581	$225,559	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
USING ETHICS, EPIDEMIOLOGY AND HIGH-QUALITY DATA TO OPTIMIZE THE ALLOC	93.847	R01DK120561				$45,190	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ADIPOSE PROGENITOR CELL DYNAMICS	93.847	R01DK120982				$100,530	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
A STRESS INDUCIBLE PDX1 TRANSCRIPTIONAL COMPLEX GOVERNING BETA CELL SU	93.847	R01DK121175				$48,395	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CELLULAR TARGETS OF ACUTE AND CHRONIC STRAINS OF MNV	93.847	R03DK110397				$69,326	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
WAITING LIST AND KIDNEY TRANSPLANT OUTCOMES FOR PATIENTS WITH HEPATITI	93.847	R21DK108045			$13,083	$157,662	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF ADIPOSE TISSUE INFLAMMATION BY THE MIR-181 FAMILY	93.847	R21DK111755				$177,446	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ANATOMIC BIOMARKERS OF CHRONIC KIDNEY DISEASE PROGRESSION AMONG CHILDR	93.847	R21DK117297			$203	$7,875	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERGRADUATE TRAINING IN GASTROINTESTINAL SCIENCES	93.847	R25DK066028				$94,550	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERGRADUATE CLINICAL SCHOLARS PROGRAM: PATHWAY TO CLINICAL RESEARCH	93.847	R25DK108711				$106,458	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THYROID HORMONE RECEPTORS - REGULATION AND FUNCTION	93.847	R37DK043806				-$105,186	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATORY CASCADES IN GASTROINTESTINAL PROLIFERATION	93.847	R37DK053839				$548,679	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC REGULATION OF ADIPOSE REMODELING AND THERMOGENIC FUNCTION	93.847	R56DK103008				$436,422	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ASTROCYTES MEDIATE GLP-1 EFFECTS ON ENERGY BALANCE	93.847	R56DK115762				$37,375	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INJURY, PROGRESSION, AND FIBROSIS OF THE EXTRAHEPATIC BILE DUCT	93.847	R56DK119290				$379,299	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
RENAL RESEARCH TRAINING PROGRAM	93.847	T32DK007006				$82,155	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
RENAL RESEARCH TRAINING PROGRAM	93.847	T32DK007006				$526,302	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN GASTROINTESTINAL SCIENCES	93.847	T32DK007066				-$121	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN GASTROINTESTINAL SCIENCES	93.847	T32DK007066				$15,236	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN GASTROINTESTINAL SCIENCES	93.847	T32DK007066				$533,963	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DIABETES, ENDOCRINE AND METABOLIC DISEASE	93.847	T32DK007314				-$672	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DIABETES, ENDOCRINE AND METABOLIC DISEASE	93.847	T32DK007314				$37,267	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DIABETES, ENDOCRINE AND METABOLIC DISEASE	93.847	T32DK007314				$281,817	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL EPIDEMIOLOGY TRAINING IN GASTROENTEROLOGY	93.847	T32DK007740				$334,262	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOPOIESIS TRAINING GRANT	93.847	T32DK007780				$10	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOPOIESIS TRAINING GRANT	93.847	T32DK007780				$9,340	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HEMATOPOIESIS TRAINING GRANT	93.847	T32DK007780				$355,577	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL RESEARCH TRAINING IN KIDNEY DISEASE	93.847	T32DK007785				$10,199	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL RESEARCH TRAINING IN KIDNEY DISEASE	93.847	T32DK007785				$247,195	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
BIOSTATISTICS FOR RENAL AND UROLOGIC DISEASES	93.847	T32DK060455				$48,130	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
10/16 ACTION FOR HEALTH IN DIABETES EXTENSION STUDY RESEARCH PROJECT	93.847	U01DK057135				$193,168	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
10/16 ACTION FOR HEALTH IN DIABETES EXTENSION STUDY RESEARCH PROJECT	93.847	U01DK057135				$141,446	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PROSPECTIVE RENAL INSUFFICIENCY COHORT EVALUATION: PRICE	93.847	U01DK060984				-$25,379	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PROSPECTIVE RENAL INSUFFICIENCY COHORT EVALUATION: PRICE	93.847	U01DK060984				$6,480	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PROSPECTIVE RENAL INSUFFICIENCY COHORT EVALUATION: PRICE	93.847	U01DK060984				$660,077	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CONTINUATION OF THE CHRONIC RENAL INSUFFICIENCY COHORT (CRIC) STUDY	93.847	U01DK060990				$282,562	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MAPP RESEARCH NETWORK	93.847	U01DK082316			$4,631	$10,881	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MAPP RESEARCH NETWORK	93.847	U01DK082316			$90,242	$1,297,823	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MAPP RESEARCH NETWORK	93.847	U01DK082316			$92,943	$92,945	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MAPP RESEARCH NETWORK	93.847	U01DK082316				$212,403	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DATA COORDINATING CENTER FOR HEMODIALYSIS PILOT STUDIES CONSORTIUM	93.847	U01DK099919			$73,769	$593,825	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CUREGN-PENN PCC	93.847	U01DK100846				$1,982	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CHRONIC KIDNEY DISEASE (CKD) BIOMARKERS CONSORTIUM DATA COORDINATING C	93.847	U01DK103225			$135,483	$224,004	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CHRONIC KIDNEY DISEASE (CKD) BIOMARKERS CONSORTIUM DATA COORDINATING C	93.847	U01DK103225			$227,307	$728,471	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA+ PLUS CLINICAL CENTER (PENN+PLUS CC)	93.847	U01DK106892			$28,299	$42,450	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA+ PLUS CLINICAL CENTER (PENN+PLUS CC)	93.847	U01DK106892			$113,297	$393,317	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA+ PLUS CLINICAL CENTER (PENN+PLUS CC)	93.847	U01DK106892				$56	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CONTINUATION OF THE COORDINATING CENTER FOR THE CHRONIC RENAL INSUFFIC	93.847	U24DK060990				$2,284,399	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REJUVENATION OF HUMAN BETA-CELLS	93.847	UC4DK104119			$605,362	$712,831	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
A VASCULARIZED 3D BIOMIMETIC FOR ISLET FUNCTION AND PHYSIOLOGY	93.847	UC4DK104196			$413,718	$866,898	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PENN INTEGRATED HUMAN PANCREAS PROCUREMENT AND ANALYSIS PROGRAM	93.847	UC4DK112217				$3,600,748	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DRIVERS AND CONSEQUENCES OF BETA CELL DNA DAMAGE IN TYPE 1 DIABETES	93.847	UC4DK116271			$176,204	$470,374	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMARY OUTCOMES IN GLOMERULONEPHRITIS STUDY (PROGRESS)	93.847	UM1DK100846			$88,611	$97,353	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMARY OUTCOMES IN GLOMERULONEPHRITIS STUDY (PROGRESS)	93.847	UM1DK100846			$564,369	$962,464	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMARY OUTCOMES IN GLOMERULONEPHRITIS STUDY (PROGRESS)	93.847	UM1DK100846				$187	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MIND THE KIDNEYS	*93.847*		*STANFORD UNIVERSITY*	*60120672-51126-B*		*$31,453*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A PROGRAM TO PROMOTE DIVERSITY WITHIN THE AMERICAN SOCIETY OF ANDROLOG	*93.847*		*AMERICAN SOCIETY OF ANDROLOGY*	*R25DK096957*		*$1,524*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NON-NEOPLASTIC REPLICATION TO EXPAND FUNCTIONAL BETA-CELL MASS (NORM)	*93.847*		*VANDERBILT UNIVERSITY*	*VUMC 38846*		*-$266*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INTEGRATED ISLET DISTRIBUTION PROGRAM	*93.847*		*BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE*	*50578.914951.6560*		*$26,856*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATIENT ORIENTED RESEARCH IN KIDNEY DISEASE	*93.847*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*7521SC*		*$28*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HEALTH DISPARITIES IN CHRONIC KIDNEY DISEASE	*93.847*		*UNIVERSITY OF ILLINOIS*	*2011-06727-01-00*		*-$33*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PATHOPHYSIOLOGICAL ROLE OF PRORENIN IN CKD	*93.847*		*UNIVERSITY OF UTAH*	*R01DK099098*		*$62,436*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NONINVASIVE SUBHARMONIC AIDED PRESSURE ESTIMATION OF PORTAL HYPERTENSI	*93.847*		*THOMAS JEFFERSON UNIVERSITY*	*080-30000-S09201*		*$74,105*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DOES A NEW SUPERMARKET IMPROVE THE DIET AND FOOD ENVIRONMENT OF RESIDE	*93.847*		*UNIVERSITY OF DELAWARE*	*38843*		*$114,571*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IS THERE A DIGITAL DIVIDE IN CHRONIC KIDNEY DISEASE (CKD)	*93.847*		*DUKE UNIVERSITY*	*3020695*		*$17,037*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HEALTH LITERACY IN HISPANICS WITH CHRONIC KIDNEY DISEASE	*93.847*		*UNIVERSITY OF ILLINOIS*	*2012-00004-01-00*		*-$12*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MEDIATORS & PROGNOSTIC VALUE OF MUSCLE MASS & FUNCTION IN CHRONIC KIDN	*93.847*		*YALE UNIVERSITY*	*M15A12103(A10152*		*$1,032*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OXALATE AND THE PROGRESSION AND COMPLICATIONS OF CKD	*93.847*		*BRIGHAM AND WOMEN'S HOSPITAL*	*113077*		*$55,862*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
INTEGRATIVE GENOMIC, EPIGENETIC AND FUNCTIONAL STUDIES IN DIABETIC KID	93.847		BROAD INSTITUTE OF MIT AND HARVARD	R01DK105154		$128,558	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CYCLIN D1/CDK4 COMPLEX IN HEPATOCYTE PROLIFERATION	93.847		UNIVERSITY OF MINNESOTA	N005271001		$6,001	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EVALUATION OF ENTERO-INSULAR (INCRETIN) AXIS IN CYSTIC FIBROSIS	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK97830		$156	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
FGF-23 AND CARDIOVASCULAR IN CKD	93.847		DUKE UNIVERSITY	R01DK081374		$3,481	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PSYCHOSOCIAL DETERMINANTS OF URINARY STONE DISEASE	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	U01DK110961		$3,087	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT AND ASSESSMENT OF DECISION SUPPORTING SYSTEM FOR RENAL STU	93.847		EMORY UNIVERSITY	R01DK108070		$97,656	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DOES GEOGRAPHIC ACCESS TO CARE IMPACT PEDIATRIC ESRD OUTCOMES?	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	321046		-$2,258	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
VITAMIN K STATUS, CVD AND ARTERIAL STIFFNESS IN CHRONIC KIDNEY DISEASE	93.847		TUFTS UNIVERSITY	R01DK111392		$60,187	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSPLANT REGIMEN ADHERENCE FOR KIDNEY RECIPIENTS BY ENGAGING INFORMA	93.847		NORTHWESTERN UNIVERSITY	R01DK110172		$52,241	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
VISCERAL ADIPOSITY AND FITNESS AMONG CRIC PARTICIPANTS (PHASE 3)	93.847		BAYLOR COLLEGE OF MEDICINE	SUB TO R01DK101500		$53,024	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HEART FAILURE AND ATRIAL ARRHYTHMIAS IN CKD	93.847		UNIVERSITY OF WASHINGTON	UWSC8765		$1,211	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PATTERNS AND IMPLICATIONS OF FUNCTIONAL DECLINE AMONG KIDNEY TRANSPLAN	93.847		DREXEL UNIVERSITY	232664		$264	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
VISCERAL ADIPOSITY AND PHYSICAL FITNESS IN CKD	93.847		BAYLOR COLLEGE OF MEDICINE	R01DK101500		$26,646	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
FUEL METABOLISM AND INSULIN SECRETION IN KATP-HYPERINSULINISM HUMAN IS	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK098517		$1,421	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIDEMIOLOGY OF DIABETES INTERVENTIONS AND COMPLICATIONS (EDIC)	93.847		CASE WESTERN RESERVE UNIVERSITY	U01DK094157		-$44,328	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL DIAGNOSTICS AND THERAPEUTIC TARGETS FOR CALCIFICATION IN CKD	93.847		NORTHWESTERN UNIVERSITY	R01DK110087		-$9,776	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLOMICS OF CKD AND CKD PROGRESSION	93.847		MASSACHUSETTS GENERAL HOSPITAL	SUB TO U01DK106981		-$5,307	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PSYCHOPATHOLOGY, DISORDERED EATING, AND IMPULSIVITY AS PREDICTORS OF O	93.847		TEMPLE UNIVERSITY	258377-UPENN		$9,977	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFICATION - VALIDATION OF PROGNOSTIC BIOMARKERS IN CHRONIC KIDNEY	93.847		UNIVERSITY OF MICHIGAN	K08DK106523		$1,661	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING MODIFIABLE BIOMARKERS/MEDIATORS FOR CARDIOVASCULAR DISEASE	93.847		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	U01DK108809		$8,607	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GENE TRANSFER AND NMR STUDIES IN ALPHA MAN B	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK063973		$23,140	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HISPANIC CHRONIC RENAL INSUFFICIENCY COHORT (CRIC) STUDY	93.847		UNIVERSITY OF ILLINOIS AT CHICAGO	R01DK072231		$149,861	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING KIDNEY CELL PHENOTYPE FACTORS USING SINGLE CELL RNA SEQUEN	93.847		UNIVERSITY OF SOUTHERN CALIFORNIA	U01DK107350		$76,956	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MUSCLE ACCRUAL AND FUNCTION IN CYSTIC FIBROSIS-IMPACT OF GLUCOSE INTOL	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	3258760720		$2,376	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PSYCHOSOCIAL DETERMINANTS OF URINARY STONE DISEASE	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	U01DK110961		$79,787	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL KIDNEY INJURY TOOLS IN DECEASED ORGAN DONATION TO PREDICT GRAFT	93.847		YALE UNIVERSITY	M17A12557(A10910)		$46	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TOWARDS PRECISION MEDICINE IN CHILDHOOD ACQUIRED APLASTIC ANEMIA	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	ACTIVITY #3210590715/PO# 961757 - R		$714	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF SYNTHETIC DIETARY EMULSIFIER CMC ON HUMAN MICROBIOTA AND MET	93.847		GEORGIA STATE UNIVERSITY	R21DK115180		$263,579	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEPHROTIC SYNDROME RARE DISEASE CLINICAL RESEARCH NETWORK II	93.847		UNIVERSITY OF MICHIGAN	3003289619		-$214	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEPHROTIC SYNDROME RARE DISEASE CLINICAL RESEARCH NETWORK II	93.847		UNIVERSITY OF MICHIGAN	U54DK083912		$44,889	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CORTISOL SYNTHESIS ENZYMES AS TISSUE BIOMARKERS FOR DIABETIC FOOT ULCE	93.847		UNIVERSITY OF MIAMI	U24DK076159		$589	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CHOP PEDIATRIC CENTER OF EXCELLENCE IN NEPHROLOGY	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	P50DK114786		$12,498	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
A PILOT TRIAL OF TARGETING OUT-OF-DIALYSIS UNIT VS. DIALYSIS-UNIT BLOO	93.847		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	R21DK114213		$7,219	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF TYPE 1 DIABETES ON BRAIN STRUCTURE AND NEUROCHEMISTRY: PROP	93.847		WINTHROP-UNIVERSITY HOSPITAL	DP3DK114812		$188,470	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INFANT GROWTH AND MICROBIOME STUDY 2	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK107565		$188,562	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
SINGLE CELL TRANSCIPTOMICS OF DIABETIC KIDNEY DISEASE	93.847		AUGUSTA UNIVERSITY	U24DK115255		$3,274	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
SOCIAL NETWORK INTERVENTIONS TO REDUCE RACE DISPARITIES IN LIVING KIDN	93.847		PENNSYLVANIA STATE UNIVERSITY	R01DK114888		$34,953	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TUBULAR SECRETION IN CHRONIC KIDNEY DISEASE	93.847		UNIVERSITY OF WASHINGTON	R01DK107931		$12,310	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIDEMIOLOGY OF DIABETES INTERVENTIONS AND COMPLICATIONS (EDIC)	93.847		CASE WESTERN RESERVE UNIVERSITY	U01DK094157		$24,297	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIDEMIOLOGY OF DIABETES INTERVENTIONS AND COMPLICATIONS (EDIC)	93.847		CASE WESTERN RESERVE UNIVERSITY	U01DK094157		$15,619	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF NUCLEAR RECEPTOR ERRG IN KIDNEY BIOLOGY AND DISEASE	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK111495		$11,819	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
PSYCHOLOGICAL, COGNITIVE, AND GENETIC FACTORS IN A BEHAVIORAL INTERVEN	93.847		MASSACHUSETTS GENERAL HOSPITAL	R01DK114735		$28,141	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ISLET DYSREGULATION IN INFANTS WITH CONGENITAL HYPERINSULINISM	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK056268		$49,621	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CAN GENOMIC MOSAICISM EXPLAIN THE LOBULAR NATURE OF TYPE 1 DIABETES	93.847		BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE	U01DK104162		$99,974	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR STABLE ISOTOPE PROFILES OF DIETARY EXPOSURE (MOSIPDE)	93.847		UNIVERSITY OF ALASKA FAIRBANKS	SUB TO R01DK109946		$88,261	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
UROLOGICAL AND RENAL DISEASE ENGAGING ADOLESCENTS IN ADHERENCE COLLABO	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK110749		$38,869	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
APOL1 LONG-TERM KIDNEY TRANSPLANTATION OUTCOMES (APOLLO) NETWORK - COL	93.847		COLUMBIA UNIVERSITY	U01DK116066		$26,167	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
WHOLE-EXOME SEQUENCING STUDY OF DIABETIC NEPHROPATHY	93.847		TULANE UNIVERSITY	R01DK101505		$44,297	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF BIOMEDICAL RISK FACTORS ON NEURO-COGNITION USING MRI: LONG	93.847		CASE WESTERN RESERVE UNIVERSITY	DP3DK114812		$4,412	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTERSTITIAL CYSTITIS-EXAMINATION OF THE CENTRAL AUTONOMIC NETWORK (IC	93.847		MEDICAL COLLEGE OF WISCONSIN	R01DK083538		$7,256	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL DIAGNOSTICS AND THERAPEUTIC TARGETS FOR CALCIFICATION IN CKD	93.847		NORTHWESTERN UNIVERSITY	R01DK110087		$33,718	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ACUTE KIDNEY INJURY AMONG PATIENTS WITH CHRONIC KIDNEY DISEASE	93.847		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	R01DK114014		$150,678	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MEASURES OF FIBROSIS AND CLINICAL OUTCOMES IN CHRONIC KIDNEY DISEASE	93.847		TULANE UNIVERSITY	R01DK104730		$570,892	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
ACUTE KIDNEY INJURY AMONG PATIENTS WITH CHRONIC KIDNEY DISEASE	93.847		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	R01DK114014		$18,306	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HAINS-IU-COLLECTING DUCT ALPHA-DEFENSINS 1-3	93.847		INDIANA UNIVERSITY	R01DK117934		$118,440	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING MODIFIABLE BIOMARKERS/MEDIATORS FOR CARDIOVASCULAR DISEASE	93.847		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	U01DK108809		$166,445	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF BIOMEDICAL RISK FACTORS ON NEURO-COGNITION USING MRI: LONG	93.847		CASE WESTERN RESERVE UNIVERSITY	DP3DK114812		$33,697	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIDEMIOLOGY OF DIABETES INTERVENTIONS AND COMPLICATIONS (EDIC)	93.847		CASE WESTERN RESERVE UNIVERSITY	U01DK094157		$178,463	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIDEMIOLOGY OF DIABETES INTERVENTIONS AND COMPLICATIONS (EDIC)	93.847		CASE WESTERN RESERVE UNIVERSITY	U01DK094157		$15,387	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
EPIDEMIOLOGY OF DIABETES INTERVENTIONS AND COMPLICATIONS (EDIC)	93.847		CASE WESTERN RESERVE UNIVERSITY	U01DK094157		$14,475	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLOMICS OF CKD AND CKD PROGRESSION	93.847		MASSACHUSETTS GENERAL HOSPITAL	SUB TO U01DK106981		$106,400	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PATTERNS AND IMPLICATIONS OF FUNCTIONAL DECLINE AMONG KIDNEY TRANSPLAN	93.847		DREXEL UNIVERSITY	232664		$3,658	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
VISCERAL ADIPOSITY AND FITNESS AMONG CRIC PARTICIPANTS (PHASE 3)	93.847		BAYLOR COLLEGE OF MEDICINE	SUB TO R01DK101500		$83,191	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HEART FAILURE AND ATRIAL ARRHYTHMIAS IN CKD	93.847		UNIVERSITY OF WASHINGTON	UWSC8765		$24,358	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE GUT MICROBIOME AND THE METABOLOME IN CHRONIC KIDNEY DISEASE	93.847		TULANE UNIVERSITY	R01DK107566		$184,828	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
CHOP PEDIATRIC CENTER OF EXCELLENCE IN NEPHROLOGY	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	P50DK114786		$87,260	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
DISCOVERY AND INVESTIGATION OF NONINVASIVE DIAGNOSTIC POTENTIAL OF CIR	93.847		BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE	U01DK104162		$77,877	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GENE TRANSFER AND NMR STUDIES IN ALPHA MAN B	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK063973		$136,579	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
MUSCLE ACCRUAL AND FUNCTION IN CYSTIC FIBROSIS-IMPACT OF GLUCOSE INTOL	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	3258760720		$8,316	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PSYCHOPATHOLOGY, DISORDERED EATING, AND IMPULSIVITY AS PREDICTORS OF O	93.847		TEMPLE UNIVERSITY	258377-UPENN		$104,670	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING KIDNEY CELL PHENOTYPE FACTORS USING SINGLE CELL RNA SEQUEN	93.847		UNIVERSITY OF SOUTHERN CALIFORNIA	U01DK107350		$24,499	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEW INSIGHTS INTO THE FEDERAL CALORIE LABELING LAW	93.847		HARVARD PILGRIM HEALTH CARE	R01DK115492		$17,874	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
PSYCHOSOCIAL DETERMINANTS OF URINARY STONE DISEASE	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	U01DK110961		$495,203	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE PHYSIOLOGY OF OBESITY AND DIABETES: GPR160'S ROLE	93.847		SAINT LOUIS UNIVERSITY	R01DK118340		$99,544	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
"HILO": PRAGMATIC TRIAL OF HIGHER VS. LOWER SERUM PHOSPHATE TARGETS IN	93.847		DUKE CLINICAL RESEARCH INSTITUTE	UG3DK118748		$34,281	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC, ENVIRONMENTAL AND HISTOLOGIC BASIS OF KIDNEY DISEASE RISK IN	93.847		UNIVERSITY OF ALABAMA AT BIRMINGHAM	R01DK117675		$67,902	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
HUMAN MICROPHYSIOLOGY SYSTEMS DISEASE MODEL OF TYPE 2 DIABETES STARTIN	93.847		UNIVERSITY OF PITTSBURGH	UG3DK119973		$17,073	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
NEPHROTIC SYNDROME RARE DISEASE CLINICAL RESEARCH NETWORK II	93.847		UNIVERSITY OF MICHIGAN	3003289619		$42,015	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE ASSOCIATION OF FGF-23 AND KLOTHO WITH COGNITIVE IMPAIRMENT AND CER	93.847		TUFTS MEDICAL CENTER	K23DK105327		$3,051	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
TUBULAR SECRETION IN CHRONIC KIDNEY DISEASE	93.847		UNIVERSITY OF WASHINGTON	R01DK107931		$4,948	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF NUCLEAR RECEPTOR ERRG IN KIDNEY BIOLOGY AND DISEASE	93.847		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01DK111495		$17,381	$49,638,051	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
NOVEL KIDNEY INJURY TOOLS IN DECEASED ORGAN DONATION TO PREDICT GRAFT	*93.847*		*JOHNS HOPKINS UNIVERSITY*	*R01DK093770*		*$16,661*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MICROVASCULAR DISEASE, STATINS, ACE-INHIBITORS AND POST-OPERATIVE SBO	*93.847*		*UNIVERSITY OF COLORADO DENVER*	*K08DK095951*		*$30,294*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WHOLE-EXOME SEQUENCING STUDY OF DIABETIC NEPHROPATHY	*93.847*		*TULANE UNIVERSITY*	*R01DK101505*		*$3,847*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HAINS-IU-COLLECTING DUCT ALPHA-DEFENSINS 1-3	*93.847*		*INDIANA UNIVERSITY*	*R01DK117934*		*$23,983*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR STABLE ISOTOPE PROFILES OF DIETARY EXPOSURE (MOSIPDE)	*93.847*		*UNIVERSITY OF ALASKA FAIRBANKS*	*SUB TO R01DK109946*		*$3,354*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CARDIOMETABOLIC HEALTH IN ADOLESCENTS OF SOUTH ASIAN ANCESTRY - THE CH	*93.847*		*JOHNS HOPKINS UNIVERSITY*	*R01DK115648*		*$33,229*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
APOL1 LONG-TERM KIDNEY TRANSPLANTATION OUTCOMES (APOLLO) NETWORK - COL	*93.847*		*COLUMBIA UNIVERSITY*	*U01DK116066*		*$1,964*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UROLOGICAL AND RENAL DISEASE ENGAGING ADOLESCENTS IN ADHERENCE COLLABO	*93.847*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01DK110749*		*$2,021*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DYNAMIC PREDICTION OF RENAL FAILURE USING LONGITUDINAL PROGNOSTIC INFO	*93.847*		*MD ANDERSON CANCER CENTER*	*R01DK118079*		*$3,732*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE ROLE OF THE MICROBIOME IN THE METABOLIC BENEFITS OF NAD PRECURSORS	*93.847*		*AUGUSTA UNIVERSITY*	*U24DK076169*		*$5,279*	*$49,638,051*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEURAL BASIS OF GENERALIZED QUANTIFIERS	93.853	2-R01-NS-044266-06A1			-$2,782	-$2,782	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL BASIS OF GENERALIZED QUANTIFIERS	93.853	2-R01-NS-044266-06A1				-$1,670	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
BUILDING BRAINS IN OUR SLEEP: A DROSOPHILA LARVAL PLATFORM FOR EXAMINI	93.853	DP2NS111996				$392,594	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
PATHOGENIC MECHANISMS OF REDUCED TRANSPORT INITIATION IN PERRY SYNDROM	93.853	F30NS092227				-$1,049	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE MOLECULAR PATHOGENESIS OF CEREBRAL CAVERNOUS MALFORMATIONS	93.853	F30NS100252				$17,542	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING EXCITATORY NEURONAL FUNCTION ACROSS DEVELOPMENT IN CDKL5	93.853	F30NS100433				$17,958	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
SINGLE-MOLECULE RESOLUTION OF RNA EDITING OF MRNAS: VISUALIZING GRIA2	93.853	F30NS100595				$31,129	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF RBM3 IN HUNTINGTONS DISEASE: PATHOGENESIS AND PROTECTION	93.853	F31NS098739				$21,995	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MIDLINE RADIAL GLIAL-LIKE CELLS PROMOTE LONGITUDINAL GROWTH AND GUIDAN	93.853	F31NS100325				$28,598	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL MECHANISMS UNDERLYING CIRCADIAN RHYTHMS IN BEHAVIOR	93.853	F31NS100395				$2,077	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE ROLE OF CDKL5 IN THE SYNAPSE	93.853	F31NS101762				$47,128	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE MOLECULAR BASIS OF SUBSTRATE SELECTION BY DIVERSE HSP104	93.853	F31NS101807				$43,266	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
LANGUAGE IN CONTEXT: THE NEURAL BASIS OF INDIRECT SPEECH ACT COMPREHEN	93.853	F31NS101863				$41,379	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZING THE ROLE OF ROBO2 IN TARGET-SPECIFIC NERVE REGENERATION	93.853	F31NS103394				$8,292	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INCIDENCE AND PREDICTORS FOR FLUOROQUINOLONE-INDUCED NEUROLOGICAL DYSF	93.853	F31NS103445				$42,497	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE GENETIC CONTROL OF EARLY LIFE SLEEP USING DROSOPHILA	93.853	F31NS105447				$9,935	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY ANATOMIC MARKERS AND GENETIC RISK FACTORS FOR FRONTOTEMPORAL DEG	93.853	F31NS106754				$44,730	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TREATMENT OF EPILEPSY AND ASSOCIATED COMORBIDITIES USING STEM CELL-DER	93.853	F31NS108622				$14,766	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
LENTIVIRAL-MEDIATED HEMATOPOIETIC STEM CELL GENE THERAPY FOR CANINE GL	93.853	F32NS093898				$13,592	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DYNAMIC REGULATION OF AUTOPHAGY IN NEURONS DURING SYNAPTIC PLASTICITY	93.853	F32NS100348				$14,399	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL ROLE FOR THE LRP4 RECEPTOR IN PERIPHERAL NERVE REGENERATION	93.853	F32NS103219				$59,700	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MODELING DISORDERS OF CONSCIOUSNESS	93.853	F32NS103253				$60,570	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INTERROGATING EARLY TAU AGGREGATION USING UNNATURAL AMINO ACID SPECTRO	93.853	F99NS108544				$29,665	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE IMPACT OF HEDGEHOG SIGNALING DURING NEUROINFLAMMATION	93.853	K01NS097519				$280,454	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
A CRITICAL PERIOD OF SLEEP REQUIRED FOR NORMAL BRAIN DEVELOPMENT	93.853	K08NS090461				$183,820	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ALPHA-SYNUCLEIN BIOMARKERS IN PARKINSON DISEASE	93.853	K08NS093127				$122,992	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFICATION OF ENDOPHENOTYPES IN THE BEHAVIORAL-VARIANT OF FRONTOTE	93.853	K23NS088341				$200,410	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
LOCALIZING EPILEPTIC NETWORKS USING NOVEL 7T MRI GLUTAMATE IMAGING	93.853	K23NS092973				$236,884	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NATURAL HISTORY OF TRAUMATIC MICROVASCULAR INJURY	93.853	K23NS104239				$195,419	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATION OF CIRCADIAN AND HOMEOSTATIC SIGNALS IN A PEPTIDERGIC CIRC	93.853	K99NS105942				$72,923	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
AUTOPHAGY IN AGING AND NEURODEGENERATION	93.853	K99NS109286				$55,945	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION OF NEUROGENESIS	93.853	P01NS097206			$182,773	$182,773	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION OF NEUROGENESIS	93.853	P01NS097206			$549,820	$936,028	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
EPIGENETIC REGULATION OF NEUROGENESIS	93.853	P01NS097206				-$35,839	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROSCIENCE NEUROIMAGING CENTER	93.853	P30NS045839				$91,544	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
PARKINSON'S DISEASE AND DEMENTIA (BRIDGE FUNDING)	93.853	P50NS053488				$144,462	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF AUTOPHAGOSOME BIOGENESIS AND MATURATION IN PRIMARY NEURO	93.853	R00NS082619				$160,954	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DOPAMINERGIC REGULATION OF IN VIVO PLASTICITY & MEMORY RETENTION	93.853	R01NS021229				$402,610	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
FEEDING STATE-DEPENDENT HORMONAL MODULATION OF A WELL-DEFINED MICROCIR	93.853	R01NS029436			$158,977	$499,085	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TBI AND AMYLOID-BETA PATHOLOGIES	93.853	R01NS038104			$152,098	$418,444	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSCRIPTIONAL CONTROL OF SONIC HEDGEHOG SIGNALING	93.853	R01NS039421				$277,040	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSCRIPTIONAL CONTROL OF SONIC HEDGEHOG SIGNALING	93.853	R01NS039421				$36,658	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
PREDICTING BRAIN TUMOR PROGRESSION VIA MULTIPARAMETRIC IMAGE ANALYSIS	93.853	R01NS042645			$67,200	$516,910	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
SODIUM LEAK CHANNELS AND REGULATION BY NEUROTRANSMITTERS	93.853	R01NS055293				$335,720	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DIFFUSE OPTICS FOR ACUTE STROKE MANAGEMENT	93.853	R01NS060653			$82,039	$229,450	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF UNCERTAINTY FOR MOTOR LEARNING AND ADAPTATION	93.853	R01NS063399			$24,001	$351,726	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF NEURONAL EXCITABILITY BY EXTRACELLULAR CALCIUM	93.853	R01NS074257				-$2,030	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
PARANEOPLASTIC DISORDERS OF THE CNS: AUTOANTIGEN PROFILING	93.853	R01NS077851			$84,459	$85,647	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
SELF-ASSOCIATION AND MEMBRANE BINDING OF ALPHA-SYNUCLEIN	93.853	R01NS079955				$13,838	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY LIFE SEIZURES DISRUPT CRITICAL PERIOD PLASTICITY	93.853	R01NS080565				$30,902	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MURINE CORONAVIRUS NEUROVIRULENCE: ROLE OF TYPE I INTERFERON RESPONSE	93.853	R01NS081008				$201,525	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE PATHOGENIC MECHANISMS OF RETT SYNDROME	93.853	R01NS081054				$14,554	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE PATHOGENIC MECHANISMS OF RETT SYNDROME	93.853	R01NS081054				$162,902	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE GENETIC REGULATION AND DISEASE FUNCTION OF THE FRONTOTEMPORAL DEME	93.853	R01NS082265				-$9,585	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DETECTION OF CEREBRAL ISCHEMIA WITH A NONINVASIVE NEUROMETABOLIC OPTIC	93.853	R01NS082309				$540,573	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINE FUNCTIONS OF MAMMALIAN TOUCH-SENSING NEURONS IN CHRONIC PAIN	93.853	R01NS083702			$26,791	$497,373	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS IN CONTROLLING DEVELOPMENT OF TOUCH-SENSING NEURO	93.853	R01NS083702				-$24,897	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROLLING NEURAL CIRCUITS WITH SINGLE-CELL RESOLUTION IN BEHAVING AN	93.853	R01NS084835				$95,891	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR LARGE AND COMPLEX DATABASES OF ULTRA-HIGH-DIME	93.853	R01NS085211			$94,149	$157,318	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL METHOD FOR GLUTAMATE IMAGING	93.853	R01NS087516				$293,752	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF REMODELING CIRCUIT CONNECTIVITY AFTER TRAUMATIC BRAIN IN	93.853	R01NS088176				$337,122	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
PROPAGATION OF LEWY PATHOLOGY IN PARKINSONS DISEASE	93.853	R01NS088322				$337,860	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROPEPTIDERGIC REGULATION OF SLEEP IN C. ELEGANS	93.853	R01NS088432				$322,837	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
PRESSOR CHOICE INFLUENCES PROTECTION OF AUTOREGULATION IN BRAIN INJURY	93.853	R01NS090998			$20,870	$271,634	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DETECTION AND MECHANISMS OF MILD TRAUMATIC BRAIN INJURY	93.853	R01NS092398				$364,892	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROPATHOLOGICAL CHARACTERIZATION OF 'CTE'	93.853	R01NS094003			$156,403	$524,580	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DISSECTION OF A NEW SPINAL CORD CIRCUIT IN PAIN SENSATION	93.853	R01NS094224			$295,792	$645,181	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY DETECTION OF HUNTINGTON'S DISEASE: LONGITUDINAL ANALYSIS OF BASA	93.853	R01NS094456			$7,966	$15,259	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ENDOTHELIAL PLASTICITY IN GLIOMA VASCULARIZATION AND THERAPY RESISTANC	93.853	R01NS094533				$285,910	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
SAFETY AND EFFICACY OF SYSTEMIC GENE THERAPY IN INFORMATIVE MODELS FOR	93.853	R01NS094705			$79,505	$427,245	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC EDITING OF MUTANT C9ORF72	93.853	R01NS095793				$432,737	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC EDITING OF MUTANT C9ORF72	93.853	R01NS095793				$56,121	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
COMBINATION THERAPY, BIOMARKERS, AND IMAGING IN CANINE KRABBE DISEASE	93.853	R01NS096087				$328,697	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
CONNECTOMICS MEETS NEURO-ONCOLOGY: MAPPING THE BRAIN FOR TREATMENT PLA	93.853	R01NS096606			$18,763	$534,638	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
WAXHOLM SPACE FOR RODENT NEUROINFORMATICS	93.853	R01NS096720			$292,237	$575,527	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
OBJECTIVE TRANSLATIONAL MULTI-DOMAIN EARLY CONCUSSION ASSESSMENT	93.853	R01NS097549				-$1,448	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
CELLULAR AND MOLECULAR MECHANISMS OF PERIPHERAL NERVE REGENERATION	93.853	R01NS097914				$331,381	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF ANTICHOLINERGIC AND DOPAMINE RECEPTOR BLOCKING DRUG EXPOSURE	93.853	R01NS099129			$15,754	$388,046	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
VIRTUAL RESECTION TO TREAT EPILEPSY	93.853	R01NS099348			$25,866	$809,521	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED TREATMENT FOR RADICULOPATHY VIA ENGINEERED PLA2-RESPONSIVE MU	93.853	R01NS100892				$339,244	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
TLR4 AND THE MICROBIOME IN CCM DISEASE	93.853	R01NS100949			$256,403	$794,234	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ULTRAFAST GENETICALLY ENCODED VOLTAGE INDICATORS DESIGNED FROM FIRST P	93.853	R01NS101106				$471,136	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NETWORK DYSFUNCTION AND NEUROMODULATION FOLLOWING TBI	93.853	R01NS101108				$308,525	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF OXIDATIVE STRESS AND INFLAMMATION IN EPILEPTOGENESIS	93.853	R01NS101156				$252,220	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EFFICIENT STATISTICAL METHODS FOR ASSESSING DEMENTIA RISK IN PARKINSON	93.853	R01NS102324			$47,565	$322,668	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF ARGINYLATION IN PREVENTION OF ALPHA SYNUCLEIN-DRIVEN NEURODEGE	93.853	R01NS102435				$15,279	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
PATHOGENIC STUDIES OF CDKL5 DISORDER	93.853	R01NS102731			$70,158	$250,296	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
STUDYING AGGREGATION IN NEURODEGENERATIVE DISEASE USING SYNTHETIC PROT	93.853	R01NS103873				$102,938	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MACROPHAGE POLARIZATION IN GLIOMA MICROENVIRONMENT	93.853	R01NS106108				$320,630	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETED CLOSED-LOOP INTRACRANIAL BRAIN-STIMULATION TO IMPROVE EPISODI	93.853	R01NS106611				$20,354	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
AN IMPLANTABLE WIRELESS TACTILE FEEDBACK SYSTEM	93.853	R01NS107550				$30,999	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM OF SLEEP REGULATION BY SIK3	93.853	R01NS107969				$10,099	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EXAMINING NEURONAL RESILIENCE IN A MOUSE MODEL OF SPORADIC ALS	93.853	R01NS110688				$93,192	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
SLEEP CONTROL BY THE PREOPTIC AREA OF THE HYPOTHALAMUS	93.853	R01NS110865				$27,088	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
EXPLORING AND ENHANCING KARYOPHERIN BETA-2 DISAGGREGATE ACTIVITY	93.853	R21NS090205				-$11,446	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR CAUSAL INFERENCE IN OBSERVATIONAL STUDIES	93.853	R21NS091630				$41,790	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF BRAIN MECHANOSENSORS ON OUTCOME AFTER TRAUMATIC BRAIN INJURY	93.853	R21NS093293				$10,087	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
SPATIOTEMPORAL MODELING OF MRI GRAIN LESION TRAJECTORIES OF BIOMARKER	93.853	R21NS093349			$5,791	$5,791	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TEMPORAL LOBE EPILEPSY AND RETROTRANSPOSONS	93.853	R21NS095756				$1,498	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR NEUROPATHOLOGY OF TDP-43 PROTEINOPATHIES	93.853	R21NS097749				$8,732	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
VIRTUAL REALITY TREATMENT OF PHANTOM LEG PAIN	93.853	R21NS099645			$17,875	$177,157	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF TYPE I INTERFERON SIGNALING IN ZIKA VIRUS INFECTION OF THE BRA	93.853	R21NS100182				$69,487	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MULTICOLOR LABELING FOR CELL IDENTIFICATION IN THE C. ELEGANS NERVOUS	93.853	R21NS101629			$97,169	$181,305	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ISOLATING SMALL-MOLECULE ENHANCERS OF HTRA1, AN ALPHA-SYNUCLEIN DISAGG	93.853	R21NS102687				$250,538	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DISCOVERY OF POST-TRANSCRIPTIONAL UTROPHIN UPREGULATOR SMALL MOLECULES	93.853	R21NS102838				$62,063	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
DISCOVERY OF POST-TRANSCRIPTIONAL UTROPHIN UPREGULATOR SMALL MOLECULES	93.853	R21NS102838				$385,776	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
HOW DO DOMINANT PMP2 MUTATIONS CAUSE DEMYELINATING NEUROPATHY?	93.853	R21NS104874				$163,150	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INTERACTION BETWEEN EPILEPSY AND AD: NOVEL THERAPEUTIC STRATEGIES	93.853	R21NS105437				$243,392	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
ENABLING WIDESPREAD USE OF HIGH RESOLUTION IMAGING OF OXYGEN IN THE BR	93.853	R24NS092986			$117,526	$323,488	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH TRAINING PROGRAM IN DISEASE-ORIENTED NEUROSCIENCE	93.853	R25NS065745				$186,659	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR GENETIC INSIGHT INTO NEURODEGENERATIVE DISEASE FROM DROSOPHI	93.853	R35NS097275				$622,256	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF AXON GUIDANCE RECEPTOR REGULATION AND SIGNALIN	93.853	R35NS097340				$289,396	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF AXON GUIDANCE RECEPTOR REGULATION AND SIGNALIN	93.853	R35NS097340				$544,264	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL ROLES OF GENETIC RISK FACTORS FOR BRAIN DISORDERS IN NEUROG	93.853	R35NS097370				$317,769	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL ROLES OF GENETIC RISK FACTORS FOR BRAIN DISORDERS IN NEUROG	93.853	R35NS097370				$380,387	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
LOCAL CIRCUITRY MECHANISMS REGULATING ADULT HIPPOCAMPAL NEUROGENESIS	93.853	R37NS047344				$314,919	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
CYCLING IN A CIRCADIAN CIRCUIT	93.853	R37NS048471			$15,625	$219,731	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
CYCLING IN A CIRCADIAN CIRCUIT	93.853	R37NS048471				$119,627	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISTIC ANALYSIS OF AXONAL TRANSPORT DEFECTS IN NEURODEGENERATIVE	93.853	R37NS060698				$458,552	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
SEMI-SYNTHETIC A-SYNUCLEIN FOR TRACKING AGGREGATION AND CELL-TO-CELL T	93.853	R56NS081033				$50,713	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN NEUROVIROLOGY	93.853	T32NS007180				$6,327	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN NEUROVIROLOGY	93.853	T32NS007180				$196,752	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
BRAIN INJURY TRAINING GRANT	93.853	T32NS043126				$232,323	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROLOGIC CLINICAL EPIDEMIOLOGY TRAINING GRANT	93.853	T32NS061779				$148,489	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN NEUROENGINEERING AND MEDICINE	93.853	T32NS091006				-$1,052	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN NEUROENGINEERING AND MEDICINE	93.853	T32NS091006				-$1,224	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN NEUROENGINEERING AND MEDICINE	93.853	T32NS091006				$223,869	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
REMAPPING NEUROLOGY THROUGH TRANSLATION AND INNOVATION	93.853	T32NS091008				-$244	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
REMAPPING NEUROLOGY THROUGH TRANSLATION AND INNOVATION	93.853	T32NS091008				$251,908	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
REMAPPING NEUROLOGY THROUGH TRANSLATION AND INNOVATION	93.853	T32NS091008				$5,365	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE TRAINING IN NEUROSCIENCE	93.853	T32NS105607				$639,414	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
UNBIASED APPROACHES TO NOVEL BIOMARKER DISCOVERY IN PARKINSON'S DISEAS	93.853	U01NS082134				$135	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
MASSIVE SCALE ELECTRICAL NEURAL RECORDINGS IN VIVO USING COMMERCIAL RO	93.853	U01NS094248			$323,309	$360,804	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
BIOLOGICAL 'LIVING ELECTRODES' USING TISSUE ENGINEERED AXONAL TRACTS T	93.853	U01NS094340			$27,833	$27,833	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
BIOLOGICAL 'LIVING ELECTRODES' USING TISSUE ENGINEERED AXONAL TRACTS T	93.853	U01NS094340				-$9,441	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TOWARDS A BLOOD-BASED DIAGNOSTIC PANEL FOR CONFIRMATION OF PARKINSON'S	93.853	U01NS097056				$224,399	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
TOWARDS A BLOOD-BASED DIAGNOSTIC PANEL FOR CONFIRMATION OF PARKINSON'S	93.853	U01NS097056				$4,658	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
INTRAOPERATIVE STUDIES OF FLEXIBLE DECISION-MAKING	93.853	U01NS103799			$10,065	$675,842	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE PHILADELPHIA REGIONAL STROKE TRIALS NETWORK COORDINATING CENTER (P	93.853	U10NS086474			$3,316	$69,253	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA CENTER FOR THE NETWORK OF EXCELLENCE IN NEU	93.853	U24NS107199			$6,355	$240,427	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
THE PHILADELPHIA REGIONAL STROKE TRIALS NETWORK COORDINATING CENTER (P	93.853	U24NS107224				$310,229	$30,960,099	RESEARCH AND DEVELOPMENT	$706,379,077
POINT: PLATELET-ORIENTED INHIBITION IN NEW TIA	*93.853*		*UNIVERSITY OF MICHIGAN*	*U01NS062835*	*$27,700*	*$105,509*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUROPHYSIOLOGICALLY BASED RESPONSIVE BRAIN MODULATION	*93.853*		*MAYO CLINIC ROCHESTER*	*UH2NS095495*	*$53,580*	*$129,397*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
C.R.E.S.T. (CAROTID REVASCULARIZATION ENDARTERECTOMY VX. STENT TRIAL)	*93.853*		*RUTGERS UNIVERSITY*	*SUB TO R01-NS38384*		*-$9,237*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STROKE HYPERGLYCEMIA INSULIN NETWORK EFFORT (SHINE) TRIAL	*93.853*		*UNIVERSITY OF MICHIGAN*	*3002111996-SHN*		*$129*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STROKE HYPERGLYCEMIA INSULIN NETWORK EFFORT (SHINE) TRIAL	*93.853*		*UNIVERSITY OF MICHIGAN*	*3002111996-SHN*		*$15,232*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROOF OF PRINCIPLE FOR A DIAGNOSTIC BLOOD TEST OF RECURRENT SEIZURES	*93.853*		*COGNIZANCE BIOMARKERS*	*R43NS079029*		*$11,327*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A PHASE 3 DOUBLE-BLIND PLACEBO-CONTROLLED PARALLEL GROUP STUDY IF ISRA	*93.853*		*NORTHWESTERN UNIVERSITY*	*U01NS080818*		*$9,236*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GREATER PHILADELPHIA SOUTHERN NEW JERSEY NETT NETWORK ESETT TRIAL	*93.853*		*UNIVERSITY OF MICHIGAN*	*U01NS088034*		*$3,698*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TWO-PHOTON MICROSCOPY OF OXYGEN CONSUMPTION IN THE BRAIN	*93.853*		*MASSACHUSETTS GENERAL HOSPITAL*	*226626*		*$92,361*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MODELING SYNAPTIC VESICLES: HOW DOES -SYNUCLEIN INHIBIT FUSION	*93.853*		*UNIVERSITY OF MINNESOTA*	*R01NS084998*		*-$14,205*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DISSEMINATED AAV VECTOR TRANSPORT IN THE BRAIN VIA NEURONAL PATHWAYS	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*20479-10-01 / PO #951200RSUB*		*$54,763*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASTROCYTE ACTIVATION BY SMALL MOLECULE P2Y1 AGONISTS FOR TREATMENT OF	*93.853*		*ASTROCYTE PHARMACEUTICALS, INC.*	*R41NS093756*		*$41,868*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TARGETING TUMORS WITH NF1 LOSS	*93.853*		*DARTMOUTH COLLEGE*	*R01NS095411*		*$53,084*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEFUSE 3: ENDOVASCULAR THERAPY FOLLOWING IMAGING EVALUATION FOR ISCHEM	*93.853*		*UNIVERSITY OF CINCINNATI*	*U01NS092076*		*$1,302*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHASE 3 TRIAL OF INOSINE FOR PARKINSON'S DISEASE CCC	*93.853*		*MASSACHUSETTS GENERAL HOSPITAL*	*U01NS090259*		*$15,297*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INHERITED NEUROPATHIES CONSORTIUM	*93.853*		*UNIVERSITY OF IOWA*	*U54NS065712*		*-$4*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF AN INFORMATION-RICH ASSAY FOR C9ORF72 AS A TEST FOR ALS	*93.853*		*ASURAGEN, INC.*	*R44NS089423*		*$123,142*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LRRK2, KIF5A AND PARKINSON'S DISEASE	*93.853*		*JOHNS HOPKINS UNIVERSITY*	*R01NS093383*		*$52,997*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
UNDERSTANDING ACTION SELECTION IN THE TOOL USE NETWORK	*93.853*		*MOSS REHABILITATION RESEARCH INSTITUTE*	*1R01NS099061*		*$41,659*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE FRONTOTEMPORAL LOBAR DEGENERATION CLINICAL RESEARCH CONSORTIUM	*93.853*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*8567*		*-$155,562*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STATISTICAL METHODS FOR MULTILEVEL MULTIVARATE FUNCTIONAL STUDIES	*93.853*		*JOHNS HOPKINS UNIVERSITY*	*R01NS060910*		*$97,556*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NEW VIEW OF PAH ALLOSTERY - CORRELATION WITH DISEASE-ASSOCIATED ALLE	*93.853*		*FOX CHASE CANCER CENTER*	*R01NS100081*		*$4,998*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MEKK3-ERK5-KLF SIGNALING IN CCM PATHOGENESIS	*93.853*		*DUKE UNIVERSITY*	*2034906*		*-$29,236*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BIOMARKERS FOR LEWY BODY DEMENTIA	*93.853*		*CLEVELAND CLINIC*	*U01NS100610*		*$63,956*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CIRCULAR RNAS AND CNS GENE TRANSFER	*93.853*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*R01 NS099371*		*$4,682*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE RAT PRE-FORMED ALPHA-SYNUCLEIN FIBRIL MODEL OF PARKINSON'S DISEASE	*93.853*		*MICHIGAN STATE UNIVERSITY*	*R21NS099416*		*$39,501*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL RESEARCH IN ALS & RELATED DISORDERS FOR THERAPEUTIC DEVELOPME	*93.853*		*UNIVERSITY OF MIAMI*	*U54NS092091*		*$1,739*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INHERITED NEUROPATHIES CONSORTIUM	*93.853*		*UNIVERSITY OF IOWA*	*U54NS065712*		*$12,878*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ASTROGLIAL GLUTAMATE TRANSPORTERS, CALCIUM, AND MITOCHONDRIA	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R56NS077773*		*$1,486*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RNAI THERAPY FOR SPINOCEREBELLAR ATAXIA TYPE 1	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3200071216*		*$39,588*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPINAL FIBER OPTIC MONITORING	*93.853*		*UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER*	*U01NS095761*		*$4,936*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ATRIAL CARDIOPATHY AND ANTITHROMBOTIC DRUGS IN PREVENTION AFTER CRYPTO	*93.853*		*UNIVERSITY OF CINCINNATI*	*U01NS095869*		*$3,113*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPACT OF CODING AND NON-CODING VARIATION IN PROGRESSIVE SUPRANUCLEAR	*93.853*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*UG3NS104095*		*$86,066*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANSFORMING RESEARCH AND CLINICAL KNOWLEDGE IN TRAUMATIC BRAIN INJURY	*93.853*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*4U01NS086090*		*-$3,060*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CAROTID REVASCULARIZATION AND MEDICAL MANAGEMENT FOR ASYMPTOMATIC CARO	*93.853*		*MAYO CLINIC JACKSONVILLE*	*R01NS097876*		*$1,988*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUROIMAGING MARKERS OF PROGRESSION IN ALS	*93.853*		*UNIVERSITY OF MIAMI*	*U54NS092091*		*$47,159*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SMALL VESSEL DISEASE BIOMARKERS IN A LONGITUDINALLY-FOLLOWED "STROKE-B	*93.853*		*UNIVERSITY OF KENTUCKY*	*UH2NS100606*		*$82,843*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RELIABLE SEIZURE PREDICTION USING PHYSIOLOGICAL SIGNALS AND MACHINE LE	*93.853*		*MAYO CLINIC ROCHESTER*	*R01NS092882*		*$82,941*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
GENE THERAPY FOR SPINOCEREBELLAR ATAXIA 1 (SCA1)	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*UH3NS094355*		*$335,701*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANSFORMING RESEARCH AND CLINICAL KNOWLEDGE IN TRAUMATIC BRAIN INJURY	*93.853*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*4U01NS086090*		*$57,731*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NOVEL SYSTEM FOR THE STUDY OF NEURO-HIV; HUMAN STEM CELL DERIVED MIC	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R21NS107594*		*$64,351*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WHOLE TRANSCRIPTOME STUDIES OF PATIENTS WITH TRANSIENT ISCHEMIC ATTACK	*93.853*		*UNIVERSITY OF CALIFORNIA, DAVIS*	*R01NS097000*		*$23,574*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MEKK3-ERK5-KLF SIGNALING IN CCM PATHOGENESIS	*93.853*		*DUKE UNIVERSITY*	*2034906*		*$296,191*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RATIONAL DESIGN OF TMS FOR NEUROMODULATION	*93.853*		*DUKE UNIVERSITY*	*203-5257*		*$20,800*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE FRONTOTEMPORAL LOBAR DEGENERATION CLINICAL RESEARCH CONSORTIUM	*93.853*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*8567*		*$168,825*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL RESEARCH IN ALS & RELATED DISORDERS FOR THERAPEUTIC DEVELOPME	*93.853*		*UNIVERSITY OF MIAMI*	*U54NS092091*		*$149,001*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRAIN OXYGEN OPTIMIZATION IN SEVERE TBI--PHASE 3 (BOOST-3)	*93.853*		*UNIVERSITY OF MICHIGAN*	*U01NS099046*		*$97,895*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NEW VIEW OF PAH ALLOSTERY - CORRELATION WITH DISEASE-ASSOCIATED ALLE	*93.853*		*FOX CHASE CANCER CENTER*	*R01NS100081*		*$11,673*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPACT OF INTRANASAL HEAT SHOCK PROTEIN 70 ON LEWY BODY DISORDERS	*93.853*		*DUQUESNE UNIVERSITY*	*R21NS107960*		*$22,380*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CIRCULAR RNAS AND CNS GENE TRANSFER	*93.853*		*DUKE UNIVERSITY*	*R01NS099371*		*$28,551*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREVENTING EPILEPSY USING VIGABATRIN IN INFANTS WITH TUBEROUS SCLEROSI	*93.853*		*UNIVERSITY OF ALABAMA AT BIRMINGHAM*	*U01NS092595*		*$14,615*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SPINAL FIBER OPTIC MONITORING	*93.853*		*UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER*	*U01NS095761*		*$56,278*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DYNAMIC CONTRIBUTION OF IDENTIFIED NEURONS TO HIGH FREQUENCY OSCILLATI	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R21NS106434*		*$6,120*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASTROGLIAL GLUTAMATE TRANSPORTERS, CALCIUM, AND MITOCHONDRIA	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01NS106693*		*$13,194*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BIOMARKERS FOR LEWY BODY DEMENTIA	*93.853*		*CLEVELAND CLINIC*	*U01NS100610*		*$54,913*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INHERITED NEUROPATHIES CONSORTIUM	*93.853*		*UNIVERSITY OF IOWA*	*U54NS065712*		*$53,054*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASTROGLIAL GLUTAMATE TRANSPORTERS, CALCIUM, AND MITOCHONDRIA	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01NS106693*		*$16,546*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
WHOLE-BRAIN RECORDING INTO NUCLEIC ACIDS USING TEMPLATE-INDEPENDENT PO	*93.853*		*NORTHWESTERN UNIVERSITY*	*UF1NS107697*		*$5,975*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPROVING DIAGNOSIS OF MULTIPLE SCLEROSIS THROUGH THE INTEGRATION OF N	*93.853*		*UNIVERSITY OF VERMONT*	*K02NS109340*		*$4,322*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TWO-PHOTON MICROSCOPY OF OXYGEN CONSUMPTION IN THE BRAIN	*93.853*		*MASSACHUSETTS GENERAL HOSPITAL*	*226626*		*$25,669*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTI-CENTER ALS BIOMARKER VALIDATION STUDY (CREATE BIOMARKERS)	*93.853*		*UNIVERSITY OF MIAMI*	*U01NS107027*		*$434*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANSLATIONAL STUDIES ON CEREBROSPINAL FLUID (CSF)-DIRECTED GENE THERA	*93.853*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01NS110349*		*$30,860*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHIMERIC AUTOANTIBODY RECEPTOR T CELLS TARGETING AUTOIMMUNE B CELLS	*93.853*		*UNIVERSITY OF CALIFORNIA, DAVIS*	*R21NS104516*		*$19,053*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ACCELERATE CLINICAL TRIALS IN CMT (ACTCMT) STUDY	*93.853*		*UNIVERSITY OF ROCHESTER*	*U01NS109403*		*$6,991*	*$30,960,099*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NOVEL SIVSMM STRAINS FOR ANALYSIS OF MUCOSAL TRANSMISSION AND VACCINE	93.855	7-P01-AI-088564-03				-$621	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE ROLE OF WEST NILE VIRUS-HOST PROTEIN INTERACTIONS IN EVAD	93.855	ADVANCE ACCOUNT				$31,524	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF TOX IN REGULATING T CELL EXHAUSTION	93.855	F30AI129263				$25,537	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
LONG NONCODING RNAS IN INNATE LYMPHOID CELL BIOLOGY	93.855	F31AI124538				$21,286	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING MERS-COV NS4B AS A MODULATOR OF THE HOST ANTIVIRAL RESPO	93.855	F31AI126673				$31,979	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ENGINEERING PROTEIN VESICLES FOR DRUG DELIVERY APPLICATIONS	93.855	F32GM119430				$20,980	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CARBAPENEM-RESISTANT KLEBSIELLA PNEUMONIAE IN LONG-TERM ACUTE CARE HOS	93.855	K01AI103028				$25,388	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF DONOR BACTERIAL INFECTIONS ON SOLID ORGAN TRANSPLANT RECIPIE	93.855	K01AI137317				$54,980	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL AND PREVENTION OF ZOONOTIC EPIDEMICS IN CITIES: A SOCIO-SPATIA	93.855	K01AI139284				$220	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC CONTROL OF TISSUE SPECIFIC MACROPHAGE DIFFERENTIATION	93.855	K08AI106953				$386	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EFFECTS OF AGING ON THE T FOLLICULAR HELPER RESPONSE TO INFLUENZA VACC	93.855	K08AI114852				$199,972	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PREGNANCY-INDUCED T CELL EXHAUSTION: AN OPPORTUNITY TO REDUCE IMMUNOSU	93.855	K08AI130365				$212,470	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
LONGITUDINAL ANALYSIS OF RESPIRATORY TRACT MICROBIOME CHANGE AND SEQUE	93.855	K23AI121485				$147,721	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATION OF SUBTELOMERIC GENE FAMILIES IN CRYPTOSPORIDIUM	93.855	K99AI137442				$137,634	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
COMPLEMENT IN INFLAMMATORY DISEASES: MECHANISMS & THERAPEUTIC MODULATI	93.855	P01AI068730				$1,480,797	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
SHIV/HIV ENV-ANTIBODY COEVOLUTION AS A GUIDE TO ITERATIVE VACCINE DESI	93.855	P01AI131251			$1,068,840	$2,500,532	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOLOGICAL STRATEGIES TO MODULATE SIV REBOUND FOLLOWING ART INTERRU	93.855	P01AI131338			$381,311	$545,061	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOLOGICAL STRATEGIES TO MODULATE SIV REBOUND FOLLOWING ART INTERRU	93.855	P01AI131338			$696,216	$1,341,856	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOLOGICAL STRATEGIES TO MODULATE SIV REBOUND FOLLOWING ART INTERRU	93.855	P01AI131338				$13,792	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOLOGICAL STRATEGIES TO MODULATE SIV REBOUND FOLLOWING ART INTERRU	93.855	P01AI131338				$59,854	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR AIDS RESEARCH	93.855	P30AI045008			$8,725	$136,675	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR AIDS RESEARCH	93.855	P30AI045008			$619,419	$2,521,529	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR AIDS RESEARCH	93.855	P30AI045008				-$3,385	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR AIDS RESEARCH	93.855	P30AI045008				$7,013	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR AIDS RESEARCH	93.855	P30AI045008				$9,928	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNE-MICROBIOTA INTERACTIONS IN DEFENSE AGAINST CLOSTRIDIUM DIFFICIL	93.855	R00AI125786				$251,758	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONS OF HSV GLYCOPROTEINS IN VIRUS ENTRY AND THE HUMORAL IMMUNE R	93.855	R01AI018289				$467,985	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL ANALYSIS OF THE THIRD COMPONENT OF COMPLEMENT	93.855	R01AI030040				$13,119	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOPATHOGENESIS OF TOXOPLASMIC ENCEPHALITIS	93.855	R01AI041158				$447,090	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NOTCH REGULATION OF HEMATOPOIETIC CELL FATES	93.855	R01AI047833				$525,094	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INSULIN-LIKE SIGNALING IN PARASITIC NEMATODE DEVELOPMENT	93.855	R01AI050668				-$12,729	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INSULIN-LIKE SIGNALING IN PARASITIC NEMATODE DEVELOPMENT	93.855	R01AI050668				$283,040	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAF6 AND THE FATE OF CD8 T CELLS	93.855	R01AI064909				$58,645	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF AUTOPHAGY IN INNATE ANTI-VIRAL IMMUNITY IN DROSOPHILA	93.855	R01AI074951				$138,207	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
T CELL FUNCTIONALITY AND CONTROL OF HIV INFECTION	93.855	R01AI076066				$128,369	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF B CELL DEVELOPMENT BY YY1	93.855	R01AI079002				$546,216	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNOLOGY AND OUTCOMES AFTER HAART IN HIV/TB COINFECTIO	93.855	R01AI080337				-$6	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MASSIVELY PARALLEL ANALYSIS OF INTEGRATION IN THERAPEUTIC GENE TRANSFE	93.855	R01AI082020			$56,044	$359,656	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL VIRUS-DERIVED ADJUVANT	93.855	R01AI083284				$104,683	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PATHOGENESIS AND THERAPY OF DENSE DEPOSIT DISEASE IN A MOUSE MODEL	93.855	R01AI085596				$353,557	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GREAT APE RESERVOIRS OF HUMAN MALARIA	93.855	R01AI091595			$97,744	$566,286	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NOTCH SIGNALING IN ALLOIMMUNITY	93.855	R01AI091627			$293,258	$473,566	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHYLOGEOGRAPHIC DYNAMICS OF A VECTOR AND PATHOGEN IN A NATURAL ENVIRON	93.855	R01AI097137				-$21,840	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
LONG-LIVED CD19-POSITIVE PLASMA CELLS	93.855	R01AI097590				$71,974	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
AUTOIMMUNE ENCEPHALOMYELITIS AND REGULATORY T CELLS	93.855	R01AI099216				$251,368	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DISRUPTING VECTOR-BORNE DISEASE TRANSMISSION IN COMPLEX URBAN ENVIRONM	93.855	R01AI101229			$241,529	$561,032	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MODULATION OF INFLAMMASOME ACTIVATION BY YERSINIA	93.855	R01AI103062				-$10,132	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
RECONSTRUCTING BERLIN:ROLE OF CO-RECEPTOR MODIFIED CELLS IN HIV AND SI	93.855	R01AI104400				$37,448	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HSV-2 IMMUNE EVASION AS A VIRULENCE FACTOR	93.855	R01AI104854				$147,989	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF VIRAL PATHOGENESIS BY REGULATION OF 2-5A LEVELS	93.855	R01AI104887			$9,078	$103,688	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF VIRAL PATHOGENESIS BY REGULATION OF 2-5A LEVELS	93.855	R01AI104887			$57,975	$211,319	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CELLULAR AND TRANSCRIPTIONAL CONTROL OF EXHAUSTED CD8 T CELLS LINEAGE	93.855	R01AI105343				$24,843	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PROTECTIVE AND PATHOLOGIC ROLES FOR CD8+ T CELLS IN LEISHMANIASIS	93.855	R01AI106842				$221,617	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
IMPACT OF PRIOR INFLUENZA EXPOSURES ON ANTIBODY REPERTOIRES TO NEW VIR	93.855	R01AI108686			$400	$400	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF PRIOR INFLUENZA EXPOSURES ON ANTIBODY REPERTOIRES TO NEW VIR	93.855	R01AI108686			$47,809	$434,363	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF PRIOR INFLUENZA EXPOSURES ON ANTIBODY REPERTOIRES TO NEW VIR	93.855	R01AI108686				-$19,737	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IL-27 AND TREG CELLS	93.855	R01AI110201				$77,451	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HARNESSING TYPE 1 IFN-STIMULATED ANTIVIRAL MECHANISMS FOR HIV VACCINE	93.855	R01AI111789			$23,300	$48,780	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC ANALYSIS OF CRYPTOSPORIDIUM	93.855	R01AI112427				$179,792	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC ANALYSIS OF CRYPTOSPORIDIUM	93.855	R01AI112427				$37,033	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NON-CD4 TROPIC SIV: ENHANCING CD4 T-CELL HELP IN ANTIVIRAL IMMUNE RES	93.855	R01AI112456			$170,886	$259,293	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE EFFECT OF HUMAN PRE-EXPOSURE HISTORY ON ANTIGENIC DRIFT OF INFLUEN	93.855	R01AI113047			$21,423	$585,550	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ORIGINS OF SERUM IGA ANTIBODIES	93.855	R01AI113543				$142,838	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
RESTRICTION OF HIV-1 TRANSMISSION BY TYPE 1 INTERFERONS	93.855	R01AI114266			$92,205	$323,670	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BIOMEDICAL COMPUTING AND INFORMATICS STRATEGIES FOR INFECTIOUS DISEASE	93.855	R01AI116794			$102,249	$971,456	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
COMPLEMENT DYSREGULATION AND ATYPICAL HEMOLYTIC UREMIC SYNDROME	93.855	R01AI117410				$374,207	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING 5' LEADER-ENCODED DEFECTIVE RIBOSOMAL PRODUCTS FOR HIV T CEL	93.855	R01AI118549			$179,821	$754,990	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISTIC STUDIES OF BLYS-MEDIATED MODULATION IN HIV-1 ENV-SPECIFIC	93.855	R01AI118691			$95,322	$907,232	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
VIRAL CONTROL MECHANISMS OF HIV-SPECIFIC T CELLS IN HIV-INFECTED LYMPH	93.855	R01AI118694			$314,803	$602,733	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INNATE IMMUNE-MEDIATED CONTROL OF PULMONARY LEGIONELLA PNEUMOPHILA INF	93.855	R01AI118861				$284,517	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
VIRAL MODULATION OF EPIGENETIC MECHANISMS	93.855	R01AI118891			$303,917	$648,731	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
A FAST ASSAY TO QUANTIFY HIV RESERVOIRS	93.855	R01AI120011			$157,639	$592,950	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
A FAST ASSAY TO QUANTIFY HIV RESERVOIRS	93.855	R01AI120011				$94,105	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ROS RESPONSES DURING VIBRIO CHOLERAE INFECTION	93.855	R01AI120489			$32,139	$353,141	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
STUDIES OF THE PRECURSOR OF THE HUMAN AIDS VIRUS IN ITS NATURAL CHIMPA	93.855	R01AI120810			$148,805	$486,765	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
RAPID IMMUNE RESTORATION AND LUNG INJURY IN HIV/TB	93.855	R01AI120821			$387,916	$563,974	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
LEUKOCYTE ACTIVATION AND MIGRATION IN AUTOIMMUNE ENCEPHALOMYELITIS	93.855	R01AI121166				$485,272	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ANTIVIRAL IMMUNITY IN THE GUT: HOW THE INTESTINAL EPITHELIUM AND MICRO	93.855	R01AI122749				$337,064	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHYSIOLOGICAL ROLES OF SCHISTOSOME TRP ION CHANNELS WITH ATYPICAL PHAR	93.855	R01AI123173				$345,570	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING HUMAN NONCANONICAL INFLAMMASOME RESPONSES TO LEGIONELLA PNEUM	93.855	R01AI123243				$386,636	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC IMPRINTING OF FOLLICULAR HELPER T CELL FATE AND FUNCTION IN	93.855	R01AI123539			$478,970	$1,045,283	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CYTOKINE REGULATION OF T FOLLICULAR HELPER (TFH) CELL BIOLOGY	93.855	R01AI123738				$611,177	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF A NOVEL HUMAN MAST CELL G PROTEIN COUPLED RECEPTOR IN ALLERGY	93.855	R01AI124182				$449,561	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NUCLEOSIDE MODIFIED MRNA BASED HIV VACCINE	93.855	R01AI124429			$389,870	$613,214	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
RESIDENT MEMORY T CELLS IN LEISHMANIASIS	93.855	R01AI125265				$420,246	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF T CELL RESPONSES TO ORAL ANTIGENS	93.855	R01AI125284				$416,843	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
SPLICING AND NUCLEAR TRANSPORT OF INFLUENZA VIRUS MRNA	93.855	R01AI125524			$561,010	$802,788	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF EARLY T-BET ON CD8 T CELL EFFECTOR RESPONSES	93.855	R01AI125563				$722,115	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NEXT GENERATION MISSING DATA METHODS IN HIV RESEARCH	93.855	R01AI127271			$490,404	$786,678	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
SEXUAL DEVELOPMENT OF CRYPTOSPORIDIUM	93.855	R01AI127798				$246,867	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE NON-APOPTOTIC ROLE OF CASPASE-8 ACTIVITY IN ANTI-BACTERIA	93.855	R01AI128530			$9,870	$456,985	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
OPTIMIZATION HIV INHIBITION BY ALLOSTERIC INTEGRASE INHIBITORS	93.855	R01AI129661				$477,064	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TREATING CHRONIC VIRAL INFECTION BY EPIGENETIC REPROGRAMMING OF EXHAUS	93.855	R01AI130115			$211,377	$653,257	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BNAB INDUCTION BY ANTIGENICALLY DIVERSE V1V2 LINEAGE SPECIFIC SHIVS AN	93.855	R01AI131331				$729,708	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GENE REGULATION FROM THE INACTIVE X IN ACTIVATED B CELLS	93.855	R01AI134834				$573,399	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF DDO ADJUVANCY	93.855	R01AI134862				$230,939	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE IMPACT OF PRE-EXISTING MEMORY T CELLS IN HUMAN IMMUNITY	93.855	R01AI134879			$704	$377,753	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CHANGES IN BONE QUALITY, SARCOPENIA AND FAT DISTRIBUTION IN HIV/HCV PA	93.855	R01AI136626			$16,392	$527,057	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATING LEUKOCYTE MIGRATION IN INFLAMMATION	93.855	R01AI136945				$475,401	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFECTIVE VIRAL GENOMES IN RSV PATHOGENESIS	93.855	R01AI137062			$65,431	$305,716	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF SIV AND HIV ENV CYTOPLASMIC TAIL IN PATHOGENESIS AND PROTECTIV	93.855	R01AI138782			$419,355	$675,517	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
TARGETING MOSQUITO COMPLEMENT TO ALTER THE SPECIFICITY OF THE INNATE I	93.855	R01AI139060				$422,460	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE MECHANISM AND FUNCTIONS OF RIPK1-INDUCED CELL DEATH IN AN	93.855	R01AI139102				$78,259	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
VERY EARLY PLASMA CELL DIFFERENTIATION	93.855	R01AI139123			$57,510	$544,578	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GENOMICS OF S. AUREUS COLONIZATION AFTER INITIAL AND RECURRENT SKIN IN	93.855	R01AI139188			$49,992	$307,682	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE CLINICAL AND MOLECULAR EPIDEMIOLOGY OF COLISTIN-RESISTANT CARBAPEN	93.855	R01AI139240			$8,574	$188,974	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
A VACCINE FOR GENITAL HERPES THAT ACHIEVES STERILIZING IMMUNITY	93.855	R01AI139618				$94,955	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MERS CORONAVIRUS: ANTAGONISM OF DOUBLE-STRANDED RNA INDUCED HOST RESPO	93.855	R01AI140442			$71,177	$387,668	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE FUNCTIONAL INTERFACE BETWEEN THE ER AND FLAVIVIRUSES	93.855	R01AI140539			$163,088	$301,853	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHYLOGEOGRAPHIC DYNAMICS OF TICK-BORNE PATHOGENS	93.855	R01AI142572			$46,327	$88,871	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
SKIN MICROBIOME CONTRIBUTIONS TO THE PATHOGENESIS OF CUTANEOUS LEISHMA	93.855	R01AI143790				$177,889	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
22ND ANNUAL WOODS HOLE IMMUNOPARASITOLOGY (WHIP) MEETING	93.855	R13AI138340				$5,500	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
23RD ANNUAL WOODS HOLE IMMUNOPARASITOLOGY (WHIP) MEETING	93.855	R13AI145007				$7,500	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CONTROL OF CORONAVIRUS PATHOGENESIS BY ANTAGONISM OF RNASE L	93.855	R21AI114920			$5,193	$7,216	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF BETA-ARRESTIN-2 ON IGE-MEDIATED COFILIN DEPHOSPHORYLATION AND	93.855	R21AI115688				$44,277	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC CONTROL OF PLASMA CELL DIFFERENTIATION	93.855	R21AI116317				$5,579	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL APPROACHES TO PROPAGATE MOLLUSCUM CONTAGIOSUM VIRUS IN CELL CULT	93.855	R21AI117100				$116,306	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC DETERMINANTS OF SYSTEMIC HOST-ADAPTED SALMONELLA	93.855	R21AI117135				$30,988	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING RARE SUBTYPES OF CD8 T-CELLS USING SINGLE CELL REACTORS	93.855	R21AI124057				$161,597	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EXPRESSION OF X-LINKED AUTOIMMUNITY GENES IN B CELLS DURING FEMALE-BIA	93.855	R21AI124084				$27,651	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
E. COLI NICHE EXPANSION AND ADAPTATION IN THE DYSBIOTIC INTESTINE	93.855	R21AI125814				$82,548	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DISSECTING THE MECHANISM OF RIPK1 KINASE-DEPENDENT CELL DEATH IN CONTR	93.855	R21AI125924			$1,816	$51,792	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
UTILIZING BATF3-DEPENDENT DC TO GENERATE VACCINE-INDUCED CELL MEDIATED	93.855	R21AI126042				$49,919	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM FOR VIRUS PERSISTENCE AFTER ACUTE INFECTIONS	93.855	R21AI127832				$128,758	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MULTIPLEXED POINT-OF-CARE MOLECULAR DETECTION FOR MULTIPLE INFECTIONS	93.855	R21AI128059				$84,491	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF GROUP 1 ILCS BY A NOVEL LNCRNA	93.855	R21AI128060				$87,368	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REGENERATIVE THERAPY FOR LUNG INFECTION BY S. PNEUMONIAE	93.855	R21AI128569				$240,647	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DISCOVERING HOST FACTORS IMPACTING ZIKV INFECTION VIA FORWARD GENETIC	93.855	R21AI129531				$143,711	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE MEMBRANE REPAIR CHANNEL TRPML1 REGULATES EBOLA VIRUS BUDDING	93.855	R21AI129890				$180,576	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ARE SCHISTOSOME MICRO-EXON GENES (MEGS) UPREGULATED AS AN IMMUNE EVASI	93.855	R21AI130665				$185,567	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DISCOVERY OF NOVEL ANTIPARASITICS THAT TARGET A PHARMACOLOGICALLY ATYP	93.855	R21AI132912				$122,949	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF BET HEDGING STRATEGIES IN BACTERIAL ADAPTATION	93.855	R21AI132971				$9,959	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CD27:CD70 SIGNALING IN HEMATOPOIETIC STEM CELL FORMATION	93.855	R21AI133261			$55,775	$191,962	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PLASMA CELL PRIMING	93.855	R21AI133998				$163,581	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
POINT OF CARE MOLECULAR DETECTION OF VECTOR-BORNE PATHOGENS	93.855	R21AI134594				$192,336	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF POST-TRANSLATIONAL MODIFIER PRMT5 IN REGULATORY T CELL DEV	93.855	R21AI135359				$185,757	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL ROLE OF CARD19 IN CELL DEATH AND ANTI-BACTERIAL HOST DEFENSE	93.855	R21AI135421				$254,445	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF MANNITOL METABOLISM IN TOXIGENIC VIBRIO CHOLERAE PATHOGENE	93.855	R21AI137283				$154,256	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
SELECTIVE WHOLE GENOME AMPLIFICATION - ENABLING MICROBIAL POPULATION G	93.855	R21AI137433			$62,979	$168,342	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INTERSECTIONS OF BITTER TASTE RECEPTOR (T2R) AND TOLL-LIKE RECEPTOR (T	93.855	R21AI137484				$349,334	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MODULAR DOMAINS OF HOST PROTEINS REGULATE FILOVIRUS MATURATION	93.855	R21AI138052				$98,494	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
UNEARTHING PHAGOCYTIC IGM+ PLASMA CELLS AND THEIR PREVIOUSLY UNRECOGNI	93.855	R21AI138078				$98,758	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ENDOGENOUS DOUBLE-STRANDED RNA INDUCED CNS DAMAGE IN THE ABSENCE OF AD	93.855	R21AI138564			$43,731	$204,270	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
DUELING PPXY MOTIFS OF FILOVIRUS VP40 AND HOST ANGIOMOTIN: EFFECTS ON	93.855	R21AI139392			$72,476	$195,593	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF ENDOTHELIAL AND T CELLS DURING INFECTION OF THE VASCULAR C	93.855	R21AI139890				$125,173	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL ROLE OF DC1 IN VACCINE INDUCED CD8 T CELL RESPONSES	93.855	R21AI139895				$133,167	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
OUTER MEMBRANE VESICLE (OMV) PRODUCTION BY SALMONELLA PHOPQ AND INFLAM	93.855	R21AI139982				$74,747	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL MECHANISMS OF C-REL DEPENDENT THYMIC REGULATORY T CELL DEVELOPME	93.855	R21AI142162				$3,617	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
UNVEILING THE CHROMOSOMAL ADDRESS OF INTACT HIV CLONES TO PROVIDE INSI	93.855	R21AI143564				$21,193	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
USING TRANSGENIC PARASITIC NEMATODES TO INVESTIGATE TYPE 2 IMMUNITY	93.855	R21AI144572				$35,614	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TET2 REGULATION OF CD8 T CELL DIFFERENTIATION DURING CHRONIC VIRAL INF	93.855	R21AI144732				$47,680	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EXTRACELLULAR VESICLE-ASSOCIATED MAVS AND IFN IN DERMATOMYOSITIS	93.855	R21AI144838				$52,629	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HOST-ORIENTED THERAPEUTICS TARGETING FILOVIRUS BUDDING	93.855	R33AI102104				$188,399	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING THE PERSISTENT HIV-1 VIRAL RESERVOIR USING ENGINEERED T CELL	93.855	R33AI104280				$42,600	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS AND TREATMENT OF CHRONIC, LATENT HUMAN STRONGYLOIDIASIS	93.855	R33AI105856			$50,746	$57,087	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NATURAL SIV RESERVOIRS AND HUMAN ZOONOTIC RISK	93.855	R37AI050529			$95,838	$121,981	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CALCIUM REGULATION OF NF-KB ACTIVATION IN LYMPHOCYTES	93.855	R56AI125415				-$25,059	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MYELOID-DERIVED SUPPRESSOR CELLS AND THEIR TIPE2 POLARIZATION COMPLEX	93.855	R56AI132329				$286,949	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC HIV SILENCING IN MACROPHAGES	93.855	R61AI133696			$307,989	$776,424	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN VIROLOGY	93.855	T32AI007324				$202,143	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PARASITOLOGY: MODERN APPROACHES	93.855	T32AI007532				$60,799	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PARASITOLOGY: MODERN APPROACHES	93.855	T32AI007532				$199,427	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN HIV PATHOGENESIS	93.855	T32AI007632				$86,960	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN HIV PATHOGENESIS	93.855	T32AI007632				$363,761	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN EMERGING INFECTIOUS DISEASES	93.855	T32AI055400				-$4,153	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN EMERGING INFECTIOUS DISEASES	93.855	T32AI055400				$35,931	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN EMERGING INFECTIOUS DISEASES	93.855	T32AI055400				$154,700	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNE SYSTEM DEVELOPMENT AND REGULATION	93.855	T32AI055428				$18,722	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNE SYSTEM DEVELOPMENT AND REGULATION	93.855	T32AI055428				$124,657	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INFECTIOUS DISEASES CLINICAL EPIDEMIOLOGY TRAINING PROGRAM	93.855	T32AI055435				$49,442	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INFECTIOUS DISEASES CLINICAL EPIDEMIOLOGY TRAINING PROGRAM	93.855	T32AI055435				$387,750	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
VMD-PHD TRAINING IN INFECTIOUS DISEASE-RELATED RESEARCH	93.855	T32AI070077				$174,698	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
COMBINED ADULT AND PEDIATRIC INFECTIOUS DISEASE POSTDOCTORAL TRAINING	93.855	T32AI118684				$59,770	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
COMBINED ADULT AND PEDIATRIC INFECTIOUS DISEASE POSTDOCTORAL TRAINING	93.855	T32AI118684				$147,965	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN MICROBIAL PATHOGENESIS AND GENOMICS	93.855	T32AI141393				$38,882	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF INNATE CELLS IN THE PATHOGENESIS OF LEISHMANIA BRAZILIENSI	93.855	U01AI088650			$102,327	$177,465	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF INNATE CELLS IN THE PATHOGENESIS OF LEISHMANIA BRAZILIENSI	93.855	U01AI088650			$102,327	$163,196	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING BLYS/BAFF IN NON-HUMAN PRIMATE ISLET TRANSPLANTATION	93.855	U01AI102430				$104,445	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TREFOIL FACTOR PROTEINS REGULATE INFLAMMATION AND IMMUNITY	93.855	U01AI125940				-$718	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TREFOIL FACTOR PROTEINS REGULATE INFLAMMATION AND IMMUNITY	93.855	U01AI125940				$478,404	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING T CELLS TO PROVIDE DURABLE CONTROL OF HIV-1 REPLICATION	93.855	U19AI117950			$44,530	$1,866,506	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING T CELLS TO PROVIDE DURABLE CONTROL OF HIV-1 REPLICATION	93.855	U19AI117950				-$1,014	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING T CELLS TO PROVIDE DURABLE CONTROL OF HIV-1 REPLICATION	93.855	U19AI117950				$382,004	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING A HUMAN BRAIN ORGANOID-BASED PLATFORM TO STUDY NEUROTROPIC	93.855	U19AI131130			$156,692	$248,042	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING A HUMAN BRAIN ORGANOID-BASED PLATFORM TO STUDY NEUROTROPIC	93.855	U19AI131130			$934,832	$1,484,063	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ENGINEERING A HUMAN BRAIN ORGANOID-BASED PLATFORM TO STUDY NEUROTROPIC	93.855	U19AI131130				-$31,363	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHILADELPHIA HIV THERAPEUTICS AND PREVENTION CLINICAL TRIALS UNIT	93.855	UM1AI069534				-$31	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHILADELPHIA HIV THERAPEUTICS AND PREVENTION CLINICAL TRIALS UNIT	93.855	UM1AI069534				$534,200	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHILADELPHIA HIV THERAPEUTICS AND PREVENTION CLINICAL TRIALS UNIT	93.855	UM1AI069534				$1,556,911	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
UNIVERSITY OF PENNSYLVANIA CLINICAL AUTOIMMUNITY CENTER OF EXCELLENCE	93.855	UM1AI144288				$5,447	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EVOLUTION OF CRYPTOCOCCUS NEOFORMANS STRAINS FROM PATIENTS WITH HIV/AI	*93.855*		*DUKE UNIVERSITY*	*203-1433*		*-$319*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPING OF A NOVEL ADJUVANT FOR VACCINE SPARRING	*93.855*		*NEW YORK BLOOD CENTER*	*SUB TO 1R01-AI105431-01*		*$241,508*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HVTN SCIENTIFIC LEADERSHIP - CHAIRPERSON, NETWORK EVALUATION COMMITTEE	*93.855*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*0000851168*		*-$40*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HVTN PROTOCOL FUNDING	*93.855*		*HUTCHINSON (FRED) CANCER RESEARCH CENTER*	*UM1AI068614*		*$87*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AIDS CLINICAL TRIALS GROUP; PROTOCOL FUNDS	*93.855*		*BRIGHAM AND WOMEN'S HOSPITAL*	*SUB TO UM1AI068636/FUND 110215*		*$129,668*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHASE II: KL4 SURFACTANT TO MITIGATE RADIATION INDUCED LUNG INJURY	*93.855*		*WINDTREE THERAPEUTICS, INC.*	*SUB TO 2-R44-A1-102308-03*		*$19,347*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
(CORE) SYNERGIES AMONG INHIBITORY RECEPTORS IN TOLERANCE CANCER AND AN	*93.855*		*UNIVERSITY OF PITTSBURGH*	*P01AI108545*		*$227,867*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
(PROJECT) SYNERGIES AMONG INHIBITORY RECEPTORS IN TOLERANCE CANCER AND	*93.855*		*UNIVERSITY OF PITTSBURGH*	*P01AI108545*		*$565,308*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CONSORTIUM FOR AIDS VACCINE RESEARCH IN NONHUMAN PRIMATES - CORE D: VI	*93.855*		*BETH ISRAEL MEDICAL CENTER*	*01025093-CORED*		*-$65*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A FOXP3 COMPLEX THAT CONTROLS HUMAN REGULATORY T CELL FUNCTION	*93.855*		*BENAROYA RESEARCH INSTITUTE*	*R56AI112323*		*$106,052*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF SMALL MOLECULE THERAPEUTICS AGAINST SMALLPOX AND OTHER	*93.855*		*FOX CHASE CHEMICAL DIVERSITY CENTER*	*SUB TO 1R44AI115759-01*		*-$2,042*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CONSORTIUM ON RESISTANCE AGAINST CARBAPENEMS IN KLEBSIELLA PNEUMONIAE	*93.855*		*DUKE CLINICAL RESEARCH INSTITUTE*	*UM1AI104681*		*$4,998*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIV CURE STUDIES: RISK, RISK PERCEPTION, AND ETHICS	*93.855*		*HARVARD MEDICAL SCHOOL*	*116543-5079901*		*$52,317*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A PHASE 2B/3 DOUBLE BLIND SAFETY AND EFFICACY STUDY OF INJECTABLE CABO	*93.855*		*FHI 360*	*SUB TO UM1 AI068619*		*-$2,732*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ANTI IL-5 AND CHURG STRAUSS SYNDROME: A DOUBLE BLIND, PLACEBO CONTROLL	*93.855*		*NATIONAL JEWISH HEALTH*	*1-UO1-AI-097073-01A1*		*$14,153*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIGH-THROUGHPUT SPR FOR SCREENING AND CHARACTERIZING VACCINES	*93.855*		*CARTERRA INC.*	*R44AI127039*		*-$359*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANISMS OF REPEATED CONTROL OF ACUTE HEPATITIS C INFECTION IN HUMAN	*93.855*		*JOHNS HOPKINS UNIVERSITY*	*2002973536*		*$31*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRACKING EVOLUTION AND SPREAD OF VIRAL GENOMES BY GEOSPATIAL OBSERVATI	*93.855*		*ARIZONA STATE UNIVERSITY*	*SUB TO R01AI117011*		*$168,746*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR AND CELLULAR BASIS OF COMBINED ADJUVANT-ELICITED CELLULAR IM	*93.855*		*UNIVERSITY OF COLORADO DENVER*	*R01AI126899*		*$314,828*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOWARDS ERADICATION: REDUCING PROVIRAL HIV DNA WITH INTERFERON-OL IMMU	*93.855*		*WISTAR INSTITUTE*	*SUB TO 1-U01-AI-110434-01*		*$37,721*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOWARDS ERADICATION: REDUCING PROVIRAL HIV DNA WITH INTERFERON-&INFIN;	*93.855*		*WISTAR INSTITUTE*	*U01AI110434*		*$97,212*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN INTERNATIONAL PROSPECTIVE OBSERVATIONAL STUDY TO ASSESS THE CHARACT	*93.855*		*INSTITUTE FOR CLINICAL RESEARCH, INC*	*UM1AI068641*		*$81*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ANTIBACTERIAL RESISTANCE LEADERSHIP GROUP (ARLG)	*93.855*		*DUKE CLINICAL RESEARCH INSTITUTE*	*UM1AI104681*		*-$1*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF ANTIVIRAL AGENTS FOR TREATING MOLLUSCUM CONTAGIOSUM	*93.855*		*FOX CHASE CHEMICAL DIVERSITY CENTER*	*R44AI125005*		*-$76,728*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DYNAMIC LEARNING FOR POST-VACCINE EVENT PREDICTION USING TEMPORAL INFO	*93.855*		*UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON*	*R01AI130460*		*$277,585*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF DONOR SPECIFIC IMMUNE SENESCENCE AND EXHAUSTION AS BIOMA	*93.855*		*BENAROYA RESEARCH INSTITUTE*	*UM1AI109565*		*-$118*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF DONOR SPECIFIC IMMUNE SENESCENCE AND EXHAUSTION AS BIOMA	*93.855*		*BENAROYA RESEARCH INSTITUTE*	*UM1AI109565*		*$118*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FECAL MICROBIOME TRANSPLANT NATIONAL REGISTRY	*93.855*		*AMERICAN GASTROENTEROLOGICAL ASSOCIATION*	*R24AI118629*		*$14,845*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REVERSAL OF IMMUNE FAILURE WITH VIRAL ANTIGEN REMOVAL IN CHRONIC HCV I	*93.855*		*MASSACHUSETTS GENERAL HOSPITAL*	*224470*		*-$7,681*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REVERSAL OF IMMUNE FAILURE WITH VIRAL ANTIGEN REMOVAL IN CHRONIC HCV I	*93.855*		*MASSACHUSETTS GENERAL HOSPITAL*	*224471*		*-$1,296*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FECAL MICROBIOME TRANSPLANT NATIONAL REGISTRY	*93.855*		*AMERICAN GASTROENTEROLOGICAL ASSOCIATION*	*R24AI118629*		*$41,718*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDENTIFICATION OF HOST FACTORS REQUIRED FOR HIV AND HCV INFECTION	*93.855*		*UNIVERSITY OF ALABAMA AT BIRMINGHAM*	*SUB TO P30AI027767-28*		*$22,759*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TISSUE COMPARTMENTALIZATION OF HUMAN LYMPHOCYTES	*93.855*		*COLUMBIA UNIVERSITY*	*P01AI106697*		*-$1,332*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOWARDS ERADICATION: REDUCING PROVIRAL HIV DNA WITH INTERFERON-A IMMUN	*93.855*		*WISTAR INSTITUTE*	*24971-04-324*		*$18,455*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOWARDS ERADICATION: REDUCING PROVIRAL HIV DNA WITH INTERFERON-A IMMUN	*93.855*		*WISTAR INSTITUTE*	*24971-04-324*		*$295*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BELIEVE: BENCH TO BED ENHANCED LYMPHOCYTE INFUSIONS TO ENGINEER VIRAL	*93.855*		*GEORGE WASHINGTON UNIVERSITY*	*UM1AI126617*		*-$328*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INITIAL RESEARCH FOCUS (IRF) AREA #1 VIRAL RESERVOIR IN REPLICATING	*93.855*		*WISTAR INSTITUTE*	*UM1AI126620*		*$15,719*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
COLLABORATORY OF AIDS RESEARCHERS FOR ERADICATION	93.855		UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5105566		$1,845	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		-$129	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR HIV/AIDS VACCINE IMMUNOLOGY (CHAVI)-ID	93.855		DUKE UNIVERSITY	UM1AI100645		$94,090	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DELANEY COLLABORATORY TO CURE HIV-1 INFECTION BY COMBINATION IMMUNOTHE	93.855		WISTAR INSTITUTE	25281-12-324		-$4,141	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS AND IMMUNOLOGICAL CONSEQUENCES OF HOST-VIRUS INTERACTIONS	93.855		HARVARD MEDICAL SCHOOL	152384.5077707.0006		-$10,339	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF ELIMINATING NONMEDICAL EXEMPTIONS FROM IMMUNIZATION MANDATES	93.855		EMORY UNIVERSITY	R01AI125405		$6,059	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPDH INHIBITORS FOR THE TREATMENT OF CRYPTOSPORIDIUM INFECTIONS	93.855		UNIVERSITY OF HOUSTON	R01AI125362		$157,269	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		$2,834	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		$3,186	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
A PHASE 2B/3 DOUBLE BLIND SAFETY AND EFFICACY STUDY OF INJECTABLE CABO	93.855		FHI 360	SUB TO UM1 AI068619		$809,468	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PREVENTION OF HIV-1 TRANSMISSION BY SMALL-MOLECULE CD4-MIMETIC ENTRY I	93.855		DANA-FARBER CANCER INSTITUTE	R01AI134494		$45,138	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNITY TO NOVEL T/F SHIVS: VARIABILITY IN THE CO-EVOLUTION OF VIRUS	93.855		DUKE UNIVERSITY	R01AL128832		$400,197	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE BIOLOGICAL RELEVANCE OF HIV-1 ADAPTATION TO CD4 T CELL RE	93.855		UNIVERSITY OF ALABAMA AT BIRMINGHAM	R01AI134648		$31,701	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BRIDGING ANTIBODY FC-MEDIATED ANTIVIRAL FUNCTIONS ACROSS HUMANS AND NO	93.855		DUKE UNIVERSITY	P01AI120756		$79,058	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
A PHASE 2, DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED MULTICENTER ST	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	UM1AI110498		$36,695	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		-$591	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CONSTRUCTION OF A ZIKV-HOST PROTEIN-PROTEIN INTERACTION NETWORK	93.855		JOHNS HOPKINS UNIVERSITY	R21AI131706		$3,984	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN SCIENTIFIC LEADERSHIP - CHAIRPERSON, NETWORK EVALUATION COMMITTEE	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000851168		$16,269	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ANTIBACTERIAL RESISTANCE LEADERSHIP GROUP (ARLG)	93.855		DUKE CLINICAL RESEARCH INSTITUTE	UM1AI104681		$61,318	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN PROTOCOL FUNDING (PF): HVTN 117	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	UM1AI068614		$115,192	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN PROTOCOL FUNDING	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	UM1AI068614		$313,912	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-CENTER STUDIES TO IMPROVE DIAGNOSIS AND TREATMENT OF PEDIATRIC C	93.855		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01AI103315		$24,303	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF CCR5 BLOCKADE IN HIV+ KIDNEY TRANSPLANT RECIPIENTS	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	U01AI118594		$6,989	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN PROTOCOL FUNDING (PF)	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000853385		$501,432	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MICROBICIDE BEHAVIORAL RESEARCH WORKING GROUP	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	9436		$19,036	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
AIDS CLINICAL TRIALS GROUP (ACTG HIV RESERVOIRS AND VIRAL ERADICATION	93.855		BRIGHAM AND WOMEN'S HOSPITAL	UM1AI068636		$16,371	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
AIDS CLINICAL TRIALS GROUP; PROTOCOL FUNDS (COST REIMBURSEMENT)	93.855		BRIGHAM AND WOMEN'S HOSPITAL	UM1AI068636		$128,298	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACCEPTABILITY PROTOCOL FOR MTN 026	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$23,754	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
UTILITY OF DEEP SEQUENCING FOR DETECTING HETERORESISTANT MYCOBACTERIUM	93.855		UNIVERSITY OF CALIFORNIA, IRVINE	R21AI120838		$22,043	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CD4+ T AND B CELL MECHANISMS OF INFLUENZA VACCINE	93.855		CASE WESTERN RESERVE UNIVERSITY	R01AI108972		$276,167	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF GLEEVEC FOR TB AND TB/HIV	93.855		EMORY UNIVERSITY	UH3AI122320		$17,815	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACCEPTABILITY PROTOCOL FOR MTN033	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$38,594	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ANTIVIRAL MECHANISMS OF 2-5A-DEPENDENT RNASE L	93.855		CLEVELAND CLINIC LERNER COLLEGE OF MEDICINE	R01AI135922		$13,565	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACCEPTABILITY PROTOCOL FOR MTN037	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$25,610	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACCEPTABILITY PROTOCOL FOR MTN035	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$89,715	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
SOFOSBUVIR AND LEDIPASVIR IN HIV/HCV COINFECTED PRE OR POST LIVER TRAN	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	8659SC		$41,533	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING VIRAL RESERVOIRS BY OPENING HIV-1 ENV TO ANTIBODY ATTACK	93.855		HARVARD UNIVERSITY	R21AI129017		-$24,938	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR CORRELATED OUTCOME AND COVARIATE ERRORS IN STU	93.855		VANDERBILT UNIVERSITY MEDICAL CENTER	R01AI131771		$122,102	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TREATMENT AS PREVENTION FOR INJECTION DRUG USERS: A PILOT STUDY FOR A	93.855		FAMILY HEALTH INTERNATIONAL	UM1AI068619		$7,687	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ANTIBACTERIAL RESISTANCE LEADERSHIP GROUP OR ALRG (PROJECT)	93.855		DUKE UNIVERSITY	UM1AI104681		$24,714	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL CURE AND VIRUS ERADICATION BY EARLY HAART PLUS VACCINATION	93.855		TEXAS BIOMEDICAL RESEARCH INSTITUTE	R01AI118586		-$793	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
AIDS CLINICAL TRIAL GROUP (ACTG)	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	UM1AI068636		$24,423	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EFFICACY OF STRAIN 68-1 RHCMV VECTORS EXPRESSING SIVMAC 5' LEADER POLY	93.855		OREGON HEALTH & SCIENCE UNIVERSITY	1007881_UPA		$60,532	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF REPEATED CONTROL OF ACUTE HEPATITIS C INFECTION IN HUMAN	93.855		JOHNS HOPKINS UNIVERSITY	2002973536		$52,342	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TESTING THE ROLE OF BATF AS A PIONEER TRANSCRIPTION FACTOR IN EFFECTOR	93.855		DANA-FARBER CANCER INSTITUTE	SUB TO R01-AI-115712-01		$189,769	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHARMACOGENOMICS OF HIV THERAPY	93.855		VANDERBILT UNIVERSITY MEDICAL CENTER	R01AI077505		$92,384	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MESSENGER RNA IMMUNOGENS FOR INITIATION OF HIV V3-GLYCAN NEUTRALIZING	93.855		DUKE UNIVERSITY	U19AI135902		$645,366	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PROGRAM FOR RESISTANCE, IMMUNOLOGY, SURVEILLANCE & MODELING OF MALARIA	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	U19AI089674		$97,762	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMMUNE TOLERANCE NETWORK	93.855		BENAROYA RESEARCH INSTITUTE	FY16ITN191		$136	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
EVALUATION OF DONOR SPECIFIC IMMUNE SENESCENCE AND EXHAUSTION AS BIOMA	93.855		BENAROYA RESEARCH INSTITUTE	UM1AI109565		$122	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GENE TRANSFER FOR SCID-X1 USING SELF-INACTIVATING GAMMARETROVIRAL VECT	93.855		CHILDREN'S HOSPITAL BOSTON	U01AI087628		$39,341	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
S-NITROSOTHIOL-BASED RINSE/AEROSOL SOLUTIONS FOR TREATMENT/PREVENTION	93.855		NOTA LABORATORIES LLC	R44AI120443		$176,199	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IL-33 BLOCKADE AS A NOVEL THERAPEUTIC FOR T-CELL MEDIATED HYPERCYTOKIN	93.855		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01AI121250		$183,722	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REVERSAL OF IMMUNE FAILURE WITH VIRAL ANTIGEN REMOVAL IN CHRONIC HCV I	93.855		MASSACHUSETTS GENERAL HOSPITAL	SUB TO U-19-AI-082630 CORE		$25,429	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REVERSAL OF IMMUNE FAILURE WITH VIRAL ANTIGEN REMOVAL IN CHRONIC HCV I	93.855		MASSACHUSETTS GENERAL HOSPITAL	224470		$192,343	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REVERSAL OF IMMUNE FAILURE WITH VIRAL ANTIGEN REMOVAL IN CHRONIC HCV I	93.855		MASSACHUSETTS GENERAL HOSPITAL	224471		$183,429	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF SMALL MOLECULE THERAPEUTICS TARGETING HEMORRHAGIC FEVER	93.855		FOX CHASE CHEMICAL DIVERSITY CENTER	R41AI138630		$93,727	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
INITIAL RESEARCH FOCUS (IRF) AREA #1 VIRAL RESERVOIR IN REPLICATING	93.855		WISTAR INSTITUTE	UM1AI126620		$197,808	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATORY TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		$132,027	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
3BNC117 AND 10-1074 TO SUPPRESS HIV-1 REPLICATION AND REDUCE THE RESER	93.855		ROCKEFELLER UNIVERSITY	U01AI129825		$44,277	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NASOPHARYNGEAL MICROBIOME AND RISK OF BACTERIAL PATHOGEN COLONIZATION	93.855		DUKE UNIVERSITY	K23AI135090		$31,697	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		$720,543	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		$66,324	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DELANEY COLLABORATORY TO CURE HIV-1 INFECTION BY COMBINATION IMMUNOTHE	93.855		WISTAR INSTITUTE	25281-12-324		$413,655	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		$248,144	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF PD-1 BLOCKADE ON T FOLLICULAR HELPER CELL AND SIALYLATED IGG	93.855		STANFORD UNIVERSITY	U19AI057229		$95,988	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
COLLABORATORY OF AIDS RESEARCHERS FOR ERADICATION	93.855		UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5105566		$95,999	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF ANTIVIRAL AGENTS FOR TREATING MOLLUSCUM CONTAGIOSUM	93.855		FOX CHASE CHEMICAL DIVERSITY CENTER	R44AI125005		$417,310	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TISSUE COMPARTMENTALIZATION OF HUMAN LYMPHOCYTES	93.855		COLUMBIA UNIVERSITY	P01AI106697		$175,353	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TISSUE COMPARTMENTALIZATION OF HUMAN LYMPHOCYTES	93.855		COLUMBIA UNIVERSITY	P01AI106697		$276,811	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ANTIGEN-INDEPENDENT DIVERSIFICATION IN GALT OF YOUNG CHILDREN	93.855		LOYOLA UNIVERSITY OF CHICAGO	R21 AI 140254		$20,861	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HOPE IN ACTION: A CLINICAL TRIAL OF HIV-TO-HIV DECEASED DONOR KIDNEY T	93.855		JOHNS HOPKINS UNIVERSITY	U01AI134591		$77	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR HIV/AIDS VACCINE IMMUNOLOGY (CHAVI)-ID	93.855		DUKE UNIVERSITY	UM1AI100645		$1,451	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF CCR5 BLOCKADE IN HIV+ KIDNEY TRANSPLANT RECIPIENTS	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	U01AI118594		$63,096	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
THE EFFECT OF MIXED-STRAIN MYCOBACTERIUM TUBERCULOSIS INFECTIONS ON TB	93.855		UNIVERSITY OF CALIFORNIA, IRVINE	K01AI118559		$32,651	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF ELIMINATING NONMEDICAL EXEMPTIONS FROM IMMUNIZATION MANDATES	93.855		EMORY UNIVERSITY	R01AI125405		$92,764	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS AND IMMUNOLOGICAL CONSEQUENCES OF HOST-VIRUS INTERACTIONS	93.855		HARVARD MEDICAL SCHOOL	152384.5077707.0006		$193,752	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PROGRAM FOR RESISTANCE, IMMUNOLOGY, SURVEILLANCE & MODELING OF MALARIA	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	U19AI089674		$203,320	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFICATION AND INFERENCE FOR LONGITUDINAL CAUSAL MEDIATION ANALYSI	93.855		HARVARD UNIVERSITY	R01AI104459		$62,738	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
THE EFFECT OF A HOUSING MOBILITY PROGRAM ON HOME ENVIRONMENTAL AND HOS	93.855		JOHNS HOPKINS UNIVERSITY	R21AI133492		$35,359	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ANTIVIRAL MECHANISMS OF 2-5A-DEPENDENT RNASE L	93.855		CLEVELAND CLINIC LERNER COLLEGE OF MEDICINE	R01AI135922		$29,088	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
GENE THERAPY FOR SCID-X1 WITH LOW DOSE BUSULFAN AND A SIN-LENTIVIRAL V	93.855		CHILDREN'S HOSPITAL BOSTON	U01AI125051		$174,467	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BELIEVE: BENCH TO BED ENHANCED LYMPHOCYTE INFUSIONS TO ENGINEER VIRAL	93.855		WEILL CORNELL MEDICAL COLLEGE	UM1AI126617		$152,346	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING HIGH RISK MALARIA INFECTIONS USING IMPROVED ESTIMATES OF T	93.855		MICHIGAN STATE UNIVERSITY	R21AI133094		$58,934	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING AN EX-VIVO MODEL SYSTEM OF AIRWAY GENETIC DIVERSITY AND TES	93.855		UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	U19AI100625		$80,278	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NA-ACCORD	93.855		YALE UNIVERSITY	U01AI069918		$18,109	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACCEPTABILITY PROTOCOL FOR MTN035	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$46,279	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
ANTIBACTERIAL RESISTANCE LEADERSHIP GROUP OR ALRG (PROJECT)	93.855		DUKE UNIVERSITY	UM1AI104681		$16,154	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACCEPTABILITY PROTOCOL FOR MTN037	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$21,289	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN SCIENTIFIC LEADERSHIP - CHAIRPERSON, NETWORK EVALUATION COMMITTEE	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000851168		$23,093	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
OVERALL ATOPIC DERMATITIS RESEARCH NETWORK (ADRN)	93.855		NATIONAL JEWISH HEALTH	U19AI117673		$38,578	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
PHARMACOGENOMICS OF HIV THERAPY	93.855		VANDERBILT UNIVERSITY MEDICAL CENTER	R01AI077505		$91,469	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
AIDS CLINICAL TRIALS GROUP; PROTOCOL FUNDS	93.855		UNIVERSITY OF CALIFORNIA, LOS ANGELES	UM1AI068636		$127,535	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
LEADERSHIP AND OPERATIONS CENTER (LOC), AIDS CLINICAL TRIALS GROUP (AC	93.855		UNIVERSITY OF CALIFORNIA, LOS ANGELES	UM1AI068636		$34,856	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL ACCEPTABILITY PROTOCOL FOR MTN033	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$13,915	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF GLEEVEC FOR TB AND TB/HIV	93.855		EMORY UNIVERSITY	UH3AI122320		$103,100	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MICROBICIDE TRIALS NETWORK - MTN 039	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	UM1AI068633		$11,136	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MICROBICIDE BEHAVIORAL RESEARCH WORKING GROUP	93.855		MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	9436		$14,165	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
BEAT-HIV: DELANEY COLLABORATIVE TO CURE HIV-1 INFECTION BY COMBINATION	93.855		WISTAR INSTITUTE	UM1AI126620		$42,755	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN PROTOCOL FUNDING	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	UM1AI068614		$80,881	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TREATMENT AS PREVENTION FOR INJECTION DRUG USERS: A PILOT STUDY FOR A	93.855		FAMILY HEALTH INTERNATIONAL	UM1AI068619		$13,676	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN PROTOCOL FUNDING (PF)	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000853385		$124,547	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN PROTOCOL FUNDING (PF): HVTN 117	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	UM1AI068614		$2,211	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MESSENGER RNA IMMUNOGENS FOR INITIATION OF HIV V3-GLYCAN NEUTRALIZING	93.855		DUKE UNIVERSITY	U19AI135902		$139,844	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING INFLAMMATION AND ALLOIMMUNITY IN HEART TRANSPLANT RECIPIENTS	93.855		MASSACHUSETTS GENERAL HOSPITAL	U01AI136816		$5,760	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MESSENGER RNA IMMUNOGENS FOR INITIATION OF PROTECTIVE HIV NON-NEUTRALI	93.855		DUKE UNIVERSITY	U19AI142596		$82,180	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NEONATAL IMMUNITY TO NOVEL TRANSMITTED-FOUNDER SHIVS	93.855		DUKE UNIVERSITY	R01AI140897		$189,245	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
DOUBLE-STRANDED RNA DURING DNA VIRUS INFECTION	93.855		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01AI145266		$18,514	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL MICROTUBULE-STABILIZING AGENTS FOR TREATMENT OF CNS PARASITIC DI	93.855		UNIVERSITY OF CALIFORNIA, SAN DIEGO	R21AI141210		$5,625	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF REPEATED CONTROL OF ACUTE HEPATITIS C INFECTION IN HUMAN	93.855		JOHNS HOPKINS UNIVERSITY	2002973536		$18,236	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
3BNC117 AND 10-1074 TO SUPPRESS HIV-1 REPLICATION AND REDUCE THE RESER	93.855		ROCKEFELLER UNIVERSITY	U01AI129825		$22,131	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
HVTN PROTOCOL FUNDING (PF): HVTN 117	93.855		HUTCHINSON (FRED) CANCER RESEARCH CENTER	UM1AI068614		$10,719	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
LEADERSHIP AND OPERATIONS CENTER (LOC), AIDS CLINICAL TRIALS GROUP (AC	93.855		UNIVERSITY OF CALIFORNIA, LOS ANGELES	UM1AI068636		$5,782	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
AIDS CLINICAL TRIAL GROUP (ACTG)	93.855		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	UM1AI068636		$3,621	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
NASOPHARYNGEAL MICROBIOME AND RISK OF BACTERIAL PATHOGEN COLONIZATION	93.855		DUKE UNIVERSITY	K23AI135090		$10,010	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
IL-33 BLOCKADE AS A NOVEL THERAPEUTIC FOR T-CELL MEDIATED HYPERCYTOKIN	93.855		CHILDREN'S HOSPITAL OF PHILADELPHIA	R01AI121250		$18,552	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING VIRAL RESERVOIRS BY OPENING HIV-1 ENV TO ANTIBODY ATTACK	93.855		DANA-FARBER CANCER INSTITUTE	R33AI129017		$99,062	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077
COMPLEMENT AND EFFEROCYTOSIS IN CLEARING PYROPTOTIC CELLS	93.855		UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	R01AI136920		$8,658	$68,805,125	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ANTIGEN-INDEPENDENT DIVERSIFICATION IN GALT OF YOUNG CHILDREN	*93.855*		*LOYOLA UNIVERSITY OF CHICAGO*	*R21 AI 140254*		*$2,871*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPROVING HSV-2 VACCINE EFFICACY BY FOCUSING ANTIBODY EPITOPE COVERAGE	*93.855*		*STEALTH BIOLOGICS LLC*	*R41AI142940*		*$20,328*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TEST THE IMPACT OF IMMUNOTHERAPY ON HUMAN VACCINATION	*93.855*		*MASSACHUSETTS GENERAL HOSPITAL*	*U19AI082630*		*$7,644*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE CONNIE WOFSY WOMENS HIV STUDY	*93.855*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*U01AI034989*		*$3,340*	*$68,805,125*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANISMS OF DNA SYNTHESIS DURING ALTERNATIVE LENGTHENING OF TELOMERE	93.859	F30GM120905				$3,472	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM OF CHROMATIN ACCESSIBILITY MEDIATED BY PIONEER TRANSCRIPTION	93.859	F31GM112417				$4,562	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
SITE-RESOLVED HYDRATION DYNAMICS OF PDZ DOMAINS	93.859	F31GM116520				$5,928	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
SPATIOTEMPORAL REGULATION OF MECHANICAL NETWORKS DRIVES COORDINATED EP	93.859	F31GM117708				$1,987	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MAINTENANCE OF X-CHROMOSOME INACTIVATION DURING B CELL DEVELOPMENT	93.859	F31GM123604				$27,926	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
INTERPRETATION OF THE BMP MORPHOGEN GRADIENT PATTERNING THE DORSAL-VEN	93.859	F31GM123633				$42,550	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF MITOCHONDRIAL DYNAMICS AND HOMEOSTASIS BY CYCLIC ACTIN A	93.859	F31GM123644				$6,774	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF OPPOSITE WNT TARGET GENES IN C. ELEGANS EMBRYONIC DEVELO	93.859	F31GM123737				$29,407	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF P53 FAMILY MEMBERS IN EPITHELIAL LINEAGE ESTABLISHMENT AND	93.859	F31GM123744				$28,141	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF NUCLEAR PORE COMPONENT MEGATOR IN GENE EXPRESSION AND DOSA	93.859	F31GM133161				$6,204	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
NON-ORGANOMETALLIC PARTNERS AS RADICAL PRECURSORS FOR THE DIVERSIFICAT	93.859	F32GM117634				$3,204	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE ROLE OF CONFORMATIONAL ENTROPY IN HIGH AFFINITY PROTEIN I	93.859	F32GM117878				$11,080	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
UNCOVERING THE LOCALIZATION AND MECHANISM OF RNA EDITING	93.859	F32GM120929				$31,171	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ENHANCER MEMORY AND DYNAMICS OF H. SALTATOR REPRODUCTIVE PLASTICITY	93.859	F32GM120933				$59,335	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE SIGNALS AND CELL MECHANICS DRIVING STEM CELL NICHE MORPHOGENESIS	93.859	F32GM125123				$46,420	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL BASIS OF HDAC SUBSTRATE SPECIFICITY AND INHIBITION	93.859	F32GM125141				$37,333	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MERGING HYDROGEN ATOM TRANSFER PROCESSES WITH PHOTOREDOX/NICKEL DUAL C	93.859	F32GM125241				$14,352	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE RATES OF REACTION RELEVANT TO AEROBIC OXIDATION CATALYSIS BY PALLA	93.859	F32GM126639				$71,449	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF PARP-1 INHIBITION	93.859	F32GM128265				$58,150	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROPHYSIOLOGICAL BASIS OF GENERAL ANESTHESIA	93.859	K08GM106144				$46,610	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
INTERSECTIONS OF SLEEP AND COMA: NEURAL PATHWAYS OF ALPHA-2 ADRENERGIC	93.859	K08GM123317				$205,844	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA POSTDOCTORAL OPPORTUNITIES IN RESEARCH AND	93.859	K12GM081259			$5,586	$913,811	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
UNIVERSITY OF PENNSYLVANIA POSTDOCTORAL OPPORTUNITIES IN RESEARCH AND	93.859	K12GM081259			$44,539	$271,561	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC MEDIATED LONG-TERM ABERRATIONS IN MYELOID CELLS AFTER CRITI	93.859	K23GM120630				$185,869	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
SPECIALIZED REGULATION OF NON-AUG TRANSLATION	93.859	K99GM126064				$82,341	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF MRNA TRANSCRIPTION BY THE INTEGRATOR COMPLEX	93.859	K99GM131028				$32,512	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
INTERACTION OF INHALED ANESTHETICS WITH MACROMOLECULES	93.859	P01GM055876			$249,625	$469,425	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CYTOSKELETAL MOTORS AND SCAFFOLDS IN MEMBRANE DYNAMICS AND MOTILITY	93.859	P01GM087253			$860	$1,348,760	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ULTRAFAST OPTICAL PROCESSES LABORATORY	93.859	P41GM104605				-$692	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ULTRAFAST OPTICAL PROCESSES LABORATORY	93.859	P41GM104605				-$4,045	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
EVOLUTIONARY AND FUNCTIONAL DIVERSIFICATION OF CHROMATIN PROTEINS	93.859	R00GM107351				-$783	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PROTEIN STRUCTURE AND FUNCTION BY HYDROGEN EXCHANGE MASS SPECTROMETRY	93.859	R01GM031847				$67,231	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF MITOCHONDRIA-TARGETED CYP2D6 IN CHEMICAL TOXICITY	93.859	R01GM034883			$107,067	$235,644	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
TRANS-ACTING FACTORS CAUSING CELL SPECIFIC GENE CONTROL	93.859	R01GM036477				$620,777	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
RESPIRATORY COMPLEX III: SUPERCOMPLEXES AND ROS, FROM BACTERIA TO HUMA	93.859	R01GM038237				$412,602	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE INTERACTION OF CYTOPLASMIC DYNEIN AND DYNACTIN	93.859	R01GM048661				$13,892	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE AND FUNCTION OF METALLOENZYMES	93.859	R01GM049758				-$5,582	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE AND FUNCTION OF METALLOENZYMES	93.859	R01GM049758				$390,503	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC REGULATION OF A DEVELOPMENTAL CLOCK IN ARABIDOPSIS	93.859	R01GM051893				$335,032	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
BIOGENESIS OF VOLTAGE-GATED K+ CHANNELS	93.859	R01GM052302				$438,252	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ANGSTROM-SCALE STRUCTURAL DYNAMICS OF POTASSIUM CHANNEL	93.859	R01GM055560				$539,363	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
DORSAL-VENTRAL PATTERN FORMATION IN THE ZEBRAFISH EMBRYO	93.859	R01GM056326				$466,138	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE AND FUNCTION OF BIOSYNTHETIC ENZYMES	93.859	R01GM056838				$151,168	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE AND FUNCTION OF BIOSYNTHETIC ENZYMES	93.859	R01GM056838				$319,492	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
RAS SIGNALING AND TUBULOGENESIS IN THE C. ELEGANS EXCRETORY (RENAL) SY	93.859	R01GM058540				$319,435	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STEM CELL RENEWAL AND DIFFERENTIATION IN SPERMATOGENESIS	93.859	R01GM060804				$395,626	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL CHARACTERIZATION OF PIRNPS	93.859	R01GM072777				$219,250	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL BASIS OF ACTIN CYTOSKELETON DYNAMICS	93.859	R01GM073791				$62,496	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL-FUNCTIONAL BASIS OF ACTIN CYTOSKELETON DYNAMICS	93.859	R01GM073791				$69,521	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE DETERMINATION BY VIBRATIONAL SPECTROSCOPY	93.859	R01GM076201				$335,976	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING PROTEIN RADICALS	93.859	R01GM079190				$185,424	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
OXYGEN-DEPENDENT BACTERIAL SIGNALING	93.859	R01GM080279				$277,196	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
SINGLE MOLECULE DYNAMICS OF MRNA TRANSLATION	93.859	R01GM080376				$813	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ENGAGEMENT OF HETEROTRIMERIC G PROTEINS BY SONIC HEDGEHOG	93.859	R01GM080396				$3,310	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CENTROMERE IDENTITY AND FUNCTION	93.859	R01GM082989				$394,128	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
LIGHT-ACTIVATED OLIGONUCLEOTIDES FOR BIOLOGICAL APPLICATIONS	93.859	R01GM083030				$10,056	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ALTERNATIVE MACROPHAGE ACTIVATION LIMITS IMMUNOPATHOLOGY	93.859	R01GM083204				$214,679	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF CELL DIVISION BY MITOTIC KINASES	93.859	R01GM083988				-$1,291	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF ANESTHESIA MEDIATED NEUROTOXICITY	93.859	R01GM084979			$6,994	$165,237	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
EXOSOME TRAFFICKING AND TUMOR CELL INVASION	93.859	R01GM085146				$339,416	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMORDIALLY CONSERVED PRINCIPLES GOVERNING MUCOSAL IMMUNE RESPONSES T	93.859	R01GM085207			$104,850	$213,247	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMORDIALLY CONSERVED PRINCIPLES GOVERNING MUCOSAL IMMUNE RESPONSES T	93.859	R01GM085207				$50,778	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
COMPUTATIONAL METHODS FOR SELECTIVE CATALYSIS	93.859	R01GM087605				$632,997	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
NEURONAL BASIS UNDERLYING VOLATILE ANESTHETIC INDUCED HYPNOSIS	93.859	R01GM088156				$267,520	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MULTIFACETED ROLES OF NONMUSCLE MYOSIN II IN CELL ADHESION AND MIGRATI	93.859	R01GM095977			$13,648	$275,573	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURE-BASED DESIGN OF XE-129 NMR BIOSENSORS FOR MULTIPLEXED CANCER	93.859	R01GM097478				$427,949	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MEMBRANE SHAPE TRANSITION CONTROL IN CELLULAR MEMBRANE TRAFFICKING PHE	93.859	R01GM097552				$522,569	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
COUPLING KINETOCHORE MICROTUBULE DYNAMICS TO CHROMOSOME MOTION	93.859	R01GM098389				$215,392	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
DEFINING THE MECHANISTIC BASIS OF A PRION DISAGGREGASE	93.859	R01GM099836				$397,395	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
COMPUTATIONAL GENOME-WIDE RNA PROFILING USING NEXT-GENERATION SEQUENCI	93.859	R01GM099962				-$1,501	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
GENOMICS OF RAPID ADAPTATION ON SEASONAL TIMESCALES IN D. MELANOGASTER	93.859	R01GM100366				$348,115	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
DNA DOUBLE STRAND BREAK CHROMATIN ALTERATIONS AND GENOME INTEGRITY	93.859	R01GM101149				$322,294	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL INSIGHT INTO TRPA1 CHANNEL INTERACTION WITH AGONIST AND ANT	93.859	R01GM103899				$292,582	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH-THROUGHPUT SCREENING AND STEM CELL MODELING OF CAUSAL EQTL VARIAN	93.859	R01GM104464				-$1,174	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
SEMI-PARAMETRIC JOINT MODELS FOR LONGITUDINAL AND TIME TO EVENT DATA	93.859	R01GM104470				$9,770	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE DYNAMIC ASSOCIATION OF AURORA B WITH CENTROMERIC CHROMATIN	93.859	R01GM105654				$188,164	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS INTEGRATING LINEAGE HISTORY WITH FATE SPECIFICATION IN C. E	93.859	R01GM105676				-$2,984	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CELL BIOLOGY OF MEIOTIC DRIVE IN MAMMALS	93.859	R01GM107086				-$9,742	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
OPTOANESTHESIA	93.859	R01GM107117				$139,824	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR TRANSCRIPTOME PROFILING USING RNA SEQUENCING	93.859	R01GM108600				$88,718	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF ACTIN DURING CELL MIGRATION	93.859	R01GM108744				-$3,910	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
LARGE SERINE RECOMBINASE MECHANISMS	93.859	R01GM108751				$129,995	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
IN VIVO TRANSLATIONAL ANALYSIS IN NEURONS	93.859	R01GM110005				$333,867	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE ROLE OF COMBINATORIAL HISTONE PTM PATTERNS	93.859	R01GM110174				$289,379	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR REGULATION OF EXOCYTOSIS	93.859	R01GM111128				$113,241	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR REGULATION OF EXOCYTOSIS	93.859	R01GM111128				$202,943	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF YY1 IN CONSTITUTIVE AND INDUCIBLE DNA LOOP FORMATION	93.859	R01GM111384				$84,694	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
WATER SOLUBLE VARIANTS OF THE HUMAN MU OPIOID RECEPTOR	93.859	R01GM111421				$314,942	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
NOVEL BORAZINES: SYNTHESES AND ELABORATION	93.859	R01GM111465				$236,063	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
SPATIAL CONTROL OF ACTIN ASSEMBLY BY PHOSPHOINOSITIDES	93.859	R01GM111942				$375,193	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
NON-PARAMETRIC BAYESIAN METHODS FOR CAUSAL INFERENCE	93.859	R01GM112327			$28,333	$28,333	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CATALYTIC OXIDATIVE FRAGMENT COUPLING REACTIONS	93.859	R01GM112684				$321,739	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
MECHANISM OF U1 SNRNPS SUPPRESSION OF PREMATURE CLEAVAGE & POLYADENYL	93.859	R01GM112923				$162,147	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE GENOMICS OF BODY SIZE AND METABOLISM IN ETHNICALLY DIVERSE	93.859	R01GM113657				$367,888	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL MECHANISTIC PARADIGM FOR CROSS-COUPLING	93.859	R01GM113878				$384,983	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF ER LUMINAL [CA2+] MODULATION OF INSP3R CHANNEL	93.859	R01GM114042				$360,014	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISTIC ANALYSIS OF CYTOKINESIS IN EUKARYOTES	93.859	R01GM115420				$427,786	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
AN UNEXPECTED SIGNALING OUTPUT FOR THE TUMOR SUPPRESSOR APC	93.859	R01GM115517				$289,895	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ANALYSIS OF SEPTIN STRUCTURE AND FUNCTION	93.859	R01GM116876				$387,732	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS ESTABLISHING OOCYTE POLARITY	93.859	R01GM117981				$362,565	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE MECHANISM AND MODULATION OF 5-METHYLCYTOSINE OXIDATION BY TET FAMI	93.859	R01GM118501			$20,549	$491,956	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING NUCLEIC ACID JUNCTIONS WITH SMALL MOLECULES	93.859	R01GM118510				$273,348	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM OF BLOOD PRESSURE LOWERING BY FATTY ACID NUTRACEUTICALS	93.859	R01GM121375				$488,416	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MULTI-TIER REGULATION OF MITOCHONDRIAL NFS1 CYSTEINE DESULFURASE	93.859	R01GM121717			$24,689	$28,905	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE MECHANOCHEMICAL CONTROL OF T-CELL DIRECTIONAL MIGRATION UNDER FLOW	93.859	R01GM123019			$308,058	$625,274	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR MICROBIOME AND METAGENOMICS	93.859	R01GM123056				$525,878	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL AND STRUCTURAL STUDIES OF THE TRANSITION FROM TRANSCRIPTION	93.859	R01GM123233				$516,412	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
DECIPHERING PACHYTENE PIRNA FUNCTION	93.859	R01GM123512				$411,096	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF CELLULAR STRESS-INDUCED SLEEP	93.859	R01GM123783				$381,980	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROPHYSIOLOGICAL MECHANISMS OF RECOVERY OF CONSCIOUSNESS	93.859	R01GM124023				$204,366	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE REGULATORY ROLES OF TYPE III COLLAGEN IN CUTANEOUS WOUND HEALING	93.859	R01GM124091			$8,518	$241,928	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PRIVACY-PRESERVING METHODS AND TOOLS FOR HANDLING MISSING DATA IN DIST	93.859	R01GM124111			$54,163	$434,863	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
NUCLEAR PORE COMPLEXES AS SCAFFOLDS FOR GENOME ARCHITECTURE AND EPIGEN	93.859	R01GM124143				$400,855	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STATISTICAL METHODS FOR SINGLE-CELL TRANSCRIPTOMICS	93.859	R01GM125301			$5,594	$209,047	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR BIOMECHANICS OF MITOTIC CHROMOSOME SEGREGATION	93.859	R01GM125811				$212,928	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
LIPOCALIN-DEPENDENT GLYCOCALYX ORGANIZATION AND TUBE PROTECTION	93.859	R01GM125959				$205,948	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF INDUCED NONSENSE SUPPRESSION AND MISREADING	93.859	R01GM127374				$391,068	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTION AND RNA-MEDIATED REGULATION OF SCMH1 IN POLYCOMB REPRESSION	93.859	R01GM127408				$235,642	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
THE MOLECULAR BASIS FOR THE BACTERIAL SOS SIGNAL	93.859	R01GM127593				$260,301	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
METHODS FOR RNA SPLICING VARIATIONS DETECTION, QUANTIFICATION, VISUALI	93.859	R01GM128096				$581,237	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF TRPV5 GATING	93.859	R01GM129357				$324,686	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
METHODS FOR INTEGRATIVE GENOMIC DATA ANALYSIS	93.859	R01GM129781				$326,235	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF LYSOSOMAL POTASSIUM CHANNELS	93.859	R01GM133172				$54,983	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
UPENN POST BACCALAUREATE RESEARCH EDUCATION PROGRAM	93.859	R25GM071745				$157,636	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
UPENN POST BACCALAUREATE RESEARCH EDUCATION PROGRAM	93.859	R25GM071745				$111,734	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS AND SIGNAL-INDUCED REGULATION OF ALTERNATIVE SPLI	93.859	R35GM118048				$462,894	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF MEIOSIS IN MICE	93.859	R35GM118052				$491,572	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS AND INHIBITION OF PROTEIN ACETYLTRANSFERASES	93.859	R35GM118090				$588,229	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL DYNAMICS OF MOLECULAR MOTORS AND THE RIBOSOME	93.859	R35GM118139				$407,547	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION AND FUNCTIONS OF NON-POLYADENYLATED MRNAS AND CIRCULAR RNAS	93.859	R35GM119735				$361,581	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CELL BIOLOGICAL MECHANISMS OF CENTROMERE DRIVE	93.859	R35GM122475				$582,128	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PROTEIN ARGINYLATION AS A KEY REGULATOR OF CELL MIGRATION	93.859	R35GM122505				$884,916	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CAUSES AND FUNCTIONAL CONSEQUENCES OF CHROMATIN EVOLUTION	93.859	R35GM124684				$430,931	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
EXAMINING THE INTERSECTION OF TRANSITIONAL METALS AND KINASE SIGNAL TR	93.859	R35GM124749				$380,155	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF AXONAL TRANSPORT AND ORGANELLE DYNAMICS	93.859	R35GM126950				$232,848	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
DECODING LINEAGE AND FATE SPECIFICATION IN THE C. ELEGANS EMBRYO	93.859	R35GM127093				$313,763	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF THE TIMING AND SPATIAL PATTERNING OF ZYGOTIC GENOME ACTI	93.859	R35GM128748				$313,435	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MODELLING ENZYMATIC ELECTROSTATIC FIELD EFFECTS WITH COORDINATION CHEM	93.859	R35GM128794				$276,391	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
REGULATION OF CHROMATIN FOLDING IN SPACE AND TIME	93.859	R35GM128903				$354,661	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CENTROMERE IDENTITY, STRENGTH, AND REGULATION	93.859	R35GM130302				$71,374	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ACCESSING NEW CHEMICAL SPACE VIA ORGANIC SYNTHESIS	93.859	R35GM131680				$30,644	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
OOCYTE POLARITY AND BMP-MEDIATED DORSOVENTRAL PATTERNING	93.859	R35GM131908				$40,220	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
SEQUENCES CONTROLLING H19 GENE IMPRINTING	93.859	R37GM051279				$412,589	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
ELECTROPHYSIOLOGY OF NUCLEAR MEMBRANE INSP3 RECEPTOR	93.859	R37GM056328				$377,077	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR FUNCTION OF MYOSIN-L	93.859	R37GM057247			$13,501	$411,589	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MEDICAL SCIENTIST TRAINING PROGRAM	93.859	T32GM007170				$9,905	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MEDICAL SCIENTIST TRAINING PROGRAM	93.859	T32GM007170				$2,578,979	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN CELL AND MOLECULAR BIOLOGY	93.859	T32GM007229				$345	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING PROGRAM IN CELL AND MOLECULAR BIOLOGY	93.859	T32GM007229				$517,101	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE TRAINING IN SYSTEMS AND INTEGRATIVE BIOLOGY	93.859	T32GM007517				$30,042	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PREDOCTORAL TRAINING GRANT IN PHARMACOLOGY	93.859	T32GM008076				$4,246	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PREDOCTORAL TRAINING GRANT IN PHARMACOLOGY	93.859	T32GM008076				$560,699	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PREDOCTORAL TRAINING PROGRAM IN GENETICS	93.859	T32GM008216				$959	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PREDOCTORAL TRAINING PROGRAM IN GENETICS	93.859	T32GM008216				$365,063	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL BIOLOGY & MOLECULAR BIOPHYSICS TRAINING PROGRAM	93.859	T32GM008275				$17,742	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
STRUCTURAL BIOLOGY & MOLECULAR BIOPHYSICS TRAINING PROGRAM	93.859	T32GM008275				$373,285	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PREDOCTORAL TRAINING AT THE CHEMISTRY-BIOLOGY INTERFACE	93.859	T32GM071339			$1,178	$5,647	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PREDOCTORAL TRAINING AT THE CHEMISTRY-BIOLOGY INTERFACE	93.859	T32GM071339			$6,321	$179,794	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL PHARMACOEPIDEMIOLOGY TRAINING GRANT	93.859	T32GM075766				$5,141	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL PHARMACOEPIDEMIOLOGY TRAINING GRANT	93.859	T32GM075766				$499,459	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
PHYSICIAN POSTDOCTORAL RESEARCH TRAINING IN PERIOPERATIVE MEDICINE (PP	93.859	T32GM112596				$110,879	$43,084,890	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS OF MITOCHONDRIAL DNA DELETION FORMATION	*93.859*		*UNIVERSITY OF PITTSBURGH*	*0047527 (125989-2)*		*$31,386*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE IMPACT OF SURGERY-INDUCED NEUROINFLAMMATION ON TAU PATHOLOGY AND F	*93.859*		*COLUMBIA UNIVERSITY*	*1(GG011920)*		*$7,752*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MODELING HOW KEYSTONE INDIVIDUALS EMERGE AND INFLUENCE DISEASE	*93.859*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*R01GM115509*		*$125,047*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOLECULAR AND ARCHITECTURAL MECHANISMS OF REPROGRAMMING TO PLURIPOTENC	*93.859*		*UNIVERSITY OF CALIFORNIA, LOS ANGELES*	*P01GM099134*		*$680,812*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STRUCTURE-BASED ANTAGONISM OF HIV-1 ENVELOPE FUNCTION IN CELL ENTRY	*93.859*		*DREXEL UNIVERSITY*	*P01GM056550*		*$793*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TARGETING CIRCULATING ENDOTHELIAL GLYCOCALYX FRAGMENTS TO REDUCE SEPTI	*93.859*		*UNIVERSITY OF COLORADO DENVER*	*R01GM125095*		*$14,216*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF ARGININE LINKAGE-SPECIFIC ANTIBODIES	*93.859*		*ABZYME THERAPEUTICS, LLC*	*R43GM122126*		*$28,163*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATION AND FUNCTION OF INTERMEDIATE FILAMENTS IN CELL MECHANICS	*93.859*		*NORTHWESTERN UNIVERSITY*	*60029186UP*		*$541*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHARMACOGENOMICS OF STAIN THERAPY	*93.859*		*CHILDREN'S HOSPITAL OAKLAND RESEARCH INSTITUTE*	*P50GM115318*		*$9,913*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DUAL-ACTION VIROLYTIC ENTRY INHIBITORS AGAINST HIV-1	*93.859*		*DREXEL UNIVERSITY*	*232511*		*$84,677*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEXTGEN RANDOM FORESTS	*93.859*		*UNIVERSITY OF MIAMI*	*R01GM125072*		*$96,915*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THIS IS HOW WE ROLE: INSPIRING FUTURE RESEARCHERS THROUGH VETERINARY M	*93.859*		*PURDUE UNIVERSITY*	*R25GM129198*		*$5,000*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHARMACOGENOMICS OF STAIN THERAPY	*93.859*		*CHILDREN'S HOSPITAL OAKLAND RESEARCH INSTITUTE*	*P50GM115318*		*$91,926*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT AND VALIDATION OF THE SAFECLOSE MESH AUGMENTATION SYSTEM F	*93.859*		*PARADIGM SURGICAL, LLC*	*R41GM123789*		*$87,235*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHARMACOGENOMICS OF STAIN THERAPY	*93.859*		*CHILDREN'S HOSPITAL OAKLAND RESEARCH INSTITUTE*	*P50GM115318*		*$294,307*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRAINAWARE: INTERACTIVE DIGITAL PSYCHOEDUCATION FOR ADOLESCENTS AND YO	*93.859*		*ANDAMIO GAMES*	*R44GM130195*		*$477*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REGULATION AND FUNCTION OF INTERMEDIATE FILAMENTS IN CELL MECHANICS	*93.859*		*NORTHWESTERN UNIVERSITY*	*P01GM096971*		*$153,005*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUTROPHIL-DEPENDENT MEDIATORS OF SEPSIS	*93.859*		*SAINT LOUIS UNIVERSITY*	*R01GM129508*		*$14,969*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STRUCTURE, FUNCTION, AND MODULATION OF SEROTONIN (3A) RECEPTORS	*93.859*		*CASE WESTERN RESERVE UNIVERSITY*	*R01GM131216*		*$8,614*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DUAL TACK MESH FIXATION SYSTEM: CREATION OF A MESH FIXATION SYSTEM FOR	*93.859*		*PARADIGM SURGICAL, LLC*	*R41GM130213*		*$5,173*	*$43,084,890*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MIDCAREER INVESTIGATOR AWARD IN PATIENT ORIENTED RESEARCH	93.864	1-K24-HD-060687-01A1				-$1,846	-$1,846	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF PREGNANCY FAILURE MANAGEMENT REGIMENS (PR	93.865	1-R01-HD-071920-01A1			-$45,542	-$45,542	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
PRETERM BIRTH IN NULLIPAROUS WOMEN: AN UNDERSTUDIED POPULATION AT GREA	93.865	1-U10-HD063048-01				-$75	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
PELVIC FLOOR DISORDERS NETWORK CLINICAL SITES (U10)	93.865	1-U10-HD-069010-01				-$102	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
ENHANCING MOLECULAR DIAGNOSIS IN CHILDREN WITH MULTIPLE CONGENITAL ANO	93.865	F30HD098803				$6,204	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL DIFFUSE OPTICAL MEASUREMENTS OF PSYCHOMOTOR FUNCTION IN NEO	93.865	F31HD085731				$17,015	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
RATIO REASONING IN CHILDREN WITH DEVELOPMENTAL DYSCALCULIA	93.865	F31HD095579				$40,470	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE EPIGENETIC REGULATION OF IMPRINTED GENE GRB10 IN NEU	93.865	F31HD095583				$23,932	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
EPIGENETIC REGULATION OF HISTONE EVICTION IN SPERMATOGENESIS	93.865	F32HD086939				$7,899	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATION OF EPIGENETIC AND MORPHOLOGICAL PLACENTAL ABNORMALITIES	93.865	F32HD089623				$58,594	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN CENTER FOR CAREER DEVELOPMENT IN WOMEN'S HEALTH RESEARCH	93.865	K12HD001265				-$6,545	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
THE PENN CENTER FOR CAREER DEVELOPMENT IN WOMEN'S HEALTH RESEARCH	93.865	K12HD001265				$320,670	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN SEX AND GENDER DIFFERENCES RESEARCH TO IMPROVE WOMEN'S HEA	93.865	K12HD085848			$29,734	$41,754	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN SEX AND GENDER DIFFERENCES RESEARCH TO IMPROVE WOMEN'S HEA	93.865	K12HD085848			$216,153	$466,189	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN SEX AND GENDER DIFFERENCES RESEARCH TO IMPROVE WOMEN'S HEA	93.865	K12HD085848				-$108	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
OPTIMIZING RESPIRATORY FUNCTION IN DELIVERY ROOM RESUSCITATION: THE IN	93.865	K23HD084727				$187,796	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING RISKY TEEN CELLPHONE USE WHILE DRIVING USING BEHAVIORAL ECONO	93.865	K23HD090272				$157,694	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
TEMPOROSPATIAL PSYCHOSINE ACCUMULATION AND TARGETED ADENO-ASSOCIATED V	93.865	K99HD096115				$60,230	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
POPULATION RESEARCH CENTER	93.865	P2CHD044964				$393,524	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
PENN CENTER FOR STUDY OF EPIGENETICS IN REPRODUCTION	93.865	P50HD068157			$116,108	$1,452,858	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH-SPEED MOTION-CORRECTED PEDIATRIC NEUROIMAGING WITH MRI	93.865	R00HD074649				$140,758	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
GENE EXPRESSION IN THE PREIMPLANTATION MOUSE EMBRYO	93.865	R01HD022681				-$2	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
THE DEVELOPMENT OF ON-LINE SENTENCE PROCESSING IN CHILDREN	93.865	R01HD037507				$129,827	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
CONTRIBUTIONS OF INFANT LEARNING TO LANGUAGE ACQUISITION	93.865	R01HD049681				$136,026	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
AGE AND MOLECULAR MECHANISMS CONTRIBUTING TO ANEUPLOIDY IN OOCYTES	93.865	R01HD058730				$237,841	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
COMPARATIVE EFFECTIVENESS OF PREGNANCY FAILURE MANAGEMENT REGIMENS (PR	93.865	R01HD071920			$45,542	$517,613	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
ELICITING MATERNAL KNOWLEDGE ABOUT THE TECHNOLOGY OF SKILL FORMATION	93.865	R01HD073221			$107,203	$116,787	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
MAGNETOENCEPHALOGRAPHIC STUDIES OF LEXICAL PROCESSING AND ABSTRACTION	93.865	R01HD073258			-$1,947	-$1,947	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
IMMIGRATION AND FERTILITY IN THE U.S.	93.865	R01HD075560				$41,839	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING PARTICIPATION IN VECTOR CONTROL CAMPAIGNS THROUGH BEHAVIORAL	93.865	R01HD075869			$199,494	$492,978	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF TLR SIGNALING IN FETAL BRAIN INJURY FROM PRENATAL INFLAMMA	93.865	R01HD076032				$235,142	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPMENT OF A SERUM BIOSIGNATURE FOR ECTOPIC PREGNANCY	93.865	R01HD076279			$367,146	$576,901	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING MATH ABILITY VIA PRIMITIVE NUMBER SENSE TRAINING	93.865	R01HD079106				$160,648	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
MOBILITY, SELECTIVITY, AND THE MIGRANT MORTALITY ADVANTAGE	93.865	R01HD079475			$117,257	$380,723	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
US-FRANCE RESEARCH PROPOSAL: MODELING AND PREDICTING BRAIN-COMPUTER IN	93.865	R01HD086888				$106,372	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
SURVIVING AN EPIDEMIC: FAMILIES AND WELL-BEING, MALAWI 1998-2020	93.865	R01HD087391			$138,698	$394,030	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
OMEGA-3 SUPPLEMENTATION TO BOTH PARENT AND ADOLESCENT TO REDUCE BEHAVI	93.865	R01HD087485			$253,920	$463,948	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
TEMPORAL CONNECTOMICS FOR INFANT BRAIN: NEURODEVELOPMENT MODULATED BY	93.865	R01HD089390			$115,349	$571,473	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
GLOBAL AGE PATTERNS OF UNDER-FIVE MORTALITY	93.865	R01HD090082			$185,692	$502,811	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
THE COMET-PCOS TRIAL - COMPARING THE EFFECTS OF ORAL CONTRACEPTIVE PIL	93.865	R01HD091350			$208,224	$495,261	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
LONG-TERM PHYSIOLOGICAL AND BEHAVIORAL OUTCOMES, EPIGENETIC PROFILES A	93.865	R01HD092266				$308,299	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONS OF MOV10L1 IN PIRNA BIOGENESIS AND GERM CELL DEVELOPMENT	93.865	R01HP069592				$51,640	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
ASSESSING THE EFFECT OF HOUSEHOLD MEMBER MORTALITY ON MENTAL HEALTH OU	93.865	R03HD086497				$34,263	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
RESPIRATORY FUNCTION MONITORING DURING RESUSCITATION OF EXTREMELY PRET	93.865	R03HD086655			$11,160	$43,455	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
THE CFAR SOCIAL & BEHAVIORAL SCIENCE RESEARCH NETWORK NATIONAL SCIENTI	93.865	R13HD074468				$17,971	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
THE CFAR SOCIAL & BEHAVIORAL SCIENCE RESEARCH NETWORK NATIONAL SCIENTI	93.865	R13HD074468				$94,496	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
COMMUNITY/ACADEMIC PARTNERSHIP TO INCREASE ACTIVITY IN YOUTH AND THEIR	93.865	R13HD085960				$19,280	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
ANDROGEN EXCESS POLYCYSTIC OVARY SYNDROME SOCIETY MEETING	93.865	R13HD089669				$6,000	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
NATURAL HISTORY OF SLEEP DISTURBANCE IN CHILDBEARING WOMEN: A FEASIBIL	93.865	R21HD083628			$4,939	$232,457	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
SMARTOYGYM: SMART DETECTION OF ATYPICAL TOY-ORIENTED ACTIONS IN AT-RIS	93.865	R21HD084327			$5,278	$5,278	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
SINGLE CELL RECONSTRUCTION OF LINEAGES AND VARIABILITY IN C. ELEGANS E	93.865	R21HD085201				-$574	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
ALTERED REGULATION OF SMOOTH MUSCLE MYOSIN IN ESOPHAGEAL ATRESIA	93.865	R21HD087674				$183,220	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
SAFER FOOD ALLERGY MANAGEMENT FOR ADOLESCENTS	93.865	R21HD088941			$54,008	$218,780	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
MOBILE HEALTH (MHEALTH) NUTRITION INTERVENTION FOR CHILDREN WITH AUTIS	93.865	R21HD091330			$49,507	$176,561	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
RESTORE RESILIENCE IN CRITICALLY ILL CHILDREN - R2	93.865	R21HD093369			$149,707	$165,264	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR IDENTITY OF MATERNAL REGULATORS OF THE EGG TO EMBRYO TRANSIT	93.865	R21HD094096				$247,562	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
POPULATION RESEARCH CENTER GRANT	93.865	R24HD044964				$133,934	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE TRAINING IN DEMOGRAPHY	93.865	T32HD007242				$223,757	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE TRAINING IN DEMOGRAPHY	93.865	T32HD007242				$24,621	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
REPRODUCTIVE EPIDEMIOLOGY TRAINING GRANT	93.865	T32HD007440				$409,962	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
REPRODUCTIVE EPIDEMIOLOGY TRAINING GRANT	93.865	T32HD007440				$50,976	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
A NATIONAL TRAINING PROGRAM IN REPRODUCTIVE MEDICINE	93.865	T32HD040135			-$28,741	-$28,741	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE TRAINING IN DEVELOPMENTAL BIOLOGY	93.865	T32HD083185				$113	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE TRAINING IN DEVELOPMENTAL BIOLOGY	93.865	T32HD083185				$310,259	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
GRADUATE TRAINING IN DEVELOPMENTAL BIOLOGY	93.865	T32HD083185				$32,494	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING THE PIRNA PATHWAY AND MEIOTIC RECOMBINATION FOR MALE CONTRAC	93.865	U01HD084007				-$48,171	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
TARGETING THE PIRNA PATHWAY AND MEIOTIC RECOMBINATION FOR MALE CONTRAC	93.865	U01HD084007				$347,474	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING A MULTI-MODALITY, PARADIGM-SHIFTING APPROACH FOR IN VIVO AS	93.865	U01HD087180			$31,901	$931,753	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
COOPERATIVE MULTICENTER REPRODUCTIVE MEDICINE NETWORK	93.865	U10HD027049				$267,137	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL CENTER FOR NICHD/NEONATAL RESEARCH NETWORK	93.865	UG1HD068244			$198,051	$198,051	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
PELVIC FLOOR DISORDERS NETWORK CLINICAL SITES (UG1)	93.865	UG1HD069010				-$13	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
PELVIC FLOOR DISORDERS NETWORK CLINICAL SITES (UG1)	93.865	UG1HD069010				$19,613	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
PELVIC FLOOR DISORDERS NETWORK CLINICAL SITES (UG1)	93.865	UG1HD069010				$272,586	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
NICHD MATERNAL FETAL MEDICINE UNITS NETWORK	93.865	UG1HD087192				$230,853	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
NICHD MATERNAL FETAL MEDICINE UNITS NETWORK	93.865	UG1HD087192				$69,727	$16,884,940	RESEARCH AND DEVELOPMENT	$706,379,077
NICHD NEONATAL RESEARCH NETWORK (NRN) CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*MOU SUB TO U10HD036790*	*$7,869*	*$18,516*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NICHD NEONATAL RESEARCH NETWORK (NRN) CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*U24HD095254*	*$9,388*	*$333,844*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADVERSE CHILDHOOD EXPERIENCES AND ADOLESCENT HIV RISK: CAUSAL INFERENC	*93.865*		*STATE UNIVERSITY OF NEW YORK*	*R01HD090988*	*$36,412*	*$36,412*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFDN CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*PFDN CAPITATION FUNDING*		*-$86*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFDN CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*PFDN CAPITATION FUNDING*		*$7,700*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFDN CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*PFDN CAPITATION FUNDING*		*$47*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFDN CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*PFDN CAPITATION FUNDING*		*-$7,059*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MALE GERMLINE DEVELOPMENT AND ESTROGENIC EXPOSURES	*93.865*		*WASHINGTON STATE UNIVERSITY*	*123853-G003469*		*$101,753*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFDN CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*PFDN CAPITATION FUNDING*		*$21,422*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A RANDOMIZED TRIAL OF INDUCTION VERSUS EXPECTANT MANAGEMENT (ARRIVE)	*93.865*		*GEORGE WASHINGTON UNIVERSITY*	*U10HD036801*		*$6,307*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A RANDOMIZED TRIAL OF PESSARY AND PROGESTERONE FOR PRETERM PREVENTION	*93.865*		*GEORGE WASHINGTON UNIVERSITY*	*U10HD036801*		*$8,263*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROMOTING RECOVERY OPTIMIZATION WITH WALKING EXERCISE AFTER STROKE	*93.865*		*UNIVERSITY OF DELAWARE*	*R01HD086362*		*$207,342*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHOROID PLEXUS-DIRECTED GENE THERAPY FOR ALPHA-MANNOSIDOSIS	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*FP00015905_A1_SUB_01*		*$19,604*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A RANDOMIZED TRIAL TO PREVENT CONGENITAL CYTOMEGALOVIRUS INFECTION (CM	*93.865*		*GEORGE WASHINGTON UNIVERSITY*	*U10HD036801*		*$2,899*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MEDICAL OPTIMIZATION & MANAGEMENT OF PREGNANCIES WITH OVERT TYPE 2 DIA	*93.865*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*R01HD086139*		*$9,937*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A RANDOMIZED TRIAL OF PESSARY IN SINGLETON PREGNANCIES WITH A SHORT CE	*93.865*		*GEORGE WASHINGTON UNIVERSITY*	*U10HD036801*		*$24,675*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FLU2TEXT: A NATIONAL, PRACTICE-BASED RANDOMIZED CONTROLLED TRIAL OF TE	*93.865*		*COLUMBIA UNIVERSITY*	*R01HD086045*		*$11,164*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SEDATION STRATEGY AND COGNITIVE OUTCOME AFTER CRITICAL ILLNESS IN EARL	*93.865*		*SEATTLE CHILDREN'S HOSPITAL RESEARCH INSTITUTE*	*11119SUB*		*$75,681*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADVERSE CHILDHOOD EXPERIENCES AND ADOLESCENT HIV RISK: CAUSAL INFERENC	*93.865*		*STATE UNIVERSITY OF NEW YORK*	*R01HD090988*		*-$2,225*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FUNCTIONAL IMPACT OF DIFFERENTIAL EXPRESSION AND DNA METHYLATION IN MO	*93.865*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*K12HD000849*		*-$2,745*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SUSTAINED AERATION OF INFANT LUNGS (SAIL)	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3210050618 / PO #961074RSUB*		*$4,201*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN OBSERVATIONAL STUDY OF HEPATITIS C VIRUS IN PREGNANCY PROTOCOL	*93.865*		*GEORGE WASHINGTON UNIVERSITY*	*U10HD036801*		*$4,896*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MEDICAL OPTIMIZATION & MANAGEMENT OF PREGNANCIES WITH OVERT TYPE 2 DIA	*93.865*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*R01HD086139*		*$6,655*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER AT CHO	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HD086984*		*$655*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ADDRESSING COMMUNITY VIOLENCE-RELATED TRAUMATIC STRESS SYMPTOMS IN CHI	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD087406*		*$1,913*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUROBEHAVIORAL STUDY OF WARNINGS FOR ADOLESCENTS AT RISK FOR NICOTINE	*93.865*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*R00HD084746*		*$4,538*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHOP/UPENN INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*P30HD026979*		*$229*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MECHANISMS OF ENDOTHELIAL-TO-HEMOGENIC TRANSITION MEDIATED BY RUNX1	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD089245*		*$249,826*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TRANEXAMIC ACID FOR THE PREVENTION OF OBSTETRICAL HEMORRHAGE AFTER CES	*93.865*		*GEORGE WASHINGTON UNIVERSITY*	*U10HD036801*		*$197,992*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A RANDOMIZED TRIAL OF CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) FOR S	*93.865*		*GEORGE WASHINGTON UNIVERSITY*	*U10HD036801*		*$91,034*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
VERB LEARNING AND THE EARLY DEVELOPMENT OF SENTENCE COMPREHENSION	*93.865*		*UNIVERSITY OF ILLINOIS*	*R01HD054448*		*$20,716*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDDRC	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HD086984*		*$38,320*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTIMIZING MANAGEMENT OF THE SECOND STAGE OF LABOR: MULTICENTER RANDOM	*93.865*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*WU-15-54*		*$102,124*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE UNC/EMORY CENTER FOR INNOVATIVE TECHNOLOGY (ITECH) ACROSS THE PRE	*93.865*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*U19HD089881*		*$195,795*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER AT CHO	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HD086984*		*$7,848*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FUNCTIONAL IMPACT OF DIFFERENTIAL EXPRESSION AND DNA METHYLATION IN MO	*93.865*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*K12HD000849*		*$54,000*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FUNCTIONAL IMPACT OF DIFFERENTIAL EXPRESSION AND DNA METHYLATION IN MO	*93.865*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*K12HD000849*		*$2,181*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEUROBEHAVIORAL STUDY OF WARNINGS FOR ADOLESCENTS AT RISK FOR NICOTINE	*93.865*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*R00HD084746*		*$25,181*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PFDN CAPITATION FUNDING	*93.865*		*RESEARCH TRIANGLE INSTITUTE*	*PFDN CAPITATION FUNDING*		*$50,882*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A COMPUTERIZED NEUROCOGNITIVE BATTERY FOR USE IN YOUTH AFFECTED BY HIV	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD095278*		*$165,262*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RNA EXPRESSION PROFILING IN PEDIATRIC PATIENTS WITH SUSPECTED SEPSIS	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*K23HD082368*		*$30,449*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEONATAL AND PEDIATRIC PLATELET FUNCTION AND PHARMACOLOGY	*93.865*		*UNIVERSITY OF PITTSBURGH*	*R01HD081281*		*$134,657*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN INTEGRATED APPROACH TO ESTABLISH THE SCIENTIFIC FOUNDATION FOR DRIV	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD096221*		*$12,603*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
VIRTUUS CHILDREN'S STUDY: VALIDATING INJURY TO THE RENAL TRANSPLANT US	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD091185*		*$72,160*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CHOP/UPENN INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*P30HD026979*		*$44,924*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTIMIZING MANAGEMENT OF THE SECOND STAGE OF LABOR: MULTICENTER RANDOM	*93.865*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*WU-15-54*		*$77,643*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRAIN STRUCTURE AND FUNCTION IN INFANTS	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD093776*		*$14,064*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INFANT SLUMBER SAFETY: AN IMMERSIVE SMARTPHONE EXPERIENCE	*93.865*		*MEDIA REZ, LLC*	*R43HD093557*		*$25,500*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CLINICAL TRIAL OF A DISINFECTANT INTERVENTION IN THERAPY DOGS TO COMBA	*93.865*		*JOHNS HOPKINS UNIVERSITY*	*R01HD097692*		*$95,317*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADOLESCENT MEDICINE TRIALS NETWORK FOR HIV/AIDS INTERVENTIONS (ATN) CO	*93.865*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*U24HD089880*		*$31,573*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADOLESCENT MEDICINE TRIALS NETWORK FOR HIV/AIDS INTERVENTIONS (ATN) CO	*93.865*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*U24HD089880*		*$12,351*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE UNC/EMORY CENTER FOR INNOVATIVE TECHNOLOGY (ITECH) ACROSS THE PRE	*93.865*		*UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL*	*U19HD089881*		*$8,658*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER AT CHO	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HD086984*		*$1,731*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IDDRC	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HD086984*		*$5,770*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SUSTAINED AERATION OF INFANT LUNGS (SAIL)	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3210050618 / PO #961074RSUB*		*$62,936*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A COMPUTERIZED NEUROCOGNITIVE BATTERY FOR USE IN YOUTH AFFECTED BY HIV	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD095278*		*$13,734*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER AT CHO	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U54HD086984*		*$8,003*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AN INTEGRATED APPROACH TO ESTABLISH THE SCIENTIFIC FOUNDATION FOR DRIV	*93.865*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01HD096221*		*$3,345*	*$16,884,940*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TESTOSTERONE TRIAL	93.866	1-U01-AG-030644-01A1			-$3,402	-$3,402	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETICS OF AGING AND AGE-ASSOCIATED DISEASES	93.866	2-P01-AG-031862-06A1				-$8,444	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZATION OF A NOVEL MUTATION ASSOCIATED WITH VACUOLAR TAUOPATH	93.866	F30AG058317				$35,246	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
A DROSOPHILA MODEL FOR BEHAVIORAL SLEEP MODIFICATION IN ALZHEIMER'S DI	93.866	F30AG058409				$35,478	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
INVESTIGATING THE INFLUENCE OF MTOR SIGNALING ON LIPID METABOLISM IN A	93.866	F31AG057171				$44,482	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ENGINEERING MITOCHONDRIAL PROTEIN DISAGGREGASES FOR NEURODEGENERATIVE	93.866	F31AG060672				$40,470	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PATHOLOGICAL TAU STRAINS AND TRANSMISSION IN ALZHEIMER'S DISEASE AND O	93.866	F32AG053036				$77,664	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CONTRIBUTIONS OF EPISODIC MEMORY TO INTERTEMPORAL DECISION-MAKING ACRO	93.866	F32AG054032				$57,823	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CHARACTERIZING METABOLOMIC LINKS BETWEEN SLEEP DEPRIVATION AND ALZHEIM	93.866	F32AG056081				$54,981	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THE FEASIBILITY OF A TAILORED MUSIC INTERVENTION TO REDUCE SYMPTOMS OF	93.866	FAG060630A				$56,935	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THE HEALTH AND BEHAVIORAL EFFECTS OF SLEEP DEPRIVATION AMONG THE URBAN	93.866	K01AG055691				$135,170	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE ROLE OF PHYSICIAN INTEGRATION WITHIN NURSING HOMES I	93.866	K08AG052572				$191,509	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL, COGNITIVE, AND SOCIAL VULNERABILITIES AND HOSPITAL READMIS	93.866	K23AG045338				$160,609	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MIDCAREER INVESTIGATOR AWARD IN PATIENT-ORIENTED RESEARCH IN AGING	93.866	K24AG042765				$126,149	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MIDCAREER MENTORING AWARD FOR PATIENT-ORIENTED RESEARCH IN AGING	93.866	K24AG047908				$217,272	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
BEHAVIORAL SLEEP MEDICINE: TRAINING IN SLEEP AND AGING	93.866	K24AG055602				$130,001	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
IMPROVING AGING IN PLACE FOR OLDER ADULTS LIVING IN SUBSIDIZED HOUSING	93.866	K76AG057016				$155,282	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
AUTOPHAGY-MEDIATED CHROMATIN DEGENERATION IN AGING AND AGE-RELATED DIS	93.866	K99AG053406				$61,816	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
FRONTOTEMPORAL DEMENTIAS: GENOTYPES AND PHENOTYPES	93.866	P01AG017586			$64,337	$2,182,674	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
SLEEP/WAKE FRAGMENTATION WITH AGE: MOLECULAR MECHANISMS	93.866	P01AG017628			$90,358	$168,627	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETICS OF AGING AND AGE-ASSOCIATED DISEASES	93.866	P01AG031862			$49,342	$89,565	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETICS OF AGING AND AGE-ASSOCIATED DISEASES	93.866	P01AG031862			$608,982	$2,307,078	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMER'S DISEASE CORE CENTER	93.866	P30AG010124				$40,236	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMER'S DISEASE CORE CENTER	93.866	P30AG010124				$2,597,574	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER ON THE DEMOGRAPHY OF AGING	93.866	P30AG012836			$1,404	$28,615	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER ON THE DEMOGRAPHY OF AGING	93.866	P30AG012836				$368,263	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PENN ROYBAL CENTER IN BEHAVIORAL ECONOMICS AND HEALTH	93.866	P30AG034546			$20,209	$275,155	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PENN ROYBAL CENTER IN BEHAVIORAL ECONOMICS AND HEALTH	93.866	P30AG034546			$21,271	$21,271	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PENN ROYBAL CENTER IN BEHAVIORAL ECONOMICS AND HEALTH	93.866	P30AG034546				$2	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PENN ROYBAL CENTER IN BEHAVIORAL ECONOMICS AND HEALTH	93.866	P30AG034546				-$7,312	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PENN ROYBAL CENTER IN BEHAVIORAL ECONOMICS AND HEALTH	93.866	P30AG034546				$10,421	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PENN ROYBAL CENTER IN BEHAVIORAL ECONOMICS AND HEALTH	93.866	P30AG034546				$181,222	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR IMPROVING CARE DELIVERY FOR THE AGING (CICADA)	93.866	P30AG059302				$313,676	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CENTER FOR IMPROVING CARE DELIVERY FOR THE AGING (CICADA)	93.866	P30AG059302				$66,111	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
COGNITIVE AND NEURAL MODERATORS OF LONGITUDINAL DECLINE IN FRONTOTEMPO	93.866	R00AG056054				$228,824	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL IMPORTANCE OF DRUG-DRUG INTERACTIONS	93.866	R01AG025152			$219,300	$615,558	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
AGE, HEARING LOSS, AND SENTENCE COMPREHENSION: NEURAL CORRELATES	93.866	R01AG038490				-$1,177	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
OPTIMIZED ARTERIAL SPIN LABELING MRI IN MILD COGNITIVE IMPAIRMENT	93.866	R01AG040271				-$1,732	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
A PANEL STUDY OF HOSPITAL NURSING RESOURCES AND RACIAL DISPARITIES IN	93.866	R01AG041099				$224,248	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CITALOPRAM DECREASES CSF AB: A RANDOMIZED DOSE FINDING TRIAL	93.866	R01AG041502			$29,580	$29,580	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ORALLY-ABSORBED, SMALL MOLECULE MICROTUBULE-STABILIZERS FOR TAUOPATHY	93.866	R01AG044332				$28,814	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MODELING SPLICING IN NORMAL TISSUES AND NEURODEGENERATIVE DISEASE	93.866	R01AG046544				$173,253	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
AGING, GENDER AND ARTERIAL STIFFNESS IN ATHEROSCLEROSIS	93.866	R01AG047373				$268,535	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTION OF REGULATOR OF G PROTEIN SIGNALING IN AGING SKELETON	93.866	R01AG048388			$26,956	$331,035	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
USING PATIENT OUTCOMES TO INFORM SURGICAL EDUCATION	93.866	R01AG049757			$137,694	$283,280	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CURRENT AND FUTURE COSTS OF ALZHEIMER'S AND DEMENTIA CARE	93.866	R01AG049815			$379,641	$881,703	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PLEIOTROPY GWAS OF ALZHEIMER'S DISEASE	93.866	R01AG054060			$285,310	$467,560	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CHANGING THE TRAJECTORY OF MILD COGNITIVE IMPAIRMENT WITH CPAP TREATME	93.866	R01AG054435			$927,800	$1,951,880	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
SPREADING TAU PATHOLOGY IN NON-AMNESTIC ALZHEIMER'S DISEASE	93.866	R01AG054519				$381,321	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THREE APPROACHES TO MAINTENANCE THERAPY FOR CHRONIC INSOMNIA IN OLDER	93.866	R01AG054521			$3,399	$254,801	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MODULATORS OF MEDIAL TEMPORAL LOBE SUBREGION STRUCTURE AND FUNCTION IN	93.866	R01AG055005				$720,121	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
EPIGENETIC REGULATION OF EXTREME LONGEVITY DIFFERENCES IN ANT CASTES	93.866	R01AG055570				$478,997	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
AD-SPECIFIC CHANGES IN THE MTL: NOVEL BIOMARKERS USING IN VIVO / EX VI	93.866	R01AG056014			$32,294	$619,169	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
EFFECTS OF INFORMAL CARE FOR PERSONS WITH ALZHEIMER'S DISEASE AND RELA	93.866	R01AG057501			$163,141	$432,827	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
EVALUATING THE EFFECTS OF CMS' PROSPECTIVE EPISODE-BASED "BUNDLING" PA	93.866	R01AG058718			$62,221	$184,877	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CAUSES OF GEOGRAPHIC DIVERGENCE IN AMERICAN MORTALITY BETWEEN 1990 AND	93.866	R01AG060115			$2,212	$120,704	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DRUG INTERACTIONS INVOLVING PSYCHOACTIVE DRUGS	93.866	R01AG060975				$158,014	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF DANTROLENE NEUROPROTECTION IN ALZHEIMER'S DISEASE	93.866	R01AG061447				$99,130	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
A TRAINING AND FIDELITY MODEL TO MOVE AND SCALE EVIDENCE-BASED DEMENTI	93.866	R01AG061945			$30,674	$106,788	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING THE BENEFIT OF TRAUMA CENTER TRIAGE FOR INJURED OLDER AD	93.866	R03AG052117			$16,543	$50,939	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DIET AND FECAL INCONTINENCE IN OLDER WOMEN	93.866	R03AG053277				$19,899	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THE CONTRIBUTION OF DIABETES TO MORTALITY IN THE UNITED STATES	93.866	R03AG055724			$24,919	$53,618	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CEREBRAL BLOOD FLOW TRAJECTORY IN THE ALZHEIMERS DISEASE CONTINUUM	93.866	R03AG063213				$8,536	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
YOUNG-ONSET DEMENTIA IN COLOMBIA	93.866	R21AG046499				-$6,835	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL CORRELATES OF COGNITIVE FATIGUE AND BRIGHT LIGHT TREATMENT IN O	93.866	R21AG051981				$158,467	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DETERMINING IF REDUCED INSULIN RESPONSE IN THE BRAIN IS LINKED TO COGN	93.866	R21AG052097				-$7,178	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
FORGETTING TO SLEEP: METABOLIC CONSEQUENCES OF SLEEP LOSS AND ASSOCIAT	93.866	R21AG052905				$212,851	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
HIGH-THROUGHPUT MULTI-MODAL ANALYSIS OF NATURAL VARIATION IN C. ELEGAN	93.866	R21AG053638			$117,128	$145,834	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THE BENEFITS OF KNOWLEDGE: MORTALITY RISKS, MENTAL HEALTH AND LIFE-CYC	93.866	R21AG053763			$80,081	$157,982	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
A NOVEL AND TRACTABLE MODEL TO ADDRESS TELOMERE DYSFUNCTION IN A HUMAN	93.866	R21AG054209				$49,130	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
IMAGING OXIDATIVE STRESS IN AN ANIMAL MODEL OF AD WITH PET	93.866	R21AG055142				$187,952	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
LEVERAGING THE ELECTRONIC HEALTH RECORD TO NUDGE CLINICIANS TO PRESCRI	93.866	R21AG057380				$215,943	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ISOLATING SMALL-MOLECULE ENHANCERS OF THE HUMAN ALPHA-SYNUCLEIN DISAGG	93.866	R21AG061784				$10,505	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
STEM CELL AGING AND THE CONTROL OF ABSCISSION	93.866	R33AG047915				$339,236	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THREE APPROACHES TO MAINTENANCE THERAPY FOR CHRONIC INSOMNIA IN OLDER	93.866	R56AG050620				$150,465	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
RESISTANCE AND VULNERABILITY FOR ALZHEIMER'S AND RELATED PATHOLOGIES	93.866	R56AG058732				$30,238	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PANCREATIC PROTEOSTASIS CONNECTS SLEEP DISRUPTION TO ALZHEIMERS DISEAS	93.866	R56AG061057				$338,048	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
SLEEP AND APOE2 INTERACTIONS IN ALZHEIMER DISEASE	93.866	R56AG061867				$220,457	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
SLEEP CONSOLIDATION AS A NEUROPROTECTIVE THERAPY FOR ALZHEIMERS DISEAS	93.866	R56AG062293				$95,572	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
VACUOLAR TAUOPATHY	93.866	R56AG063344			$2,346	$63,302	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR MECHANISMS AND CELLULAR IMPLICATIONS OF TAU DYSFUNCTION	93.866	RF1AG053951			$337,425	$921,095	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
SHORT SLEEP: LOCUS COERULEUS METABOLICS AND THE TEMPORAL PROGRESSION O	93.866	RF1AG054104				$712,445	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
HETEROGENEITY OF MULTI-MODAL IMAGING SIGNATURES OF AGING, MCI, ALZHEIM	93.866	RF1AG054409				$699,524	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATED TARGET DISCOVERY IN ALZHEIMER'S DISEASE	93.866	RF1AG055477				$629,360	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
POSTTRANSLATIONAL PROTEIN MODIFICATION IN ALZHEIMER PATHOLOGY	93.866	RF1AG057197				$302,841	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
LEARNING AND DECISION-MAKING IN HEALTHY AGING AND PRECLINICAL ALZHEIME	93.866	RF1AG058065				$210,185	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN AGE RELATED NEURODEGENERATIVE DISEASES	93.866	T32AG00025				$416,824	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN AGE RELATED NEURODEGENERATIVE DISEASES	93.866	T32AG00025				$78,386	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN AGE RELATED NEURODEGENERATIVE DISEASES	93.866	T32AG000255				-$5,293	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN HEALTHCARE FINANCING, ORGANIZATION AND DELIVERY FOR AGING	93.866	T32AG051090				$6,438	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
TRAINING IN HEALTHCARE FINANCING, ORGANIZATION AND DELIVERY FOR AGING	93.866	T32AG051090				$170,353	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMER'S DISEASE GENETICS CONSORTIUM	93.866	U01AG032984			$4,891	$4,891	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMER'S DISEASE GENETICS CONSORTIUM	93.866	U01AG032984			$15,222	$509,964	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMER'S DISEASE GENETICS CONSORTIUM	93.866	U01AG032984			$1,430,095	$2,988,372	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CONNECTOMIC IMAGING IN FAMILIAL AND SPORADIC FRONTOTEMPORAL DEGENERATI	93.866	U01AG052943			$67,359	$67,535	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CONNECTOMIC IMAGING IN FAMILIAL AND SPORADIC FRONTOTEMPORAL DEGENERATI	93.866	U01AG052943			$678,367	$1,193,990	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CONNECTOMIC IMAGING IN FAMILIAL AND SPORADIC FRONTOTEMPORAL DEGENERATI	93.866	U01AG052943				$14,771	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
OPTIMIZATION OF MICROTUBULE-STABILIZING TRIAZOLOPYRIMIDINES AS THERAPE	93.866	U01AG061173			$91,407	$204,200	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
THE NIA GENETICS OF ALZHEIMER'S DISEASE DATA STORAGE SITE	93.866	U24AG041689				$2,005,092	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
COORDINATING CENTER FOR GENETICS AND GENOMICS OF ALZHEIMER'S DISEASE (	93.866	U54AG052427			$17,633	$17,633	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
COORDINATING CENTER FOR GENETICS AND GENOMICS OF ALZHEIMER'S DISEASE (	93.866	U54AG052427			$1,469,974	$2,592,615	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
COORDINATING CENTER FOR GENETICS AND GENOMICS OF ALZHEIMER'S DISEASE (	93.866	U54AG052427				$537,254	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CONSORTIUM FOR ALZHEIMERS SEQUENCE ANALYSIS (CASA)	93.866	UF1AG047133			$1,666,551	$1,821,823	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DEFAULT PALLIATIVE CARE CONSULTATION FOR SERIOUSLY ILL HOSPITALIZED PA	93.866	UH3AG050311			$3,901	$434,213	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DEFAULT PALLIATIVE CARE CONSULTATION FOR SERIOUSLY ILL HOSPITALIZED PA	93.866	UH3AG050311			$193,937	$196,518	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DEFAULT PALLIATIVE CARE CONSULTATION FOR SERIOUSLY ILL HOSPITALIZED PA	93.866	UH3AG050311				$68	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DEFAULT PALLIATIVE CARE CONSULTATION FOR SERIOUSLY ILL HOSPITALIZED PA	93.866	UH3AG050311				$632	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMERS PREVENTION INITIATIVE APOE4 TRIAL	*93.866*		*BANNER HEALTH*	*UF1AG046150*	*$27,498*	*$27,498*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NATIONAL ALZHEIMER'S COORDINATING CENTER (NACC)	*93.866*		*UNIVERSITY OF WASHINGTON*	*762205*		*$25,965*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMPACT OF DISCLOSING AMYLOID IMAGING RESULTS TO COGNITIVELY NORMAL IND	*93.866*		*BRIGHAM AND WOMEN'S HOSPITAL*	*RF1AG047866*		*$173,897*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
STATISTICAL METHODS FOR VITAMIN D TARGETS FOR FUNCTIONAL OUTCOMES IN O	*93.866*		*UNIVERSITY OF MARYLAND*	*1600268*		*$41,494*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
METABOLIC SIGNATURES UNDERLYING VASCULAR RISK FACTORS FOR ALZHEIMER-TY	*93.866*		*DUKE UNIVERSITY*	*RF1AG051550*		*$107,618*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ANTI-AMYLOID TREATMENT IN ASYMPTOMATIC ALZHEIMER'S DISEASE (A4 STUDY)-	*93.866*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*U19AG010483*		*$17,066*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FOUR REPEAT TAUOPATHY NEUROIMAGING INITIATIVE	*93.866*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*R01AG038791*		*$541,449*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MONITORED BREATHING AWARENESS THERAPY FOR INSOMNIA DISORDER IN OLDER A	*93.866*		*ADVANCED MEDICAL ELECTRONICS*	*R42AG049524*		*$151,380*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ALZHEIMER'S DISEASE NEUROIMAGING INITIATIVE 3 (ADNI3)	*93.866*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*U19AG024904*		*$41,696*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE MACROVASCULAR AND MICROVASCULAR CONTRIBUTIONS TO ALZHEIMER'S DISEA	*93.866*		*WAKE FOREST UNIVERSITY*	*R01AG054069*		*$81,669*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NIGHTTIME AGITATION AND RESTLESS LEGS SYNDROME IN PEOPLE WITH ALZHEIME	*93.866*		*UNIVERSITY OF TEXAS AT AUSTIN*	*R01AG051588*		*$114,206*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LONGITUDINAL EVALUATION OF FAMILIAL FRONTOTEMPORAL DEMENTIA SUBJECTS (	*93.866*		*MAYO CLINIC ROCHESTER*	*U01AG045390*		*$1,967*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMMEDIATE FIT USING INNOVATIVE TECHNOLOGY PROSTHETIC SYSTEMS	*93.866*		*IFIT PROSTHETICS*	*2SB1AG050430*		*-$344*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE ALZHEIMER'S DISEASE NEUROIMAGING INITIATIVE 3 BIOMARKER CORE	*93.866*		*NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION*	*U19AG024904*		*$30,349*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADDRESSING DISPARITIES IN HEALTHCARE ACCESS AND OUTCOMES AMONG CHRONIC	*93.866*		*VISITING NURSE SERVICE OF NEW YORK*	*R21AG053542*		*$110,341*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REDUCING DISABILITY FOLLOWING HOSPITAL DISCHARGE IN VULNERABLE OLDER A	*93.866*		*JOHNS HOPKINS UNIVERSITY*	*R01AG056607*		*$39,886*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
REDUCING DISABILITY VIA A FAMILY-CENTERED INTERVENTION FOR ACUTELY ILL	*93.866*		*PENNSYLVANIA STATE UNIVERSITY*	*R01AG054425*		*$51,094*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ACTIVE 20-YR FOLLOW-UP	*93.866*		*UNIVERSITY OF WASHINGTON*	*R01AG056486*		*$220,158*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
THE REGULATION OF HEALTH AND LONGEVITY BY BRANCHED-CHAIN AMINO ACIDS	*93.866*		*UNIVERSITY OF WISCONSIN - MADISON*	*R56AG056771*		*$28,622*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
METABOLIC NETWORK ANALYSIS OF BIOCHEMICAL TRAJECTORIES IN ALZHEIMER'S	*93.866*		*DUKE UNIVERSITY*	*RF1AG057452*		*$12,387*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MEDIAL TEMPORAL LOBE SUBREGION MRI BIOMARKERS FOR ADNI3	*93.866*		*NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION*	*U19AG024904*		*$66,342*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BRAIN-ENRICHED MICRORNAS DETECTABLE IN PLASMA AS BIOMARKERS OF ALZHEIM	*93.866*		*DIAMIR, LLC*	*R44AG044860*		*$16,101*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFFECTS OF EPISODIC MEMORY RETRIEVAL ON INTERTEMPORAL CHOICE IN COGNIT	*93.866*		*DUKE UNIVERSITY*	*R24AG054355*		*-$22,890*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
METABOLIC NETWORK ANALYSIS OF BIOCHEMICAL TRAJECTORIES IN ALZHEIMER'S	*93.866*		*DUKE UNIVERSITY*	*RF1AG057452*		*$72,154*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADDITIONAL SEQUENCING COHORTS FOR THE ALZHEIMERS DISEASE SEQUENCING P	*93.866*		*UNIVERSITY OF MIAMI*	*U01AG057659*		*$13,022*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A PILOT CSF CATHETER STUDY TO EVALUATE THE EFFECT OF CT1812 TREATMENT	*93.866*		*COGNITION THERAPEUTICS, INC.*	*RF1AG057780*		*$53,095*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ORCATECH COLLABORATIVE AGING (IN PLACE) RESEARCH USING TECHNOLOGY (CAR	*93.866*		*OREGON HEALTH & SCIENCE UNIVERSITY*	*U2CAG054397*		*$11,819*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PREDICTORS OF SEVERITY IN ALZHEIMER'S DISEASE	*93.866*		*DUKE UNIVERSITY*	*R01AG007370*		*$3,998*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EARLY ONSET ALZHEIMERS DISEASE CONSORTIUM - LONGITUDINAL EARLY-ONSET	*93.866*		*INDIANA UNIVERSITY*	*R56AG057195*		*$78,481*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LONGITUDINAL EVALUATION OF FAMILIAL FRONTOTEMPORAL DEMENTIA SUBJECTS (	*93.866*		*MAYO CLINIC ROCHESTER*	*U01AG045390*		*$265,010*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMMEDIATE FIT USING INNOVATIVE TECHNOLOGY PROSTHETIC SYSTEMS	*93.866*		*IFIT PROSTHETICS*	*2SB1AG050430*		*$173,289*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
ADDITIONAL SEQUENCING COHORTS FOR THE ALZHEIMERS DISEASE SEQUENCING P	93.866		UNIVERSITY OF MIAMI	U01AG057659		$39,714	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
FUNCTIONAL CHARACTERIZATION OF ALZHEIMER'S DISEASE ASSOCIATED GENETIC	93.866		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10387SC		$272,588	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MULTICULTURAL HEALTHY DIET REDUCES COGNITIVE DECLINE AND ALZHEIMER'S D	93.866		ALBERT EINSTEIN COLLEGE OF MEDICINE, INC	R01AG055527		$29,865	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROCOGNITIVE DISORDER AFTER APPENDECTOMY IN THE ELDERLY: A NATURAL E	93.866		CHILDREN'S HOSPITAL OF PHILADELPHIA	RF1AG055390		$119,543	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
A LONGITUDINAL NETWORK STUDY OF ALZHEIMER'S AND DEMENTIA CARE IN RELAT	93.866		VISITING NURSE SERVICE OF NEW YORK	R56AG056347		$7,574	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMARY AGE-RELATED TAUOPATHY: GENETIC SOURCES OF RISK & RESISTANCE	93.866		UNIVERSITY OF WASHINGTON	U01AG016976		$141,594	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PATIENT, CAREGIVER, AND REGIONAL DRIVERS OF POTENTIALLY INAPPROPRIATE	93.866		UNIVERSITY OF MICHIGAN	R01AG056407		$54,070	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THE ALZHEIMER'S DISEASE NEUROIMAGING INITIATIVE 3 BIOMARKER CORE	93.866		NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION	U19AG024904		$498,438	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PROCESSING SPEED TRAINING TO PRESERVE DRIVING AND FUNCTION COMPETENCIE	93.866		UNIVERSITY OF ALABAMA AT BIRMINGHAM	000504619-001		$76,372	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
NOREPINEPHRINE: A NOVEL REGULATOR OF AMYLOID BETA-42 PEPTIDES	93.866		DREXEL UNIVERSITY	R21AG058263		$46,682	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
DATA AND SAFETY MONITORING BOARD	93.866		UNIVERSITY OF CALIFORNIA, SAN DIEGO	U19AG010483		$36,656	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMER'S CLINICAL TRIALS CONSORTIUM (ACTC) - ETHICS & RECRUITMENT	93.866		UNIVERSITY OF SOUTHERN CALIFORNIA	U24AG057437		$30,607	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
LONG-TERM IMPACT OF RANDOM ASSIGNMENT TO INTENSIVE LIFESTYLE INTERVENT	93.866		WAKE FOREST UNIVERSITY	R01AG057571		$86,884	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMERS CLINICAL TRIALS CONSORTIUM (ACTC) (U24)	93.866		UNIVERSITY OF SOUTHERN CALIFORNIA	U24AG057437		$8,299	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFYING PROTECTIVE GENETIC VARIANTS FOR APOE4	93.866		UNIVERSITY OF MIAMI	R01AG059018		$32,048	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ADDITIONAL SEQUENCING COHORTS FOR THE ALZHEIMERS DISEASE SEQUENCING P	93.866		UNIVERSITY OF MIAMI	U01AG057659		$29,705	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ADDITIONAL SEQUENCING COHORTS FOR THE ALZHEIMERS DISEASE SEQUENCING P	93.866		UNIVERSITY OF MIAMI	U01AG057659		$89,608	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
CSF BIOMARKER PROJECT	93.866		UNIVERSITY OF WASHINGTON	U01AG016976		$95,650	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
LONG LIFE FAMILY STUDY	93.866		BOSTON MEDICAL CENTER	5-U01-AG-023755-08		$7,200	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
METABOLIC NETWORKS AND PATHWAYS PREDICTIVE OF SEX DIFFERENCES IN AD RI	93.866		DUKE UNIVERSITY	RF1AG059093		$17,395	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MEDIAL TEMPORAL LOBE SUBREGION MRI BIOMARKERS FOR ADNI3	93.866		NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION	U19AG024904		$93,258	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PRECLINICAL AD CONSORTIUM	93.866		JOHNS HOPKINS UNIVERSITY	RF1AG059869		$85,141	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMERS CLINICAL TRIALS CONSORTIUM (ACTC) (U24)	93.866		UNIVERSITY OF SOUTHERN CALIFORNIA	U24AG057437		$42,673	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
PROTEOME-WIDE ANALYSIS OF AD-ASSOCIATED SNPS	93.866		JOHNS HOPKINS UNIVERSITY	R01AG061852		$187,317	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF DISCLOSING AMYLOID IMAGING RESULTS TO COGNITIVELY NORMAL IND	93.866		BRIGHAM AND WOMEN'S HOSPITAL	RF1AG047866		$82,526	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR FUNCTIONS OF THE SHELTERIN COMPONENT ACD/TPP1 IN SOMATIC STE	93.866		UNIVERSITY OF MICHIGAN	R01AG050509		$66,393	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ADUCANUMAB ALZHEIMER'S PREVENTION TRIAL	93.866		BANNER HEALTH	R01AG058468		$76,003	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THE STANFORD EXTREME PHENOTYPES IN ALZHEIMERS DISEASE (STEP AD) COHOR	93.866		STANFORD UNIVERSITY	R01AG060747		$14,205	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
THE STANFORD EXTREME PHENOTYPES IN ALZHEIMERS DISEASE (STEP AD) COHOR	93.866		STANFORD UNIVERSITY	R01AG060747		$10,805	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
AGING AMONG THE HOMELESS: SOCIAL ISOLATION, FUNCTION AND INSTITUTIONAL	93.866		UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	R01AG041860		$6,698	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
COMPOSITIONAL AND FUNCTIONAL ALTERATIONS OF HDL OVER OVARIAN AGING	93.866		UNIVERSITY OF PITTSBURGH	R01AG058690		$90,051	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ATRIAL FIBRILLATION BURDEN, VASCULAR DISEASE OF THE BRAIN MRI IN MESA:	93.866		UNIVERSITY OF WASHINGTON	R01HL127659		$30,453	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMER'S CLINICAL TRIALS CONSORTIUM (ACTC) - ETHICS & RECRUITMENT	93.866		UNIVERSITY OF SOUTHERN CALIFORNIA	U24AG057437		$55,380	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ALZHEIMERS CLINICAL TRIALS CONSORTIUM (ACTC) (U24)	93.866		UNIVERSITY OF SOUTHERN CALIFORNIA	U24AG057437		$46,520	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
IMPACT OF DISCLOSING AMYLOID IMAGING RESULTS TO COGNITIVELY NORMAL IND	93.866		BRIGHAM AND WOMEN'S HOSPITAL	RF1AG047866		$80,543	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
UNDERSTANDING AND RESPECTING END-OF-LIFE TREATMENT PREFERENCES AMONG O	93.866		JOHNS HOPKINS UNIVERSITY	R01AG059205		$26,211	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
ADUCANUMAB ALZHEIMER'S PREVENTION TRIAL	93.866		BANNER HEALTH	R01AG058468		$64,631	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
IDENTIFICATION AND CHARACTERIZATION OF AD RISK NETWORKS USING MULTI-DI	93.866		ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	U01AG052411		$4,497	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
SUBCLINICAL VASCULAR CONTRIBUTIONS TO ALZHEIMER'S DISEASE: THE MULTI	93.866		WAKE FOREST UNIVERSITY HEALTH SCIENCES	R01AG058969		$23,551	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MULTICULTURAL HEALTHY DIET REDUCES COGNITIVE DECLINE AND ALZHEIMER'S D	93.866		ALBERT EINSTEIN COLLEGE OF MEDICINE, INC	R01AG055527		$4,351	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077
MESA MULTISITE ALZHEIMER'S (AD) STUDY	93.866		WAKE FOREST UNIVERSITY	R01AG58969		$59,437	$44,019,938	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
FUNCTIONAL CHARACTERIZATION OF ALZHEIMER'S DISEASE ASSOCIATED GENETIC	*93.866*		*UNIVERSITY OF CALIFORNIA, SAN FRANCISCO*	*10387SC*		*$2,259*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LONGITUDINAL EVALUATION OF FAMILIAL FRONTOTEMPORAL DEMENTIA SUBJECTS (	*93.866*		*MAYO CLINIC ROCHESTER*	*U01AG0450390*		*$9,812*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
IMMEDIATE FIT USING INNOVATIVE TECHNOLOGY PROSTHETIC SYSTEMS	*93.866*		*IFIT PROSTHETICS*	*2SB1AG050430*		*$18,484*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ADUCANUMAB ALZHEIMER'S PREVENTION TRIAL	*93.866*		*BANNER HEALTH*	*R01AG058468*		*$2,492*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTIMIZATION OF SIGMA-2 RECEPTOR MODULATORS FOR THE TREATMENT OF COGNI	*93.866*		*COGNITION THERAPEUTICS, INC.*	*R42AG052249*		*$89,764*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFFECTS OF EPISODIC MEMORY RETRIEVAL ON INTERTEMPORAL CHOICE IN COGNIT	*93.866*		*DUKE UNIVERSITY*	*R24AG054355*		*$153*	*$44,019,938*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
COMPLICATIONS OF IMMUNOSUPPRESSION FOR EYE DISEASES	93.867	2-R01-EY-014943-07				$5,759	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THALAMOCORTICAL MECHANISMS IN PRIMARY VISUAL CORTEX	93.867	F32EY026463				-$1,528	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF SRC-FAMILY TYROSINE KINASES AND SRCASM IN OCULAR SURFACE E	93.867	K08EY025742				$229,174	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PENN VISION CLINICAL SCIENTIST PROGRAM	93.867	K12EY015398				$364,207	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PENN VISION CLINICAL SCIENTIST PROGRAM	93.867	K12EY015398				$136,097	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PATIENT CENTERED CARE FOR DIABETIC MACULAR EDEMA	93.867	K23EY025729				$246,731	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
P-30 CORE GRANT FOR VISION RESEARCH	93.867	P30EY001583				$167,295	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
P-30 CORE GRANT FOR VISION RESEARCH	93.867	P30EY001583				$669,393	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
MODELS FOR THERAPY OF HEREDITARY RETINAL DEGENERATION	93.867	R01EY006855				$881,371	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
COLOR CONSTANCY	93.867	R01EY010016				$191,656	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
DEGRADATIVE PROCESSES IN RPE-PHOTORECEPTOR RENEWAL	93.867	R01EY010420				$20,105	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
APPROACHES TO ENHANCE LYSOSOMAL FUNCTION IN RPE CELLS	93.867	R01EY013434				$434,611	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
RETINAL IRON TRANSPORT IN HEALTH AND DISEASE	93.867	R01EY015240				$611,704	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISMS OF LEARNING A VISUAL DISCRIMINATION	93.867	R01EY015260				-$3,381	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PURINES AND THE HEALTH OF RETINAL GANGLION CELLS	93.867	R01EY015537				$67,187	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PURINES AND THE HEALTH OF RETINAL GANGLION CELLS	93.867	R01EY015537				$90,644	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
TRANSLATIONAL RESEARCH FOR RETINAL DEGENERATION THERAPIES	93.867	R01EY017549			$234,825	$957,445	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
MECHANISM OF SIRT1 ACTIVATOR MEDIATED NEUROPROTECTION OF RETINAL GANGL	93.867	R01EY019014				$474,384	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE NEURAL MECHANISMS RESPONSIBLE FOR RECOGNIZING AND REMEMBERING NOVE	93.867	R01EY020851				$343,810	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
RETINAL MECHANISMS FOR DIRECTION SELECTIVITY	93.867	R01EY022070			$211,364	$476,397	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
NEURAL MECHANISMS OF LANDMARK-BASED NAVIGATION	93.867	R01EY022350				$315,309	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
ROLE OF BASAL GANGLIA IN REWARD-BIASED VISUAL DECISIONS	93.867	R01EY022411				-$5,043	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC EPIDEMIOLOGY OF AGE-RELATED MACULAR DEGENERATION IN THE OLDER	93.867	R01EY023164			$158,903	$233,236	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PRIMARY OPEN ANGLE AFRICAN-AMERICAN GLAUCOMA GENETICS (POAAGG)	93.867	R01EY023557			$56,643	$1,297,650	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
RETINAL CIRCUITS FOR LOCAL SYNAPTIC PROCESSING	93.867	R01EY023766			$32,798	$37,203	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATIVE DATA ANALYSIS FOR REFRACTIVE ERROR	93.867	R01EY024233				$936	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
MELANOPSIN AND CONE SIGNALS IN HUMAN VISUAL PROCESSING	93.867	R01EY024681				$334,503	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
GENETIC ANALYSIS OF AXONAL REGENERATION	93.867	R01EY024861				$301,611	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PLASTICITY OF HUMAN VISUAL SYSTEM IN RESPONSE TO RETINAL GENE THERAPY	93.867	R01EY025287			$4,840	$526,204	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
RECYCLING OF METABOLITES FROM INGESTED OUTER SEGMENTS SUPPORTS VISUAL	93.867	R01EY026525			$146,902	$377,893	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
DEVELOPING NEW METHODS FOR EARLY DETECTION OF SJOGREN'S SYNDROME	93.867	R01EY026972			$47,206	$318,551	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
SYNAPTIC ORGANIZATION OF SIMPLE CELL RECEPTIVE FIELDS	93.867	R01EY027205				$638,565	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
ESTIMATION AND DISCRIMINATION OF MOTION AND DEPTH IN NATURAL SCENES	93.867	R01EY028571				$317,784	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
PHOTORECEPTOR STRUCTURE, FUNCTION, AND RESPONSE TO GENE THERAPY IN CHO	93.867	R01EY028601				$343,529	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE IL-6 INDUCED RETINAL IRON SEQUESTRATION RESPONSE	93.867	R01EY028916				$19,676	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
SINGLE-CELL TRANSCRIPTOMIC ANALYSIS OF HUMAN RETINA	93.867	R01EY030192				$6,664	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
SECONDARY ANALYSIS OF THE DATA FROM THE TELEMEDICINE APPROACHES TO EVA	93.867	R21EY025686			$1,408	$2,496	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
NEUROIMAGING OF DYNAMIC NAVIGATIONAL CODES	93.867	R21EY027047				$167,072	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
BIOPHYSICAL DESIGN STRATEGIES FOR NEXT-GENERATION MAQUETTE-BASED GENET	93.867	R21EY027562				$117,207	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
MOLECULAR PROFILING OF CRB1 MUTANT RETINAL CELLS DERIVED FROM IPSC'S	93.867	R21EY027936				$204,326	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
DECIPHERING THE ROLE OF LIPID METABOLISM PATHWAYS IN THE RPE AND THEIR	93.867	R21EY028273				$96,758	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
ADDITIONAL ANALYSES OF THE DATA FROM THE COMPARISON OF AGE-RELATED MAC	93.867	R21EY028998				$35,142	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLES OF ZONA INCERTA IN OCULOMOTOR DECISION MAKING IN MONKEYS	93.867	R21EY029091				$205,250	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
SECONDARY ANALYSIS OF DATA FROM G-ROP STUDY	93.867	R21EY029776			$16,962	$82,171	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE ROLE OF A NOVEL SCAFFOLD PROTEIN IN MEDIATING RPE PHAGOCYTOSIS OF	93.867	R21EY029826				$70,426	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH ON NORMAL AND ABNORMAL MECHANISMS OF VISION	93.867	T32EY007035				$27,083	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
RESEARCH ON NORMAL AND ABNORMAL MECHANISMS OF VISION	93.867	T32EY007035				$197,554	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
SHORT-TERM TRAINING: STUDENTS IN HEALTH PROFESSIONAL SCHOOLS	93.867	T35OD010919				$72,781	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
SHORT-TERM TRAINING: STUDENTS IN HEALTH PROFESSIONAL SCHOOLS	93.867	T35OD010919				$43,372	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE DRY EYE EVALUATION AND MANAGEMENT (DREAM) STUDY: COORDINATING CENT	93.867	U10EY022879			$1,440	$1,440	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE DRY EYE EVALUATION AND MANAGEMENT (DREAM) STUDY: COORDINATING CENT	93.867	U10EY022879			$74,280	$514,241	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE DRY EYE EVALUATION AND MANAGEMENT (DREAM) STUDY: COORDINATING CENT	93.867	U10EY022879				-$1,169	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
THE DRY EYE EVALUATION AND MANAGEMENT (DREAM) STUDY: COORDINATING CENT	93.867	U10EY022879				-$85,412	$15,610,706	RESEARCH AND DEVELOPMENT	$706,379,077
A PILOT STUDY OF LASER PHOTOCOAGULATION FOR DIABETIC MACULAR EDEMA DRC	*93.867*		*JAEB CENTER FOR HEALTH RESEARCH*	*EY 14231*		*$35,366*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SCORE2 COMPARATIVE TRIAL (SCT)	*93.867*		*PENNSYLVANIA STATE UNIVERSITY*	*UPA023533*		*$8,489*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ORAL THERAPY FOR DIABETIC RETINOPATHY USING ACE2/ANG1-7 BIOENCAPSULATE	*93.867*		*UNIVERSITY OF FLORIDA*	*UFDSP00010918*		*$266,050*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
VISION, EYE GROWTH RHYTHMS AND RETINAL SIGNALS IN REFRACTIVE DEVELOPME	*93.867*		*NEW ENGLAND COLLEGE OF OPTOMETRY*	*R01EY025307*		*$62,449*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MACULAR EDEMA TREATMENT TRIALS ASSOCIATED WITH MUST (META-MUST)	*93.867*		*JOHNS HOPKINS UNIVERSITY*	*U10EY024527*		*-$27,392*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ANALYZING RETINAL MICROANATOMY IN RETINOPATHY OF PREMATURITY TO IMPROV	*93.867*		*DUKE UNIVERSITY*	*R01EY025009*		*$41,532*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
POSTNATAL GROWTH AND RETINOPATHY OF PREMATURITY (G-ROP) STUDIES	*93.867*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*3209850813 / PO #960522RSUB*		*$43,216*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MULTICENTER UVEITIS STEROID TREATMENT FOLLOW-UP STUDY EXTENSION (FUSE)	*93.867*		*JOHNS HOPKINS UNIVERSITY*	*U10EY014660*		*$13,811*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DETECTION AND ESTIMATION OF LOCAL PROPERTIES IN NATURAL SCENES	*93.867*		*UNIVERSITY OF TEXAS AT AUSTIN*	*R01EY01174719A1*		*$95,797*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DEVELOPMENT OF A NOVEL ANTIVIRAL TO TREAT AND PREVENT ACYCLOVIR RESIST	*93.867*		*FOX CHASE CHEMICAL DIVERSITY CENTER*	*R41EY026849*		*-$2,387*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HUMAN CONNECTOMES FOR LOW VISION, BLINDNESS, AND SIGHT RESTORATION	*93.867*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*U01EY025864*		*$68,031*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHOTO SWITCHABLE CHANNEL BLOCKERS FOR TREATMENT OF BLINDNESS	*93.867*		*UNIVERSITY OF WASHINGTON*	*762671*		*$23,505*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OCULAR HYPERTENSION TREATMENT STUDY 20-YEAR FOLLOW-UP: CLINICAL CENTE	*93.867*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*WU-16-125*		*-$5,698*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
LONG-TERM SUPPRESSIVE VALACYCLOVIR TREATMENT FOR HERPES ZOSTER OPHTHAL	*93.867*		*NEW YORK UNIVERSITY*	*U10EY026869*		*$25,525*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTRAL PROCESSING OF VISUAL INFORMATION	*93.867*		*CORNELL UNIVERSITY*	*R01EY007977*		*$57,924*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INCIDENCE OF REMISSION AND OF CATARACT IN OCULAR INFLAMMATORY DISEASES	*93.867*		*MASSACHUSETTS EYE AND EAR INSTITUTE*	*R21EY026717*		*$65,107*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NEURAL MECHANISMS OF FIXATION CHOICE WHILE SEARCHING NATURAL SCENES	*93.867*		*NORTHWESTERN UNIVERSITY*	*R01EY021579*		*$83,863*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PLATFORM TECHNOLOGIES FOR MICROSCOPIC RETINAL IMAGING	*93.867*		*STANFORD UNIVERSITY*	*U01EY025477*		*$115,740*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RETINAL DISEASE PROMOTED BY IRON-INDUCED BISRETINOID OXIDATION	*93.867*		*COLUMBIA UNIVERSITY*	*R01EY028131*		*$201,962*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OCULAR HYPERTENSION TREATMENT STUDY 20-YEAR FOLLOW-UP: CHAIRS GRANT	*93.867*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*WU-16-30*		*$58,048*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MACULAR EDEMA TREATMENT TRIALS ASSOCIATED WITH MUST (META-MUST)	*93.867*		*JOHNS HOPKINS UNIVERSITY*	*U10EY024527*		*$9,402*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
NONPARAMETRIC AND SURVIVAL METHODS IN OPHTHALMOLOGY	*93.867*		*BRIGHAM AND WOMEN'S HOSPITAL*	*R01EY022445*		*$79,228*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PHOTO SWITCHABLE CHANNEL BLOCKERS FOR TREATMENT OF BLINDNESS	*93.867*		*UNIVERSITY OF WASHINGTON*	*762671*		*$327,306*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HUMAN CONNECTOMES FOR LOW VISION, BLINDNESS, AND SIGHT RESTORATION	*93.867*		*UNIVERSITY OF SOUTHERN CALIFORNIA*	*U01EY025864*		*$103,745*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OCULAR HYPERTENSION TREATMENT STUDY 20-YEAR FOLLOW-UP: CLINICAL CENTE	*93.867*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*WU-16-125*		*$14,124*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OCULAR HYPERTENSION TREATMENT STUDY 20-YEAR FOLLOW-UP: CLINICAL CENTE	*93.867*		*WASHINGTON UNIVERSITY IN ST. LOUIS*	*WU-16-125*		*$885*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SURGICAL IIH TREATMENT TRIAL	*93.867*		*ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI*	*U10EY025990*		*$7,062*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CANINE RETINAL DISEASE MODELS FOR TRANSLATIONAL PHOTORECEPTOR REGENERA	*93.867*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*U24EY029890*		*$416,825*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PROTOCOL AC - RANDOMIZED TRIAL OF INTRAVITREOUS AFLIBERCEPT VERSUS INT	*93.867*		*JAEB CENTER FOR HEALTH RESEARCH*	*DRCR.NET*		*$4,403*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
AMBIENT LIGHT ACTIVATABLE OPSIN-BASED THERAPY FOR AGE-RELATED MACULAR	*93.867*		*NANOSCOPE TECHNOLOGIES, LLC*	*R44EY025905*		*$203,084*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CENTRAL PROCESSING OF VISUAL INFORMATION	*93.867*		*CORNELL UNIVERSITY*	*R01EY007977*		*$9,378*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PLATFORM TECHNOLOGIES FOR MICROSCOPIC RETINAL IMAGING	*93.867*		*STANFORD UNIVERSITY*	*U01EY025477*		*$25,960*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
BIOMARKERS OF VISION LOSS IN CHILDREN WITH OPTIC PATHWAY GLIOMAS	*93.867*		*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*R01EY029687*		*$296*	*$15,610,706*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
SLOUCH: THE FORGOTTEN HISTORY OF AMERICA'S POOR POSTURE EPIDEMIC	93.879	G13LM012781				$50,000	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
EFFICIENT TRANSLATION OF GENETICS RESEARCH FOR CLINICAL DECISION SUPPO	93.879	K01LM012870				$141,456	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
BIOINFORMATICS STRATEGIES FOR GENOME-WIDE ASSOCIATION STUDIES	93.879	R01LM010098			$84,642	$221,146	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
BIOINFORMATICS STRATEGIES FOR GENOME WIDE ASSOCIATION STUDIES	93.879	R01LM010098				$9,315	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
SOCIAL MEDIA MINING FOR PHARMACOVIGILANCE	93.879	R01LM011176				$440,255	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
BIOMEDICAL COMPUTING AND INFORMATICS STRATEGIES FOR PRECISION MEDICINE	93.879	R01LM012601			$110,418	$580,609	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
A GENERAL FRAMEWORK TO ACCOUNT FOR OUTCOME REPORTING BIAS IN SYSTEMATI	93.879	R01LM012607			$56,787	$433,641	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
THE NEXT GENERATION OF RNA-SEQ SIMULATORS FOR BENCHMARKING ANALYSES	93.879	R21LM012763				$184,827	$2,131,486	RESEARCH AND DEVELOPMENT	$706,379,077
INTEGRATING NEUROIMAGING, MULTI-OMICS AND CLINICAL DATA IN COMPLEX DIS	*93.879*		*INDIANA UNIVERSITY*	*R01LM012535*		*$70,237*	*$2,131,486*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
FELLOWSHIP IN COMMUNITY MEDICINE LEADERSHIP FOR ACTION (A WEST PHILADE	93.884	T13JHP32112				$211,137	$926,898	RESEARCH AND DEVELOPMENT	$706,379,077
ACADEMIC UNITS FOR PRIMARY CARE TRAINING AND ENHANCEMENT	93.884	UH1HP29964			$15,000	$21,720	$926,898	RESEARCH AND DEVELOPMENT	$706,379,077
ACADEMIC UNITS FOR PRIMARY CARE TRAINING AND ENHANCEMENT	93.884	UH1HP29964			$29,717	$694,041	$926,898	RESEARCH AND DEVELOPMENT	$706,379,077
SRSC I-VIRUS BIOLOGY HAHN	*93.885*		*DUKE UNIVERSITY*	*2031969*		*-$4,484*	*$555,937*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SRSC I-VIRUS BIOLOGY HAHN	*93.885*		*DUKE UNIVERSITY*	*2031969*		*-$722*	*$555,937*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SRSC I-VIRUS BIOLOGY HAHN	*93.885*		*DUKE UNIVERSITY*	*2031969*		*-$338*	*$555,937*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SRSC I-VIRUS BIOLOGY HAHN	*93.885*		*DUKE UNIVERSITY*	*2031969*		*$561,481*	*$555,937*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PART A FORMULA RYAN WHITE HIV/AIDS TREATMENT MODERNIZATION ACT	*93.914*		*CITY OF PHILADELPHIA*	*H89HA00013*		*$212,118*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
RYAN WHITE PART A CARE SERVICES - AACO	*93.914*		*CITY OF PHILADELPHIA*	*H89HA00013*		*$94,358*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
PART A RW HIV/AIDS MINORITY AIDS INITIATIVE	*93.914*		*CITY OF PHILADELPHIA*	*1720666-01*		*$201,325*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
PART A RW HIV/AIDS MINORITY AIDS INITIATIVE	*93.914*		*CITY OF PHILADELPHIA*	*1720666-02*		*$88,886*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
MENTAL HEALTH SERVICES	*93.914*		*CITY OF PHILADELPHIA*	*1720666-01*		*$62,944*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
MENTAL HEALTH SERVICES	*93.914*		*CITY OF PHILADELPHIA*	*1720666-02*		*$33,296*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
CARE SERVICES CASE MANAGEMENT	*93.914*		*CITY OF PHILADELPHIA*	*1720666-01*		*$40,526*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
CARE SERVICES CASE MANAGEMENT	*93.914*		*CITY OF PHILADELPHIA*	*1720666-02*		*$41,262*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
HIV EMERGENCY RELIEF PROJECTS GRANTS	*93.914*		*CITY OF PHILADELPHIA*	*1720668-01*		*$197,160*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
HIV EMERGENCY RELIEF PROJECTS GRANTS	*93.914*		*CITY OF PHILADELPHIA*	*1720668-02*		*$82,776*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
CARE SERVICES CASE MANAGEMENT	*93.914*		*CITY OF PHILADELPHIA*	*1720668-01*		*$41,565*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
CARE SERVICES CASE MANAGEMENT	*93.914*		*CITY OF PHILADELPHIA*	*1720668-02*		*$30,981*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
OUTPATIENT/AMBULATORY MEDICAL CARE	*93.914*		*CITY OF PHILADELPHIA*	*1720665-01*		*$39,926*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
OUTPATIENT/AMBULATORY MEDICAL CARE	*93.914*		*CITY OF PHILADELPHIA*	*1720665-02*		*$22,832*	*$1,189,955*	*OTHER PROGRAMS*	*$14,438,000*
OUTPATIENT EARLY INTERVENTION SERVICE WITH RESPECT TO HIV DISEASE- PAR	*93.918*		*DREXEL UNIVERSITY*	*H76HA001792000*		*$26,727*	*$398,707*	*OTHER PROGRAMS*	*$14,438,000*
RW PART C HIV EARLY PREVENTION	*93.918*		*CITY OF PHILADELPHIA*	*1820058-01*		*$100,000*	*$398,707*	*OTHER PROGRAMS*	*$14,438,000*
GRANTS TO PROVIDE OUTPATIENT EARLY INTERVENTION SERVICES WITH RESPECT TO HIV DISEASE	93.918	N/A				$271,980	$398,707	OTHER PROGRAMS	$14,438,000
COOPERATIVE AGREEMENTS FOR STATE-BASED COMPREHENSIVE BREAST AND CERVICAL CANCER EARLY DETECTION PROGRAMS	*93.919*		*FAMILY HEALTH COUNCIL OF CENTRAL PA*	*4100066441*		*$157,799*	*$157,799*	*OTHER PROGRAMS*	*$14,438,000*
RYAN WHITE HIV/AIDS PROGRAM PART F DENTAL REIMBURSEMENT PROGRAM (DRP)	93.924	T22HA31219				$11,754	$25,919	OTHER PROGRAMS	$14,438,000
RYAN WHITE HIV/AIDS PROGRAM PART F DENTAL REIMBURSEMENT PROGRAM	93.924	T22HA32273				$14,165	$25,919	OTHER PROGRAMS	$14,438,000
ALVEOLAR EPITHELIAL CELL DYSFUNCTION IN PULMONARY FIBROSIS: LEVERAGING	93.937	R01HL145408				$10,560	-$313,496	RESEARCH AND DEVELOPMENT	$706,379,077
REDUCING MORTALITY ATTRIBUTABLE TO CARDIAC ARREST AFTER INJURY: LEVERA	93.937	R03HL141521				$68,677	-$313,496	RESEARCH AND DEVELOPMENT	$706,379,077
REMODELING POTENTIAL OF THE MITRAL VALVE FOLLOWING SURGICAL REPAIR	*93.937*		*UNIVERSITY OF TEXAS AT AUSTIN*	*UTA13-000980*		*-$392,733*	*-$313,496*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
HIV EMERGENCY RELIEF PROJECTS GRANTS	*93.940*		*CITY OF PHILADELPHIA*	*1820469*		*$33,528*	*$109,721*	*OTHER PROGRAMS*	*$14,438,000*
HIV EMERGENCY RELIEF PROJECTS GRANTS	*93.940*		*CITY OF PHILADELPHIA*	*1820469*		*$45,214*	*$109,721*	*OTHER PROGRAMS*	*$14,438,000*
HIV EMERGENCY RELIEF PROJECTS GRANTS	*93.940*		*CITY OF PHILADELPHIA*	*1820469-01*		*$30,979*	*$109,721*	*OTHER PROGRAMS*	*$14,438,000*
MOBILE MESSAGING INTERVENTION TO PRESENT NEW HIV PREVENTION OPTIONS FO	*93.941*		*EMORY UNIVERSITY*	*U01PS004977*		*$4,916*	*$11,219*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
MOBILE MESSAGING INTERVENTION TO PRESENT NEW HIV PREVENTION OPTIONS FO	*93.941*		*EMORY UNIVERSITY*	*U01PS004977*		*$6,303*	*$11,219*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PERC-SAMHSA PROJECT	*93.958*		*ADAMS COUNTY, PENNSYLVANIA*	*PERC*		*-$1,017*	*$436,544*	*OTHER PROGRAMS*	*$14,438,000*
PERC-SAMHSA PROJECT	*93.958*		*CITY OF PHILADELPHIA*	*B09SM10044*		*$554*	*$436,544*	*OTHER PROGRAMS*	*$14,438,000*
PENNSYLVANIA FIRST EPISODE PSYCHOSIS TREATMENT INITIATIVE: PROGRAM EVA	*93.958*		*CITY OF PHILADELPHIA*	*U79SM063192*		*-$926*	*$436,544*	*OTHER PROGRAMS*	*$14,438,000*
SAMHSA-FEP: PENNSYLVANIA FIRST EPISODE PSYCHOSIS TREATMENT INITIATIVE:	*93.958*		*ADAMS COUNTY, PENNSYLVANIA*	*SUB TO SAMHSA FEP*		*$99,232*	*$436,544*	*OTHER PROGRAMS*	*$14,438,000*
SAMHSA-PERC	*93.958*		*CITY OF PHILADELPHIA*	*B09SM10044*		*$369*	*$436,544*	*OTHER PROGRAMS*	*$14,438,000*
PENNSYLVANIA EARLY INTERVENTION CENTER (PEIC)	*93.958*		*ADAMS COUNTY, PENNSYLVANIA*	*SUB TO SAMHSA*		*$338,332*	*$436,544*	*OTHER PROGRAMS*	*$14,438,000*

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
KEYSTONE GERIATRICS CENTER FOR ENHANCING PRIMARY CARE AND COMMUNITY ED	93.969	U1QHP28720			$179,522	$912,586	$912,586	OTHER PROGRAMS	$14,438,000
HIV CLINICAL RESEARCH TRAINING FOR BOTSWANA	93.989	D43TW009781			$18,908	$228,495	$1,011,600	RESEARCH AND DEVELOPMENT	$706,379,077
INJURY AND TRAUMA RESEARCH TRAINING PROGRAM FOR BOTSWANA	93.989	D43TW010448			$21,838	$178,670	$1,011,600	RESEARCH AND DEVELOPMENT	$706,379,077
SMART CUP: A MOBILE MOLECULAR DETECTION DEVICE FOR RAPID DIAGNOSIS OF	93.989	R21TW010625				$75,020	$1,011,600	RESEARCH AND DEVELOPMENT	$706,379,077
PREVENTING NON-COMMUNICABLE DISEASES IN GUATEMALA THROUGH SUGARY DRINK	93.989	R21TW010837			$57,537	$193,007	$1,011,600	RESEARCH AND DEVELOPMENT	$706,379,077
BUILDING LOCAL CAPACITIES IN ETHICS TRAINING AND IRB REVIEW IN GUATEMA	93.989	R25TW009738			$55,784	$202,095	$1,011,600	RESEARCH AND DEVELOPMENT	$706,379,077
DARTMOUTH/MUHAS RESEARCH ETHICS TRAINING AND PROGRAM DEVELOPMENT FOR T	*93.989*		*DARTMOUTH COLLEGE*	*R865*		*$22,861*	*$1,011,600*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PALOP MENTAL HEALTH IMPLEMENTATION RESEARCH TRAINING	*93.989*		*RESEARCH FOUNDATION FOR MENTAL HYGIENE, INC.*	*D43TW009675*		*$19,302*	*$1,011,600*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RCT TO REDUCE STIGMA AND IMPROVE TREATMENT ADHERENCE IN HIV+ PREGNANT	*93.989*		*NEW YORK UNIVERSITY*	*R21TW011084*		*$34,291*	*$1,011,600*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RCT TO REDUCE STIGMA AND IMPROVE TREATMENT ADHERENCE IN HIV+ PREGNANT	*93.989*		*NEW YORK UNIVERSITY*	*R21TW011084*		*$35,855*	*$1,011,600*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DARTMOUTH/MUHAS RESEARCH ETHICS TRAINING AND PROGRAM DEVELOPMENT FOR T	*93.989*		*DARTMOUTH-HITCHCOCK MEDICAL CENTER*	*R25TW007693*		*$7,387*	*$1,011,600*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SMART CUP: A MOBILE MOLECULAR DETECTION DEVICE FOR RAPID DIAGNOSIS OF	*93.989*		*UNIVERSITY OF CONNECTICUT HEALTH CENTER*	*R21TW010625*		*$14,617*	*$1,011,600*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
INFANT SAFE SLEEP INITIATIVE	*93.994*		*COMMONWEALTH OF PENNSYLVANIA*	*4100074035*		*$450,000*	*$689,433*	*OTHER PROGRAMS*	*$14,438,000*
MATERNAL AND CHILD HEALTH SERVICES BLOCK GRANT TO THE STATES	*93.994*		*COMMONWEALTH OF PENNSYLVANIA*	*4100065681*		*$693*	*$689,433*	*OTHER PROGRAMS*	*$14,438,000*
MATERNAL AND CHILD HEALTH SERVICE BLOCK GRANT	*93.994*		*SHADYSIDE HOSPITAL FOUNDATION*	*4100080264*		*$68,564*	*$689,433*	*OTHER PROGRAMS*	*$14,438,000*
MATERNAL AND CHILD HEALTH SERVICES BLOCK GRANT TO THE STATES	*93.994*		*COMMONWEALTH OF PENNSYLVANIA*	*4100080264*		*$170,176*	*$689,433*	*OTHER PROGRAMS*	*$14,438,000*
PAN-INFLUENZA MRNA VACCINE	*93.RD*	*112106011-7856437*	*ST. JUDE CHILDREN'S RESEARCH HOSPITAL*	*HHSN272201400006C*		*$16,939*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CREATION OF FELINE NPC2 USING CRISPR/CAS9 GENOME EDITING	*93.RD*	*17X136*	*LEIDOS BIOMEDICAL RESEARCH, INC*	*HHSN261200800001E*		*$71,081*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PRESERVING CANCER STEM CELLS IN CANINE BLOOD SPECIMENS	*93.RD*	*18X011*	*LEIDOS BIOMEDICAL RESEARCH, INC*	*HHSN261200800001E*		*$6,892*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
RANDOMIZED EVALUATION OF VAD INTERVENTION BEFORE INOTROPIC THERAPY (RE	*93.RD*	*3001890360*	*UNIVERSITY OF MICHIGAN*	*HHSN268201100026C*		*$5*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTION 16C	*93.RD*	*417173*	*UNIVERSITY OF ROCHESTER*	*HHSN272201400005C*		*$32,618*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OPTION 16F	*93.RD*	*417175*	*UNIVERSITY OF ROCHESTER*	*HHSN272201400005C*		*$123,712*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CEIRS OPTION 12 (2018-19)	*93.RD*	*417427G/UR FAD GR510845*	*UNIVERSITY OF ROCHESTER*	*HHSN272201400005C*		*$468,260*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CEIRS OPTION 16C EA "HT" (2018-20)	*93.RD*	*417427G/UR FAO GR510845*	*UNIVERSITY OF ROCHESTER*	*HHSN272201400005C*		*$200,482*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CEIRS OPTION 16C EA "H5H7" (2018-20)	*93.RD*	*417428G/GR510848*	*UNIVERSITY OF ROCHESTER*	*HHSN272201400005C*		*$56,518*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TARGETED CLINICAL TRIALS TO REDUCE THE RISK OF ANTIMICROBIAL RESISTANC	*93.RD*	*730011-01-02/PO #950646RSUB*	*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*N01HHSN272200900022C*		*$38,628*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A NOVEL METRIC FOR BENCHMARKING ANTIBIOTIC USE TO INFORM OUTPATIENT ST	*93.RD*	*7300260419*	*CHILDREN'S HOSPITAL OF PHILADELPHIA*	*200-2018-00464*		*$58,533*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
METAGENOMIC AND WHOLE-GENOME SEQUENCING TO DEFINE RESISTOME EVOLUTION	93.RD	75D3 01 18C029 19				$317,057	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
PRECLINICAL VECTOR PRODUCTION CORE LABORATORY	93.RD	75N92019D00016				$143,011	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
SAFETY AND FEASIBILITY OF CULTIVATED AUTOLOGOUS LIMBAL EPITHELIAL CELL	*93.RD*	*CALEC*	*JAEB CENTER FOR HEALTH RESEARCH*	*CALEC*		*$9,868*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
KENTUCKY HEALTH ANALYSIS	*93.RD*	*FAP111-44-00*	*COMMONWEALTH OF KENTUCKY*	*FAP111-44-00*	*$151,653*	*$728,447*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
DETECTION AND ANALYSIS OF ADVERSE EVENTS RELATED TO REGULATED PRODUCTS	*93.RD*	*HHSF22320140030I*	*HARVARD PILGRIM HEALTH CARE*	*HHSF22320140030I*		*$31,113*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
ASSESSMENT OF CONTINUED OPIOID EFFICACY IN PATIENTS ON CHRONIC OPIOIDS	93.RD	HHSF223201710131C				$228,437	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
A REUSABLE, GENERALIZABLE METHOD TO LINK HEALTH PLAN CLAIMS DATA WITH	*93.RD*	*HHSF223201710132C*	*HARVARD PILGRIM HEALTH CARE*	*HHSF223201710132C*		*$16,092*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A SCALABLE, PATIENT-CENTERED APPROACH FOR "RIGHT-SIZING" OPIOID PRESCR	93.RD	HHSF223201810209C				$157,145	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
CENTERS OF EXCELLENCE FOR PAIN EDUCATION (COEPE)	93.RD	HHSN271201500067C				$22,325	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
CENTERS OF EXCELLENCE FOR PAIN EDUCATION (COEPE)	93.RD	HHSN271201500067C				$50,935	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY MARKERS OF ALZHEIMER'S DISEASE (AD) IN BLSA PARTICIPANTS - STRUC	93.RD	HHSN271201600059C				$90,265	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
EARLY MARKERS OF ALZHEIMER'S DISEASE (AD) IN BLSA PARTICIPANTS - STRUC	93.RD	HHSN271201600059C				$233,365	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C			$565,691	$2,510,114	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C			$577,442	$1,300,722	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C				-$3,255	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	Federal CFDA Number	Additional Award Identification (Optional)	Name of Funder Pass-Through Entity	Identifying Number Assigned By Funder Pass-Through Entity	Total Amount Provided to Sub-Recipients	Federal Expenditures	Federal Program Total	Cluster Name	Cluster Total
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C				$40,688	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C				$44,240	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C				$54,087	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C				$157,392	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C				$169,607	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
THE EUKARYOTIC PATHOGEN BIOINFORMATICS RESOURCE CENTER (EUPATHDB) (COR	93.RD	HHSN272201400030C				$133,408	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
CORE FUNCTION ACTIVITIES TASK ORDER	93.RD	HHSN275201100068U TASK ORDER 8				$140	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
CLINICAL EVALUATION OF NOVEL PRODUCTS FOR FEMALE CONTRACEPTION (MAIN S	93.RD	HHSN27520130002O1				$319,410	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
CONTRACEPTIVE CLINICAL TRIALS NETWORK - FEMALE SITES	93.RD	HHSN275201300020I			$12,325	$280,447	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
CONTRACEPTIVE CLINICAL TRIALS NETWORK - FEMALE SITES	93.RD	HHSN275201300020I				$3,292	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
POPULATION HEALTH RESEARCH SUPPORT (START)	93.RD	HHSN275201800012I				$54,484	$8,861,558	RESEARCH AND DEVELOPMENT	$706,379,077
PROMOTING AND SUPPORTING INNOVATION IN TANF DATA	*93.RD*	*HHSP23337005T*	*MDRC*	*HHSP233201500059I*		*$119,805*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SUPPORT FOR THE MACRA PHYSICIAN-FOCUSED PAYMENT MODEL TECHNICAL ADVISO	*93.RD*	*HPDA-SSS-S-16-005070*	*SOCIAL & SCIENTIFIC SYSTEMS, INC.*	*HHSP233201500040I*		*$11,090*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EFFECT OF CORNEAL PRESERVATION TIME ON LONG-TERM GRAFT SUCCESS	*93.RD*	*JAEBCENTER FOR HEALTH RSCH*	*JAEB CENTER FOR HEALTH RESEARCH*	*JAEBCENTER FOR HEALTH RSCH*		*$9,868*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVALUATION OF SDG AS COUNTERMESAURE TO RADIATION-INDUCED LUNG DAMAGE	*93.RD*	*LGM-2605*	*LIGNAMED*	*HHSN27220150000*		*$21,165*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
CONTRACTOR SERVICES - FEDERAL	*93.RD*	*N/A*	*JAEB CENTER FOR HEALTH RESEARCH*	*N/A*		*$49,385*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SECURE DATA MANAGEMENT SYSTEM TO FACILITATE PROSPECTIVE FOLLOW UP OF P	*93.RD*	*PHR-SSS-S-16-004996*	*SOCIAL & SCIENTIFIC SYSTEMS, INC.*	*HHSN261201400010/HHSN26100006*		*$5,425*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVIDENCE-BASED PRACTICE CENTERS V	*93.RD*	*SUB TO HHSA2902015000051*	*ECRI*	*HHSA2902015000051*		*-$846*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVIDENCE-BASED PRACTICE CENTERS V	*93.RD*	*SUB TO HHSA2902015000051*	*ECRI*	*HHSA2902015000051*		*-$323*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
EVIDENCE-BASED PRACTICE CENTERS V	*93.RD*	*SUB TO HHSA2902015000051*	*ECRI*	*HHSA2902015000051*		*$851*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
VALIDATION OF SERIOUS INFECTIONS AMONG AN IMMUNOCOMPROMISED POPULATION	*93.RD*	*SUB TO HHSF223301002T*	*HARVARD PILGRIM HEALTH CARE*	*HHSF223301002T*		*$177,785*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PK AND SAFETY OF COMMONLY USED DRUGS IN LACTATING WOMEN AND BREASTFED	*93.RD*	*SUB TO HHSN-275201000003I*	*DUKE UNIVERSITY*	*HHSN- 275201000003I*		*$97,788*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
PEDIATRIC TRIALS NETWORK DATABASE	*93.RD*	*UPENN PTN 2*	*AMERICAN ACADEMY OF PEDIATRICS*	*HHSN275201000003*		*$3,331*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
A PHASE 1, SINGLE DOSE STUDY OF THE SAFETY AND VIROLOGIC EFFECT OF A H	*93.RD*	*VRC 607 SUB TO HHSN272201000049I*	*EMMES CORPORATION*	*HHSN272201000049I*		*$72,092*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
SYSTOLIC BLOOD PRESSURE INTERVENTION TRIAL (SPRINT)	*93.RD*	*WFUHS 30158*	*WAKE FOREST UNIVERSITY*	*HHSN268200900040C/N01-HC-95240*		*$127,638*	*$8,861,558*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
OCCUPATIONAL AND EMERGENCY MEDICINE CONTENT DEVELOPMENT AND TECHNICAL	93.U09	75D30118P02867				$3,814	$3,814	OTHER PROGRAMS	$14,438,000
IPA (INTERGOVERNMENTAL PERSONNEL ACT)	93.U15	IPA				$60,639	$60,639	OTHER PROGRAMS	$14,438,000
TOTAL DEPARTMENT OF HEALTH AND HUMAN SERVICES					$69,641,365	$616,433,383			
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE									
NEXT STEPS AMERICORPS	*94.006*		*COMMONWEALTH OF PENNSYLVANIA*	*4100078376*	*$14,797*	*$42,694*	*$172,904*	*OTHER PROGRAMS*	*$14,438,000*
NEXT STEPS AMERICROPS FY18/19	*94.006*		*COMMONWEALTH OF PENNSYLVANIA*	*16AFHPA0010009*		*$122,143*	*$172,904*	*OTHER PROGRAMS*	*$14,438,000*
NEXT STEPS AMERICROPS FY18/19	*94.006*		*COMMONWEALTH OF PENNSYLVANIA*	*16AFHPA0010009*		*$3,872*	*$172,904*	*OTHER PROGRAMS*	*$14,438,000*
NEXT STEPS AMERICROPS FY18/19	*94.006*		*COMMONWEALTH OF PENNSYLVANIA*	*16AFHPA0010009*		*$4,195*	*$172,904*	*OTHER PROGRAMS*	*$14,438,000*
VISTA ADMIN (2017-2018)	94.013	12VSAPA008				$8,730	$313,050	OTHER PROGRAMS	$14,438,000
PHENND VISTA PROJECT	94.013	18VSAPA005				$304,320	$313,050	OTHER PROGRAMS	$14,438,000
PFS PROJECT	*94.RD*	*N/A*	*THIRD SECTOR CAPITAL PARTNERS*	*2016-2019*		*$396,493*	*$396,493*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL CORPORATION FOR NATIONAL AND COMMUNITY SERVICE					$14,797	$882,447			
SOCIAL SECURITY ADMINISTRATION									
MRRC19 - CAUSES AND CONSEQUENCES OF FINANCIAL MISMANAGEMENT AT OLDER A	*96.007*		*UNIVERSITY OF MICHIGAN*	*RRC08098401*		*-$2,446*	*-$2,446*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL SOCIAL SECURITY ADMINISTRATION						-$2,446			

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

Federal Awarding Agency/Program Title	*Federal CFDA Number*	*Additional Award Identification (Optional)*	*Name of Funder Pass-Through Entity*	*Identifying Number Assigned By Funder Pass-Through Entity*	*Total Amount Provided to Sub-Recipients*	*Federal Expenditures*	*Federal Program Total*	*Cluster Name*	*Cluster Total*
DEPARTMENT OF HOMELAND SECURITY									
EVALUATING THE PRIVATE FLOOD INSURANCE MARKET	97.RD	HSHQDC-17-C-B0032			$7,883	$69,751	$69,323	RESEARCH AND DEVELOPMENT	$706,379,077
VALIDATION PROTOCOL FOR PETPACE COLLAR	*97.RD*	*SUB TO HSHQDC-17-9-00016*	*PETPACE, LLC*	*HSHQDC-17-9-00016*		*-$428*	*$69,323*	*RESEARCH AND DEVELOPMENT*	*$706,379,077*
TOTAL DEPARTMENT OF HOMELAND SECURITY					$7,883	$69,323			
TOTAL EXPENDITURE OF FEDERAL AWARDS					$91,048,745	$994,336,055			

Please Note:
Italicized award lines indicate pass-through funding

The accompanying Notes to the Schedule of Expenditures of Federal Awards are an integral part of the schedule.

1. Basis of Presentation

The Schedule of Expenditures of Federal Awards (the "Schedule") has been prepared to present a summary of those activities of the University of Pennsylvania for the year ended June 30, 2019, which have been financed by the U.S. Government ("Federal awards") and is presented on the accrual basis of accounting. The information in this schedule is presented in accordance with the requirements of Title 2 U.S. *Code of Federal Relegations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance).

For purposes of the Schedule, Federal awards include all Federal assistance entered into directly between the University of Pennsylvania and the Federal government and sub-awards from non-Federal organizations made under federally sponsored agreements. Because the Schedule presents only a selected portion of the activities of the University of Pennsylvania, it is not intended to and does not present the financial position or the revenues, expenses or changes in net assets of the University of Pennsylvania.

The University applies its predetermined approved facilities and administrative rate when charging indirect costs to federal awards rather than the 10% de minimis cost rate as described in Section 200.414 of the Uniform Guidance.

Negative amounts on the schedule represent adjustments in the normal course of business to amounts reported in previous years. Catalog of Federal Domestic Assistance ("CFDA") and pass-through award numbers are present where available.

2. Federal Student Financial Assistance

The federal student loan programs included within the Student Financial Aid Cluster on the Schedule of Expenditures of Federal Awards above, with the exception of Federal Direct Loans, are administered directly by the University and balances and transactions relating to these programs are included in the University's consolidated financial statements. Loans outstanding at the beginning of the year and loans made during the year are included in the federal expenditures presented in the Schedule. Also included is the amount recovered for the year ended June 30, 2019, for administrative cost allowance from the Perkins Loan program of $24,259. The amounts of Federal Loans outstanding at June 30, 2019 are shown on below.

Federal Grantor/Program	CFDA Number	Outstanding Balance as of 6/30/2019
Department of Education		
Perkins Loan	84.038	35,821,896
Department of Health and Human Services		
Health Professions Student Loans - Dental	93.342	9,245,097
Health Professions Student Loans - Medical	93.342	171,339
Health Professions Student Loans - Vet	93.342	3,313,443
Loans for Disadvantaged Students - Dental	93.342	5,444
Loans for Disadvantaged Students - Medical	93.342	2,212,165
Nursing Student Loan - Graduate	93.364	455,776
Nurse Faculty Loan Program	93.264	1,902,355
Nursing Student Loan - Undergraduate	93.364	2,679,224

II. Internal Control and Compliance

Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

To the Trustees of the University of Pennsylvania:

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the consolidated financial statements of the University of Pennsylvania ("the University"), which comprise the consolidated statement of financial position as of June 30, 2019, and the related consolidated statements of activities and of cash flows for the year then ended, and the related notes to the consolidated financial statements, and have issued our report thereon dated September 26, 2019, which includes an emphasis of matter paragraph as the University changed the manner in which it presents net assets and reports certain aspects of its financial statements as a not-for-profit entity.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the University's internal control over financial reporting ("internal control") to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we do not express an opinion on the effectiveness of the University's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the University's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express

such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Philadelphia, Pennsylvania
September 26, 2019

Report of Independent Auditors on Compliance with Requirements That Could Have a Direct and Material Effect on Each Major Program and on Internal Control Over Compliance in Accordance with the Uniform Guidance

To the Trustees of the University of Pennsylvania:

Report on Compliance for Each Major Federal Program

We have audited the University of Pennsylvania's (the "University") compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the University's major federal programs for the year ended June 30, 2019. The University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the University's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the University's compliance.

Opinion on Each Major Federal Program

In our opinion, the University complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2019.

Other Matters

The results of our auditing procedures disclosed instances of noncompliance, which are required to be reported in accordance with the Uniform Guidance and which are described in the accompanying schedule

of findings and questioned costs as items 2019-001 through 2019-003. Our opinion on each major federal program is not modified with respect to these matters.

The University's response to the noncompliance findings identified in our audit is described in the accompanying Management's View and Corrective Action Plan. The University's response was not subjected to the auditing procedures applied in the audit of compliance and, accordingly, we express no opinion on the response.

Report on Internal Control over Compliance

Management of the University is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the University's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the University's internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

Philadelphia, Pennsylvania
January 7, 2020

III. Findings

University of Pennsylvania
Schedule of Findings and Questioned Costs
June 30, 2019

Section I – Summary of Auditor's Results

Consolidated Financial Statements

(i)	Type of auditor's report issued:	Unmodified	
(ii)	Internal control over financial reporting:		
	Material weakness(es) identified?	___ yes	_X_ no
	Significant deficiency(ies) identified that are not considered to be material weaknesses?	___ yes	_X_ none reported
(iii)	Noncompliance material to financial statements noted?	___ yes	_X_ no

Federal Awards

(iv)	Internal control over major programs:		
	Material weakness(es) identified?	___ yes	_X_ no
	Significant deficiency(ies) identified that are not considered to be material weaknesses?	__ yes	_X_ none reported
(v)	Type of auditor's report issued on compliance for major programs:	Unmodified	
(vi)	Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)?	_X_ yes	__ no

(vii) Identification of major programs:

CFDA Number(s)	Name of Federal Program or Cluster
Various	Research and Development Cluster
84.015	National Resource Center

(viii)	Dollar threshold used to distinguish between Type A and Type B programs:	$3,000,000	
(ix)	Auditee qualified as low-risk auditee?	_X_ yes	__ no

Section II – Financial Statement Findings

None noted.

Section III – Federal Awards Findings and Questioned Costs

Finding 2019-001 Cash Management

Grantor: National Science Foundation (NSF), Directorate for Biological Sciences; Department of Health and Human Services (DHHS), National Institute of Health (NIH), National Center for Advancing Translational Sciences; DHHS, NIH, National Institute on Minority Health and Health Disparities; DHHS, NIH, National Institute on Aging; DHHS, NIH, National Cancer Institute DHHS, NIH, National Institute of Allergy and Infectious Diseases
Program: Research and Development Cluster
CFDA#: 47.041, 93.350, 93.307, 93.866, 93.397, 93.855
Title: Science and Technology Center for Mechano-Biology; Institutional Clinical and Translational Science Award; Reducing HIV vulnerability through a multilevel life skills intervention for adolescent men; Epigenetics of Aging and Age-Associated Diseases; Alzheimer's Disease Genetics Consortium; Abramson Cancer Center Support Grant; Targeting Blys/Baff in Non-Human Primate Islet Transplantation
Award Year: 07/1/2018 – 06/30/2019
Award Number: CMMI-1548571; 5-UL1-TR-001878-03; 5-U01-MD-011274-03; 2-P01-AG-031862-12; 5-U01-AG-032984-09; 5-P30-CA-016520-42; 4-U01-AI-102430-05

Criteria
2 CFR 200.305 (b3): Reimbursement is the preferred method when the requirements in paragraph (b) cannot be met, when the Federal awarding agency sets a specific condition per §200.207 Specific conditions, or when the non-Federal entity requests payment by reimbursement.

Per the OMB Compliance Supplement, the non-Federal entity must disburse funds for program purposes before requesting payment from the Federal awarding agency or pass-through entity.

Condition
In testing conformity with the cash management reimbursement-method, 40 individual expenditures were tested to compare the date of University payment to the vendor to the date of request for reimbursement from the Government to the University. Eighteen instances were noted in which the University paid the vendor after requesting and receiving reimbursement from the government, as shown in the chart below.

CFDA Number	Award Number	Expenditure Amount	Date of Payment to Vendor	Date of Request for Reimbursement	Days Variance
47.041	CMMI-1548571	251,155	8/28/2018	8/23/2018	5
93.350	5-UL1-TR-001878-03	236,108	3/6/2019	3/1/2019	5
93.307	5-U01-MD-011274-03	226,276	11/7/2018	11/1/2018	6
93.866	5-P01-AG-031862-12	157,817	1/9/2019	12/13/2018	27
47.041	CMMI-1548571	88,162	1/22/2019	12/21/2018	32
93.866	5-U01-AG-032984-09	78,603	3/27/2019	3/12/2019	15
47.041	CMMI-1548571	73,893	5/3/2019	4/4/2019	29
93.866	5-P01-AG-031862-12	66,374	4/3/2019	2/25/2019	37
47.041	CMMI-1548571	44,927	10/15/2018	8/3/2018	73
93.397	5-P30-CA-016520-42	37,989	2/8/2019	1/28/2019	11

93.397	5-P30-CA-016520-42	30,575	12/12/2018	11/7/2018	35
93.866	5-P01-AG-031862-12	40	3/12/2019	2/11/2019	29
93.397	5-P30-CA-016520-42	12,864	12/19/2018	11/29/2018	20
93.307	5-U01-MD-011274-03	8,652	5/3/2019	3/28/2019	36
93.855	1-U01-AI-102430-01	1,148	9/25/2018	8/31/2018	25
47.041	CMMI-1548571	23,247	4/5/2019	3/22/2019	14
93.866	5-U01-AG-032984-09	154,347	10/18/2018	10/9/2018	9
93.866	5-P01-AG-031862-12	1,825	6/19/2019	6/5/2019	14

This is a repeat of finding 2018-002 and 2017-002 in the prior year audit reports.

Cause
Management's current process to ensure that the reimbursement of expenditures occurs only after paying the vendor utilizes the assumption that vendors will be paid within 30 days, on average, of incurring the expense.

Effect
The University received Federal reimbursement prior to paying the vendors for the selected expenses. The reliance of the 30 day average time-frame allowed certain expenditures to be included in requests for reimbursement prior to being liquidated.

Questioned Costs
None as reimbursement was requested for allowable costs

Recommendation
The University should revisit existing internal control procedures to ensure expenditures are paid in compliance with the Federal reimbursement requirements. We also recommend management discuss current cash management requirements with the OMB and the University's cognizant agency to determine a solution that meets the needs of both parties.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Finding 2019-002 Period of Performance

Grantor:	Department of Health and Human Services, National Institute of Allergy and Infectious Diseases; Department of Health and Human Services, National Institute of Neurological Disorders and Stroke
Program:	Research and Development Cluster
CFDA#:	93.855; 93.853
Title:	Targeting Blys/Baff in Non-Human Primate Islet Transplantation; Paraneoplastic Disorders of the CNS: Autoantigen Profiling
Award Year:	07/1/2018 – 06/30/2019
Award Number:	4-U01-AI-102430-05; 5-R01-NS-077851-08

Criteria
2 CFR section 200.309 – "A non-Federal entity may charge to the Federal award only allowable costs incurred during the period of performance and any costs incurred before the Federal awarding agency or pass-through entity made the Federal award that were authorized by the Federal awarding agency or pass-through entity.

2 CFR section 200.343(b) - Unless the Federal awarding agency or pass-through entity authorizes an extension, a non-Federal entity must liquidate all obligations incurred under the Federal award not later than 90 calendar days after the end date of the period of performance as specified in the terms and conditions of the Federal award.

NIH Grants Policy Statement – "Recipients must submit a final FFR, Final RPPR, and Final Invention Statement and Certification within 120 calendar days of the end of the period of performance (project period."

Condition
Twenty-five awards with a period of performance ending within the fiscal year were tested. One award was noted with an expense totaling $1,148 in which the invoice date of 8/27/2018 was after the award period end date of 7/31/2018. The related Department of Health and Human Services award number is 4-U01-AI-102430-05. Additionally, one award was noted with an expense totaling $84,459 in which the University paid the vendor on 1/8/2019, which was 161 days after the award period end date of 7/31/2018. The related Department of Health and Human Services award number is 5-R01-NS-077851-08.

Cause
For the first exception, management's monitoring control did not operate effectively, allowing the approval of the expense to be charged to the Federal award outside the period of the award. For the second exception, the invoice was received by management after award period end but during the 120 day close-out period. Upon receipt, management submitted the invoice for payment, but a delay in initiating a purchase order occurred, which further delayed the payment process.

Effect
The University incurred the first expenditure on the award outside of the period of performance. Additionally, the University did not liquidate the second expenditure in accordance with the criteria cited above.

Questioned Costs
$1,148, as only the first expense was considered to be outside of the period of the award.

Recommendation
Management should further educate the individuals responsible for approving expenditures to ensure they are incurred within the period of the award. Additionally, management should enhance the back-end monitoring/review control to ensure expenditures are within the period of the award. Additionally, as part of the award close-out and financial reporting process, management should enhance the control to ensure liquidation occurs within the appropriate threshold after the award end date.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Finding 2019-003 is an additional finding included in the report based upon the results of the audit of the University of Pennsylvania's City of Philadelphia Awards. As this program includes Federal funding, it has also been included within this report.

2019-003 Eligibility

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, AIDS Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
Title: HIV Emergency Relief Project Grants
CFDA: 93.914
Award Year: 2018-2019, 2019-2020
Award Number: 1720668-01 (RW8668, RW8969); 1720668-02 (RW9668, RW9969)

Criteria
Per the Ryan White Client Certification Form Instructions provided to management by the AIDS Activity Coordinating Office, "The certification process must begin for all clients upon initial intake for services and final eligibility is determined once all supporting documentation has been received and verified." Additionally, the form states copies of all documentation are to be retained by the Provider. The City of Philadelphia Audit Guide section 6130.04 provides a list of documents to be maintained and states "case management service providers are required to keep a file on each client served."

Additionally, per the Ryan White Client Certification Form Instructions provided to management by the AIDS Activity Coordinating Office, if the client presents an active Special Pharmaceutical Benefits Program (SPBP) card, the client has satisfied the income requirement without need for any additional supporting documentation. A copy of the card should be retained on file and status should be verified for cards without an expiration date. Status can be verified by calling the SPBP program with the number on the card.

Condition
Health Resources and Services Administration of the Department of Health and Human Services standards require service providers who receive Ryan White funding to screen clients and collect documentation to support the patient's eligibility for Ryan White funded services, including but not limited to an HIV positive diagnosis, identity, residency, insurance status, and income level. These requirements were sent to the University of Pennsylvania ("the University") by the City of Philadelphia as part of its contract to provide services.

For the AACO Medical awards, 3 of a sample of 60 patient files selected for eligibility testing did not contain sufficient evidence of income level to support the Provider's eligibility determination.

Cause
Management retains income support for the most recent eligibility determination which may fall outside of the period under audit. For one sample, management did not retain the evidence of income level relevant to the year under audit as the information was overwritten by a recertification that occurred subsequent to the fiscal year end. Also, in instances where patients are not able to present an SPBP card but intend to use that as a means to verify income status, management's standard process is to call the SPBP program to confirm the patient's SPBP status. The social worker documents the results of the call in the patient file. Management's standard process does not comply with the Ryan White Certification Form Instructions which requires a copy of the undated card to be retained, in addition to confirmation of the patient's status via phone. For two samples, the patient file included documentation of the phone call made by the Social Worker to SPBP, but did not include a copy of the patient's SPBP card.

Effect
Patient care may be provided to ineligible patients.

Questioned Costs
None, as a form of documentation to support eligibility was ultimately provided for each patient.

Recommendation
The University should ensure proper documentation is retained to support all eligibility requirements, including level of income. Management should implement a periodic review control to detect any patients who are missing eligibility documentation and obtain the missing documentation. Finally, the AACO programs should implement a process to ensure each patient's income verification is retained for a sufficient period of time.

Management's View and Corrective Action Plan
Following this finding is management's view and corrective action plan.

University of Pennsylvania
Summary Schedule of Prior Audit Findings
June 30, 2019

Finding 2018-001 Cost Transfers

Grantor:	National Science Foundation Department of Health and Human Services, National Institute of Health
Program:	Research and Development Cluster
CFDA#:	47.049, 93.837
Title:	Center of Excellence for Materials Research and Innovation (CERMI) The role of CAP2 in sex-related myocardial function
Award Year:	07/2017 – 06/2018
Award Number:	DMR-1120901, 1-R01-HL-134923-01

Summary

Through August 2017, the University processed cost transfers under a cost transfer documentation process which required the manual completion of a cost transfer justification form external to the general ledger system, including documentation at the time of transfer of Principal Investigator approval of the cost transfer, a descriptive explanation of the reason for the transfer, and a correlation of the charge to the project to which the transfer was made. For a sample of 10 cost transfers that occurred from July 1, 2017 through August 31, 2017, two cost transfers for amounts of $31,343 and $14,000 were noted in which the documentation of the direct benefit to the award being transferred to was not satisfactorily documented until six months and nine months, respectively, after the cost transfers were made.

In September 2017, the University implemented a cost transfer documentation process which requires the creator of the journal entry to categorize the cost transfer in one of three categories based on timeliness and dollar value threshold, which then determines the related documentation required to substantiate the cost transfer. This updated process requires the journal entry creator to document the determined required information within additional fields in the general ledger system simultaneously with the creation of the journal entry. For a sample of 50 cost transfers that occurred during the period September 1, 2017 through June 30, 2018, no exceptions were noted.

Status Update

The Office of Research Services, in conjunction with each of the schools, has been continuing its quarterly monitoring process over cost transfers such that improvements in documentation continue to be made.

Finding 2018-002 Cash Management

Grantor:	Department of Health and Human Services, National Institute of Health; National Science Foundation, Directorate for Engineering; Department of Energy, Office of Science
Program:	Research and Development Cluster
CFDA#:	93.866; 93.350; 47.041; 93.397; 93.307; 81.049; 93.853
Title:	Consortium for Alzheimers Sequence Analysis (CASA); Institutional Clinical and Translational Science Award; Science and Technology Center for Mechano-Biology; Coordinating Center for Genetics and Genomics of Alzheimer's Disease (CGAD); Abramson Cancer Center Support Grant; Reducing HIV vulnerability through a multilevel life skills intervention for adolescent men; High Energy Physics Research at the University of Pennsylvania; Mechanistic analysis of axonal transport defects in neurodegenerative disease
Award Year:	07/2017 – 06/2018
Award Number:	1-UF1-AG-047133-01; 1-UL1-TR-001878-01; CMMI-1548571; 1-U54-AG-052427-01; 2-P30-CA-016520-40; 1-U01-MD-011274-01; DE-SC0007901; 2-R01-NS-060698-06A1

Summary
Per the OMB Compliance Supplement, the non-Federal entity must disburse funds for program purposes before requesting payment from the Federal awarding agency or pass-through entity. In testing conformity with the cash management reimbursement-method, 40 individual expenditures were tested to compare the date of University payment to the vendor to the date of Government reimbursement to the University. Twelve instances were noted in which the University paid the vendor after requesting and receiving reimbursement from the government.

Status Update
The University continues to follow and believes it is in compliance with the cash management regulations as written in 2 CFR Part 200.305(b) which require the organization to minimize the time lapse between request for reimbursement from sponsoring agencies and vendor payment.

The University will continue to monitor for an OMB response to the COGR letter regarding the need for a resolution or change to the requirement in the Compliance Supplement.

Finding 2018-003 Period of Performance

Grantor:	Department of Transportation, Federal Aviation Administration; Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke
Program:	Research and Development Cluster
CFDA#:	20.RD; 93.853
Title:	National sleep study technical support; Regulation of Neuronal Excitability by Extracellular Calcium
Award Year:	07/2017 – 06/2018
Award Number:	SRAS002489-1; 1-R01-NS-074257-01

Summary
Of 25 awards tested with a period of performance beginning within the fiscal year, one award was noted with an expense totaling $460 that was incurred for services provided before the start of the award. Of 25 awards tested with a period of performance ending within the fiscal year, one award was noted with an expense totaling $1,268 for which was received after the award end period.

Status Update
Ultimately all questioned costs were removed from the awards and revised financial reports were issued.

Finding 2018-004 Return of Title IV Funds

Grantor:	Department of Education
Program:	Student Financial Aid
CFDA#:	84.038
Title:	Federal Perkins Loan
Award Year:	7/2017 – 6/2018
Award Number:	Revolving Fund

Summary

The Code of Federal Regulations (CFR) requires the University to return the amount of Title IV funds for which it is responsible no later than 45 days after the date of the University's determination that the student withdrew from the University. Of 25 refund calculations tested, one instance was noted in which the student left the University at the end of the summer session on 8/11/2017 and did not attend school during the fall session. The student had Perkins loans of $2,750 disbursed on their account on 7/31/2017 related to the fall session, and it was not removed until 1/9/2018. Management's standard control process did not identify the need for the return until the student's file was being reviewed upon returning to the University in Spring 2018. This is a repeat of finding 2017-008 in the prior year audit report.

Status Update

The Financial Aid Office has enhanced its monitoring controls to ensure that all refunds related to the Return of Title IV funds are submitted to the government within the 45 day threshold. The enhanced controls include a bi-weekly review of a report of return to title IV calculations completed. This review will confirm refunds from internal systems to COD system have been received with-in the 45 day requirement.

Current status of remediation:

The Financial Aid Office put this control in place 02/18/2019.

SRFS is implementing new software for fall of 2021, Banner by Ellucian. Banner's integrated modules for Student Records, Financial Aid, Loan Processing and Student Accounts will allow SRFS to track student separations, and required federal aid adjustments with automated tracking and fund returns.

Finding 2018-005 Verification

Grantor: Department of Education
Program: Student Financial Aid
CFDA#: 84.063
Title: Federal Pell Grant
Award Year: 7/2017 – 6/2018
Award Number: P063P172158

Summary
The Code of Federal Regulations (CFR) requires certain verification procedures to be performed by the University in relation to data reported on the Institutional Student Informational Record (ISIR). Of 25 selections tested for Federal verification procedures, one instance was noted in which the student's US Income Tax Paid per the ISIR did not agree to the amount included on the subsequently obtained tax return. Management calculated aid eligibility based off of the ISIR data, which was submitted without use of the data retrieval tool. The student then submitted the tax document after completion of the ISIR with a different tax paid, which was not caught timely by management in the standard verification procedures. In this instance, management did not update the information prior to awarding and disbursing Federal Aid to the student. The student received additional institutional aid in lieu of additional Federal aid.

Status Update
Since the period of review, the Financial Aid Office began using a third party servicer to process verification for selected students. The Financial Aid Office conducts a secondary review of the servicer's work by pulling a random sample of the completed files. Utilizing an internal check list, the financial aid staff reviews the selected sampling of verified students. The secondary reviewer compares primary reviewer's data by checking the Federal Central Processing System (FAA Access to CPS online) and our financial aid management system, SAM. If errors are discovered, the secondary reviewer makes appropriate data corrections in CPS to recalculate aid eligibility. The secondary reviewer notates necessary corrections on the internal verification checklist, sign and date to document as confirmation of the review.

Current status of remediation:

The Financial Aid Office put this control in place 03/11/2019. Images of the Verification Checklist with secondary reviewer signoff are in ImageNow System.

QC review for 2019-20 Verification Records began in October 2019. Images of the Verification Checklist with secondary reviewer signoff are in ImageNow System.

Finding 2018-006 Reporting

Grantor: Department of Education
Program: Student Financial Aid
CFDA#: 84.063, 84.268
Title: Federal Pell Grant, Federal Direct Loans
Award Year: 7/2017 – 6/2018
Award Number: P063P172158, P268K182158

Summary
The Code of Federal Regulation (CFR) and the 2018 Compliance Supplement require disbursements of Direct Loan and Pell grant awards to be reported to the Common Origination and Disbursement (COD) website with the appropriate disbursement amount and date. The University's monitoring controls did not sufficiently identify and correct the disbursement dates to ensure compliance with the Federal requirements. Of 25 students selected for testing the reported date and amount of disbursement for Direct Loans, 8 students had a different disbursement date in COD than in Penn's student file system, within a range of 1-2 days. Of 25 students selected for testing the reported date and amount of disbursement for Pell awards, 22 students had a different disbursement date in COD than in Penn's student file system, within a range of 1 – 104 days.

Status Update
In the prior academic year the Financial Aid Office identified a timing issue with Pell disbursement dates related to the use of multiple legacy systems. In January 2018, we implemented a system change that moved the actual SAM disbursement batch job from Friday to 12 am Monday morning. This was done in an effort to address the timing issue in the actual disbursement date reported to COD. The Financial Aid Office began reviewing SAM/COD Pell Disbursement Date discrepancies for spring 2018 by requesting a COD Pell Grant Disbursement file. Our on-going QC process is to periodically request from COD the Pell Year to Date Disbursement Report and compare to a SAM Pell Grant Year to Date Disbursement report. For the remainder of 2018-19 and 2019- 20 aid years, the Financial Aid office enhanced their monitoring controls by conducting this review monthly.

Current status of remediation Pell Grants:

The Financial Aid Office put a monthly control in place 02/28/2019. At the beginning of each month, Financial Aid staff request Pell Year to Date and Pell Reconciliation reports from the COD. These reports are merged with disbursement data from the Student Account system (Pennant Accounts) and the Financial Aid Management system (SAM) to reconcile the data.

Current status of remediation Direct Loans:

SRFS management and IT support continue to monitor file exchanges and document delays. We have adjusted the holiday processing schedule to include disbursements.

SRFS is implementing new software for fall of 2021, Banner by Ellucian. Banner contains integrated modules for Student Records, Financial Aid, Loan Processing and Student Accounts. System implementation including automation of disbursement job processing, will remediate this finding.

Finding 2018-007 Enrollment Reporting

Grantor: Department of Education
Program: Student Financial Aid
CFDA#: 84.063, 84.268
Title: Federal Pell Grant, Federal Direct Loans
Award Year: 7/2017 – 6/2018
Award Number: P063P172158, P268K182158

Summary
The Code of Federal Regulation (CFR) and the National Student Loan Data System (NSLDS) Enrollment Reporting Guide require the University to report changes in student enrollment to NSLDS. Of 25 students selected with changes in enrollment status, three changes in enrollment status were reported to the National Student Loan Data System (NSLDS) more than 60 days after the student had left the University, ranging between 70 and 3o2 days with an average of 154 days. The University's monitoring process over information reported to the third party service provider did not ensure the information was transferred timely to the National Student Loan Data System. Additionally, seven of the 25 students selected had a change in status reported timely to NSLDS, but were reported with a withdrawn status and should have been reported with a graduated status. The University had certified the graduated status to the third party service provider, but did not correct a processing error identified the third party service provider in a timely manner to ensure the status was certified to NSLDS timely.

Status Update
The Office of the University Registrar has enhanced its monitoring controls over the third party service provider. The enhanced controls include a monthly review of enrollment changes as compared to the certification that occur within NSLDS. The Office of the University Registrar implemented the enhanced controls 02/28/2019.

Current status of remediation:

The Office of the University Registrar (OUR) started working on enhanced controls for the month of April 2019. Management pulls a random sample of 30 students from the current enrollment reporting cycle reconciles data elements in the Student Registration System (SRS), National Student Clearing House (NSC), and National Student Loan Data System (NSLDS).

SRFS is implementing new software for fall 2021, Banner by Ellucian. Banner contains integrated modules for Student Records, Financial Aid, Loan Processing and Student Accounts. The new system's design includes all federally required data elements for enrollment reporting. Baseline enrollment reporting process will reduce data errors – process automation will ensure timely reporting.

2018-008 Period of Performance

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
CFDA#: 93.914
Title: HIV Emergency Relief Project Grants
Award Year: 2017-2018; 2018-2019
Award Number: RS7668, RW8668

Where a funding period is specified, a recipient may charge to the award only allowable costs resulting from obligations incurred during the funding period and any pre-award costs authorized by the HHS awarding agency pursuant to §74.25(d)(1). The AACO Medical awards have a one year duration and begin on March 1st of each year. The RS7668 award ended on February 28, 2018 and the RW8668 award began on March 1, 2018. During the testing over the period of performance for direct costs, we noted that time sheets for one hourly employee related to hours worked in February 2018 were incorrectly charged to the RW8668 award which began in March 2018.

Status Update
The out of period expense was replaced by other program costs not previously invoiced such that no sponsor refund was required.

2018-009 Program Income

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
CFDA#: 93.914
Title: HIV Emergency Relief Project Grants
Award Year: 2017-2018; 2018-2019
Award Number: R7968, RW8968, RS7944, RS8944, R7866, RW8866, R7731

Per 42 USC 300ff-15, providers may impose charges for the provision of services to patients in accordance with the individual's income level not exceeding in aggregate specific thresholds based on the individual's income level. The term aggregate applies to the annual charges imposed for all charges without regard to whether they are characterized as enrollment fees, premiums, deductibles, cost sharing, co-payments, coinsurance, or other charges for services.

In cases which service providers charge individuals for services performed for Ryan White services, the Health Resources and Services Administration of the Department of Health and Human Services requires the service provider to ensure that the aggregate amount of charges for the year do not exceed the income level related thresholds within the criteria above.

PwC selected 60 payments for program income testing for the Medical awards. PwC was unable to determine whether the institution met the program income billing criteria stated above for four of 60 payments, totaling to $110 of program income.

PwC selected 25 payments for program income testing for the Dental awards and noted the institution billed $50 for a co-payment for one patient who had no personal income, and therefore should not have been billed.
This was a repeat of finding 2017-001 in the prior year audit report.

Status Update
Since the audit, the clinic staff, especially the social workers performing Ryan White certifications, have been making more effort to retain income documentation on patients. This remains a challenge because they are keeping it in paper files instead of scanning it into the electronic patient files, for more privacy and sensitive patient information protection.

Finding 2018-010 Eligibility

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Substance Abuse and Mental Health Services Administration (SAMHSA)
Program: Penn Psychosis Evaluation and Recovery Center (PERC)
Title: Block Grants for Community Mental Health Services
CFDA#: 93.958
Award Year: 2017-2018
Award Number: 1720597-01

The 2018 Compliance Supplement states the eligibility compliance requirement is not applicable for the 93.958 Federal Award for 2018 audits. Per the award agreement between the University of Pennsylvania and the City of Philadelphia, through the Office of Behavioral Health/Intellectual Disability Services, dated February 2, 2018, the University was to serve at least 35 new participants, ages 16-30 years, from Philadelphia County during 2018. Key inclusion criteria for eligibility in the program included participant age being 14-35 years, onset of psychosis less than 2 years and likelihood that clinical symptoms was not better explained by substance use disorder or medical illness.

Per review of the eligibility criteria in the award agreement, cited above, eligibility was a required compliance requirement for the SAMHSA program at the University of Pennsylvania during 2018. During testing of 5 patients, of a population of 35 patients, served through the SAMHSA program, management determined that the patient information was considered protected and could not be shared for the external audit. Verification of the satisfaction of eligibility criteria could not be obtained during the audit.

Status Update
Since this finding was determined, the University of Pennsylvania reached out to the city department on several occasions for a response on our limitation on patient eligibility testing under this mental health program. We will continue to operate under what we believe is our compliance with Pennsylvania state mental health laws until a response from the city department indicates that a change is required.

Penn
UNIVERSITY of PENNSYLVANIA

Office of Research Services

Management View and Corrective Action Plan

Finding 2019-001 Cash Management

Grantor:	National Science Foundation (NSF), Directorate for Biological Sciences; Department of Health and Human Services (DHHS), National Institute of Health (NIH), National Center for Advancing Translational Sciences; DHHS, NIH, National Institute on Minority Health and Health Disparities; DHHS, NIH, National Institute on Aging; DHHS, NIH, National Cancer Institute DHHS, NIH, National Institute of Allergy and Infectious Diseases
Program:	Research and Development Cluster
CFDA#:	47.041, 93.350, 93.307, 93.866, 93.397, 93.855
Title:	Science and Technology Center for Mechano-Biology; Institutional Clinical and Translational Science Award; Reducing HIV vulnerability through a multilevel life skills intervention for adolescent men; Epigenetics of Aging and Age-Associated Diseases; Alzheimer's Disease Genetics Consortium; Abramson Cancer Center Support Grant; Targeting Blys/Baff in Non-Human Primate Islet Transplantation
Award Year:	07/2018 – 06/2019
Award Number:	CMMI-1548571; 5-UL1-TR-001878-03; 5-U01-MD-011274-03; 2-P01-AG-031862-12; 5-U01-AG-032984-09; 5-P30-CA-016520-42; 4-U01-AI-102430-05

The University is currently following and believes it is in compliance with the cash management regulations as written in 2 CFR Part 200.305(b) which require the organization to minimize the time lapse between request for reimbursement from sponsoring agencies and vendor payment.

We understand that variations remain in the interpretation of the cash management compliance requirement. For example, on October 20, 2017, the Council On Governmental Relations (COGR) wrote a letter to the Office of Financial Management expressing concern that the cash management requirement language in the 2017 Compliance Supplement was not aligned with the requirements for cash management as currently written in 2 CFR Part 200.305(b). COGR's position is that the Compliance Supplement should be revised to conform with the cash management requirements as written in 2 CFR 200.305(b). The University agrees with COGR's position and believes the language in the Compliance supplement leads to an unrealistic and unreasonable administrative burden for universities and possibly a reconfiguration of smoothly running electronic process or a complete replacement of electronic processes with an inefficient, manual one in efforts to ensure each vendor has been paid prior to requesting reimbursement from the sponsoring agency.

The University will continue to monitor the OMB interpretation of the Cash Management requirements. If there is no resolution by OMB or change to the requirement in the Compliance Supplement we will work with our cognizant agency to arrive at a solution that fits the interests of all parties. In addition, the Director of Cost Analysis in the Office of Research Services recently contacted PMS/DHHS on January 3, 2020 to discuss a resolution to cash management audit findings from previous years and to obtain a management decision and will continue to contact PMS over the next year to try and reach a resolution on the cash management finding for this year and previous years.

5th Floor, Franklin Building 3451 Walnut Street Philadelphia, Pa 19104-6205
Tel 215.898.7293 Fax 215.898.9708 www.upenn.edu/researchservices/

For FY19, although 18 exceptions out of 40 tested selections appear to represent a high percentage, we note that these only relate to payables transactions. Payables account for approximately 20% of costs across all federal awards (the other 80% of costs are payroll and fringe, indirect costs, and other internal billings and journals for which cash management is not an issue). We also note that while cash management was also tested on one other major programs under the FY19 audit, exceptions are only noted in the R&D cluster.

Several years ago when awards with our major federal sponsoring agencies were on pooled drawdowns, Penn was able to hold back 20% of each draw down request to help mitigate this payables time-lag issue. This continues to be the case for awards which are still on pooled drawdown. However, when the agencies began to require specific, or itemized, drawdowns, Penn completely reconfigured its sponsored invoicing system. The new requirement made it infeasible to hold back a portion of the new itemized drawdown requests. These 18 noted exceptions are only on awards under the itemized drawdown method of collections.

However, in order to help mitigate any unreasonable time lapses between payments to vendors and reimbursement requests from sponsors, Penn made considerable efforts to improve and streamline the payables process, which included paying our vendors on a more timely and automatic basis. Under the Procure-to-Pay initiative, Penn created a supplier portal, allowing our suppliers to register and reduce administrative burdens and delays with Purchase Orders and invoice payments. Those registered suppliers electing to take advantage of Penn's preferred electronic payment offerings, are able to retain Net 30 terms or better, depending on their payment selection. Those electing to take payment via check are paid in Net 45 days. The initiative was designed to encourage our suppliers/vendors to register and receive the best payment terms possible, thereby minimizing the time between request for reimbursement from sponsoring agencies and vendor payment. This mitigating control and reasonable payment terms are reflected in the Days Variance figures for each exception where most were within 30 days.

Regarding the one noted invoice with a variance of 73 days between the date of government reimbursement and the date of payment to the vendor, the PI delayed in approving the subrecipient invoice, which then delayed the department's approval for invoice payment. ORS will work with the department to discuss an enhancement to their subrecipient monitoring procedures so that if PI approval is delayed in the future, the department will still move the invoice along for timely payment.

Finding 2019-002 Period of Performance

Grantor:	Department of Health and Human Services, National Institute of Allergy and Infectious Diseases; Department of Health and Human Services, National Institute of Neurological Disorders and Stroke
Program:	Research and Development Cluster
CFDA#:	93.855; 93.853
Title:	Targeting Blys/Baff in Non-Human Primate Islet Transplantation; Paraneoplastic Disorders of the CNS: Autoantigen Profiling
Award Year:	07/2018 – 06/2019
Award Number:	4-U01-AI-102430-05; 5-R01-NS-077851-08

For the $1,148 questioned cost which was out of the period of the award, the Office of Research Services clarified with the department that the expense to replace disposable surgical instruments which were utilized on the award but not received until after the award period ended is unallowable to the award. The Director of Cost Analysis in the Office of Research Services will work with the department to remove the cost from the award and refund the amount to the sponsor before the end of fiscal year 2020.

For the noted exception of the invoice paid 161 days after the award period end date, during its closeout process ORS discovered that the subrecipient had not yet issued an invoice to Penn for the final award year. Once the department obtained the invoice, ORS evaluated the allowability of the cost and

determined it as appropriately within the period of performance of the award, thereby accruing it on the final financial report. ORS followed up again with the department during its continued monitoring procedures as the cost did not materialize in a timely manner, and continued to assist the department and monitor the situation until the expense was recognized on the award ledger and paid. This was an unusual and exceptional situation. One of Penn's period of performance controls prevents the creation of new purchase orders on awards after the award period end date. Thus the invoice payment was further delayed as the department had to work with ORS and Accounts Payable to work out a non-standard payment process.

Elizabeth D. Peloso
Associate Vice President / Associate Vice Provost Research Services
epeloso@upenn.edu
215-898-7293

Penn Medicine

University *of* Pennsylvania Health System

Office of Corporate Finance

Thomas W. Cooper
Vice President of Corporate Finance

Management View and Corrective Action Plan

Finding 2019-003 Eligibility

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
Title: HIV Emergency Relief Project Grants
CFDA: 93.914
Award Year: 2018-2019, 2019-2020
Award Number: 1720668-01 (RW8668, RW8969); 1720668-02 (RW9668, RW9969)

Results of the eligibility audit finding were discussed with the Infectious Diseases/Ryan White Grant Program Manager at HUP, Morgan Curran. In the cases of the 2 missing copies of SPBP cards, this is mostly a timing issue. As of the date of this audit report, Morgan Curran has already reached out to the 2 patients with missing copies of SPBP cards to instruct them to bring their cards to the clinic with them at their next appointment. She also placed a note in their files instructing the check-in staff to obtain and the save the documentation in the patient files at such time. Regarding the missing income documentation, earlier in the year, the Program Manager designated 2 locked file cabinets where patient income documentation for these Ryan White awards is retained even after recertification occurs. Unfortunately, the missing income documentation was from the time period prior to the establishment of these secured file cabinets. Additionally, going forward, the clinic will perform an enhanced review of the documentation on file to support eligibility determinations at the time of patient certification or re-certification.

Thomas W. Cooper
Vice President / UPHS Corporate Finance
thomas.cooper@uphs.upenn.edu
267-414-2344