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# Berkeley Bioengineering

Dear Friends and Colleagues,

I hope this message finds you and those close to you happy and healthy. As we approach the end of this academic year that has been anything but ordinary, I've been reflecting on what it means to be a bioengineer. We stand at the crossroads of biology, medicine, and engineering, poised both to harness technology to advance human health and to leverage biological systems to create new technologies.



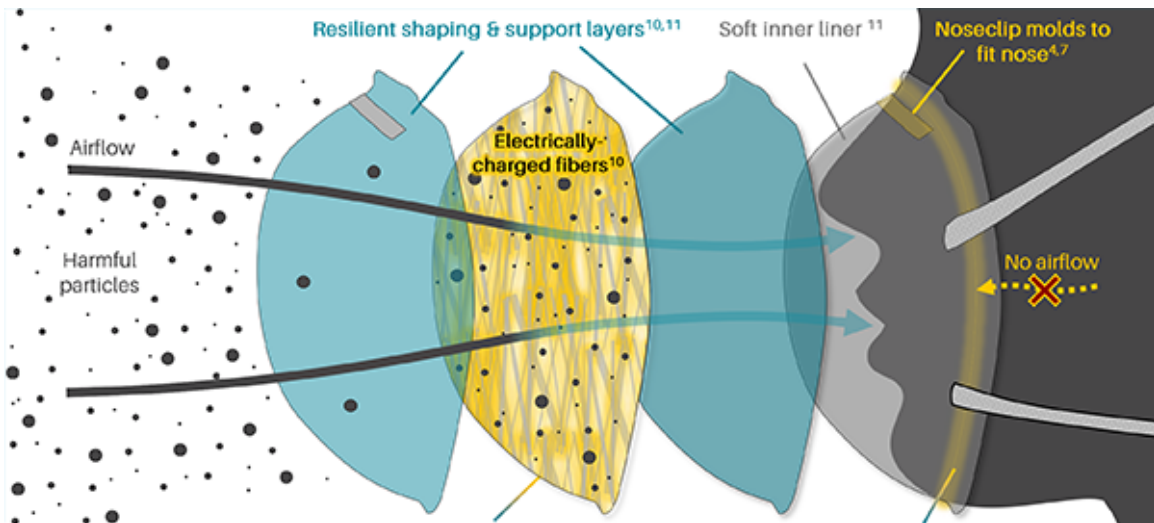
The past few months have shown more clearly than ever that the world needs bioengineers and looks to us for leadership in times of crisis. Like you, I've been filled with pride with the many ways in which the Berkeley Bioengineering community has risen to the COVID-19 challenge, often setting aside other important activities to collaborate on cross-country efforts.

I'm also truly inspired by the perseverance and dedication of all members our community through the unprecedented challenge of moving virtually overnight and mid-semester from in-person to online instruction.

Finally, congratulations to the Bioengineering class of 2020, whatever degree you are completing! I know I speak for our entire department when I say how proud we are of you all.

Very best wishes for a relaxing summer, and looking forward to coming back in 2020-21 stronger than ever. Go Bears!

*Sanjay Kumar*  
*Chair, Department of Bioengineering*



## Bioengineers play key role in PPE decontamination efforts

Professor Amy Herr is one of the leaders of a research consortium that seeks to provide scientific consensus on face mask sterilization methods. The N95Decon consortium is assessing existing research, designing new systems and actively debunking misinformation, with the goal of providing healthcare staff with scientifically proven ways to more safely reuse N95 masks.

[Fact sheets are available on the consortium's website.](#)



## What COVID-19 antibody tests can tell us, and what they can't

Professor Patrick Hsu and colleagues at Berkeley and UCSF found concerning flaws and high rates of false positives in many of the 14 serology tests they have evaluated.

Early results are posted online and will be updated to give policymakers the information they need before purchasing serology tests.



## Some good news!

We'll be welcoming our largest-ever undergraduate cohort this August: 166 new bioengineers! Our Class of 2024 is 48% female and 23% URM.

More excellent students will be arriving for our graduate programs: 36 for the PhD, a record 37 for the Master of Translational Medicine, and 48 for the Master of Engineering.

We think this growth reflects a renewed appreciation of the special role bioengineers can play in addressing the world's most important challenges.

***Go BioE Bears!***

## More COVID-19 news

Dan Fletcher's lab, working with the Gladstone Institute, has adapted their CellScope to provide rapid remote detection for the team's [CRISPR-based COVID-19 RNA detection method](#).

MTM student Nitish Goyal and others launched [SF Food Friends](#), a platform to connect low-risk volunteers with homebound people in their neighborhood.

Bioengineering faculty and students have worked with the Innovative Genomics Institute to start up and staff the [robotic COVID-19 testing lab](#), a pop-up campus lab able to process more than 1,000 patient samples per day.

Many, many students, faculty, and alumni volunteered immediately with [#GetMePPE](#) to [collect and donate Personal Protective Equipment to healthcare providers](#).

Ian Holmes' lab is doing coronavirus genomics using the [JBrowse genome browser](#) and [Galaxy workflow manager](#). They have launched a service where anyone can [upload a coronavirus genome](#) and get a visualization.

Steve Conolly's lab is working to expand filtration testing equipment for assessing N95 mask effectiveness.

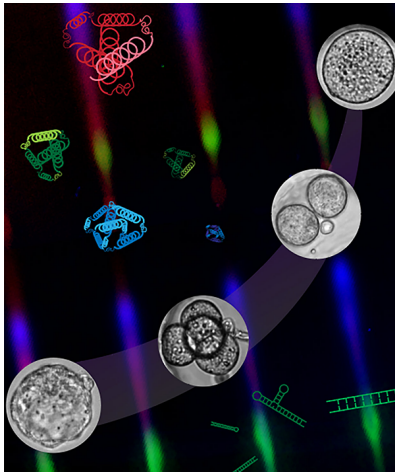
Niren Murthy's lab is searching for a new small molecule target for treatment, pursuing the PLpro protease that appears to be essential for coronavirus replication.

Kevin Healy and Syed Hossainy are helping to quickly improve the effectiveness of current treatment medications by switching to inhaled delivery through a nebulizer.

[As leader of one of 5 national lab COVID-response teams](#), Professor

PhD alumna Elizabeth Schneider was the [first plasma donor in the state of Washington](#) to participate in a research study on using convalescent plasma from COVID-19 survivors as a treatment.

Adam Arkin is developing computational approaches to develop and optimize COVID-19 diagnostic tests, detection methods, and other applications.



### Herr Lab develops microfluidic device to analyze embryos

Professor Amy Herr and recent PhD Elisabet Rosàs-Canyelles have developed microfluidic tools to examine RNA and protein formation in single cells in rapidly developing embryos. They can now get a detailed, real-time look at the crucial period when genetic molecules instruct cells on what proteins to form.



With regret we announce that the **2020 BioE Alumni Summer Bear Bash**, May 30, has been postponed to a later date TBA.

**We'll be back! Stay safe and stay tuned!**

### Department News

Congratulations to 3 current and 6 incoming PhD students, and 4 graduating BS students, recipients of new NSF Graduate Research Fellowships.

*US News and World Report* has ranked the UC Berkeley-UCSF Graduate Program in Bioengineering **FOURTH** among bioengineering graduate programs in the U.S.! UC Berkeley is still the top public engineering school.

Professor Kumar's lab has identified a mechanism used by tumor cells to adhere to and migrate through a nanoporous, three-dimensional extracellular matrix characteristic of brain tissue.

Using photolithography and programmable DNA, bioengineers Olivia Scheideler, Lydia Sohn, David Schaffer, Andrew Bremer and Roberto Falcón-Banchs have created a new technique that can rapidly print 2D arrays of cells and proteins that mimic a wide variety of cellular environments in the body.

There's always so much going on at Berkeley BioE!  
Check out the latest news on [RESEARCH](#), [ALUMNI](#), and [MORE](#) on our website.

Ready to give back?  
Give to BioE, and help us keep offering outstanding opportunities for the next generation of bioengineers.





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