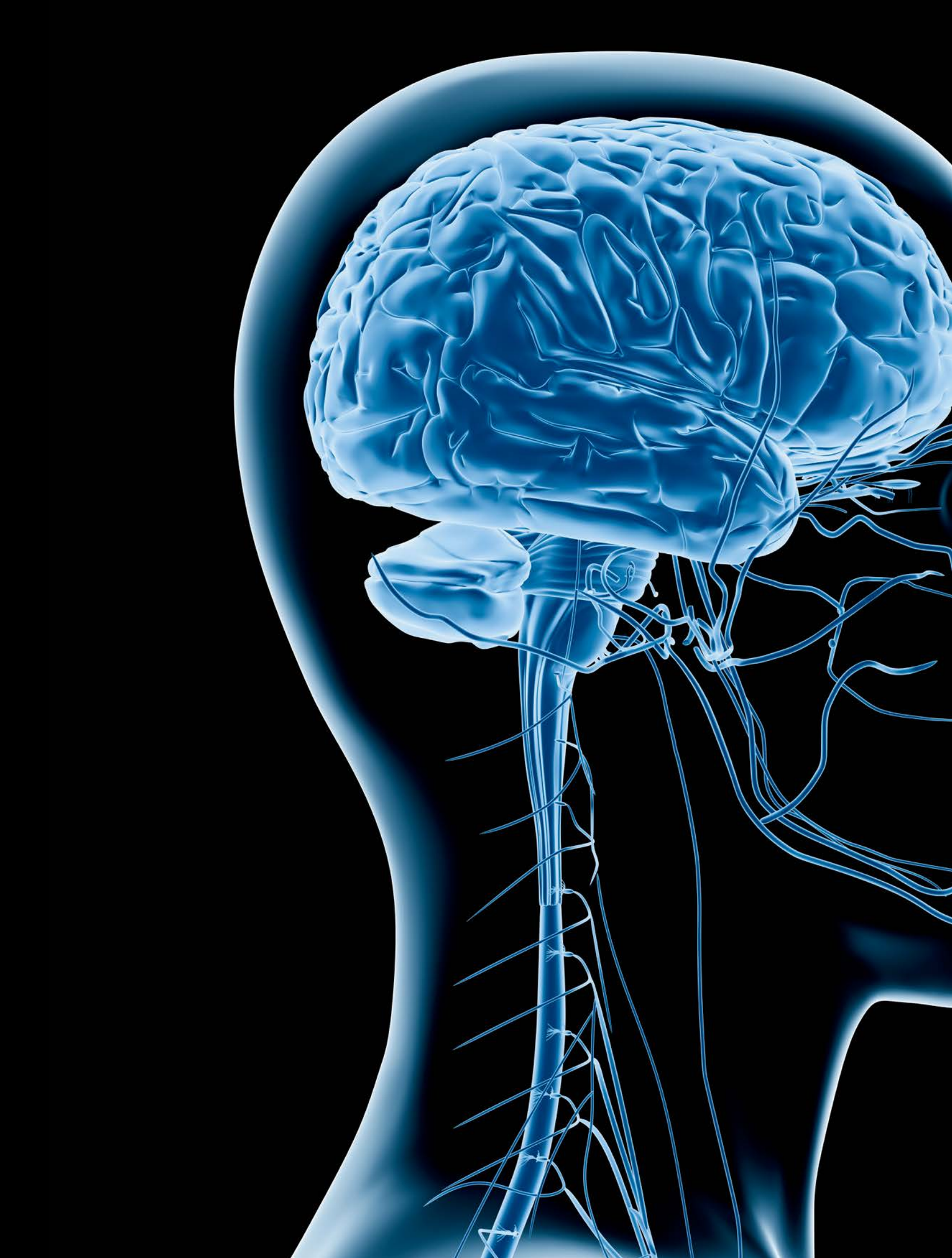
CENTRE FOR
MOLECULAR BIOLOGY
AND NEUROSCIENCE

CENTRE FOR MOLECULAR BIOLOGY AND NEUROSCIENCE

10 YEAR SUMMARY



Centre vision

The Centre shall take on a leading role in elucidating the impact of DNA repair and genome maintenance mechanisms in preventing neurological disease and brain aging.

(from the 2001 CMBN application to the RCN)

Subgoals

V1: "The Centre shall take on a leading role in elucidating the role of DNA repair and genome maintenance mechanisms in preventing neurological disease and brain aging."

V2: "The Centre shall provide fundamental new insight in the dynamics of molecular organization and functions of glutamatergic synapses and neurons, thus paving the way for rational therapeutic strategies targeted to the main excitatory fibre system in the brain."

V3: "The Centre will develop and apply stem cell technology and targeted repair to broaden the range of therapeutic strategies in neurological disease."

V4. "The Centre will further develop world-class expertise within microbial pathogenesis related to human disease in general and neurological disease in particular."

V5: "As spin-offs from its research activities, the Centre will deliver diagnostic and bioinformatics tools of considerable socio-economic and potential commercial value."

V6: "The Centre will take on a primary responsibility for postgraduate teaching in the research field at the crossroads between molecular biology, genetics and neuroscience."

(from the 2001 CMBN application to the RCN)

CMBN Key Facts

Norwegian name: Senter for molekylærbiologi og nevrovitenskap

English name: Centre for Molecular Biology and Neuroscience (CMBN)

Primary Funding: Centre of Excellence / Senter for Fremragende Forskning SFFI project of the Research Council of Norway 2002-2012

Staff/Faculty: 11 research groups, approximately 200 scientists, staff and students

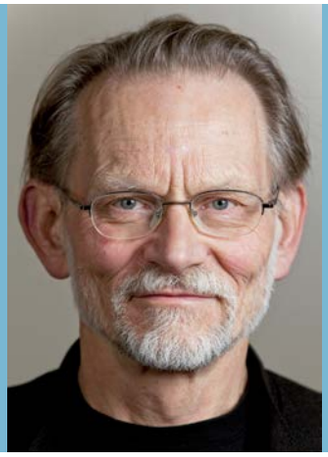
Host Institutions: University of Oslo (UiO) and Oslo University Hospital (OUS)

Research Objective: To understand how nerve cells communicate with one another and define the role of DNA damage / maintenance and other factors in human brain disease and brain aging

Publications: 651 articles / publications in internationally recognized, peer-reviewed journals

Research training: 61 doctoral degrees

Outcome: Successful integration into the host institutions is secured by the establishment of three Scientific Excellence Research Thematic Areas (SERTAs) representing the main scientific legacy of CMBN. The new SERTAs will be entitled SERTA Healthy Brain Aging (HBA), SERTA Genome Integration (GI) and SERTA Developing and Adaptive Brain (DAB), hosted by the UiO and OUS



The Directors' view

Tone Tønjum
CMBN Director

Jon Storm-Mathisen
CMBN Co-Director

DRIVING THE FRONTLINE OF INTERNATIONAL RESEARCH

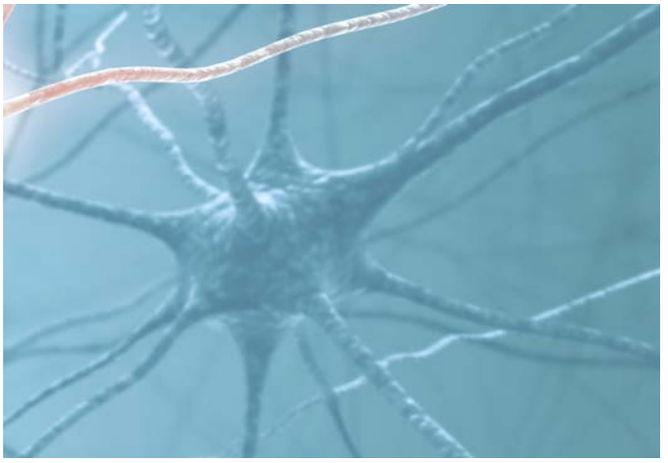
2012 has for CMBN been filled with scientific discoveries and innovation, and spiced by interactive events, locally and at the international level. These activities all nurture the basic aim of the Centre, to be recognized as one of the frontline international research environments. CMBN researchers are identifying and developing new methodologies in the diagnostics, prevention and treatment of different brain diseases and age-related neurological ailments. To achieve this goal, the Centre aims at a thorough understanding of basic biological processes in health and disease. While interactions between the eleven groups of the Centre form the cornerstone of major research projects, we have also seen an increased number of collaborative projects that engage other environments, including other centres of excellence, in Norway and internationally.

Among the keys to success in such a multidisciplinary environment are, first of all, to state the prime questions in current science, and, secondly, to keep an open and adjustable attitude in the interpretation of the findings. Thirdly, but not the least, the signature of CMBN is to host unique competence, diversity and complementarity in terms of human resources, scientific qualifications and assets, and both young and senior scientists are engaged in internationalization activities. The CMBN publication record for the years 2002-2012 is evidence of the success of our interdisciplinary approach, in our strive to make an excellent research environment outstanding.

The most important goal for CMBN is to make excellent science outstanding, by promoting quality in science. CMBN is in itself an incentive to bridge the disciplinary divides that otherwise can exist in scientific environments. It has catalysed the establishment of new regional and national networks that are generating translational research and innovation.

The new Domus Medica annexe with its high quality mark is a signature building for the life sciences in Norway. Our goal is to fuel all the technologies that will be allocated in the new building. These include high throughput tissue processing, mass spectrometry/structural biology, neuro/bioinformatics and transgene technology. In this context, a number of new large funding schemes have been successful, including the RCN-funded NORBRAIN infrastructure. The building, its unique scientific environment and technologies will host and serve strong translational research networks nationwide.

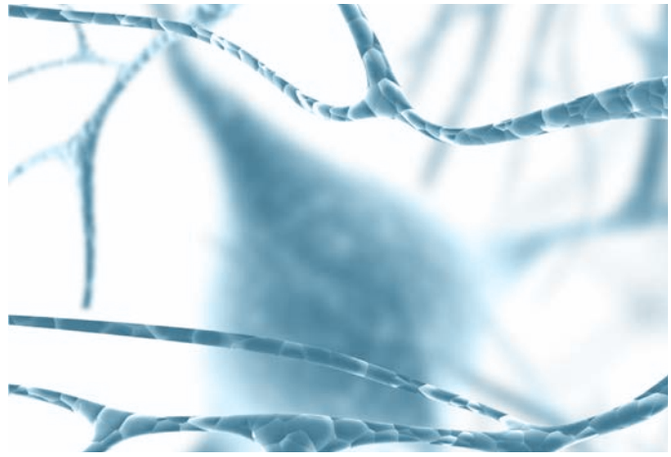
Science education is a priority in CMBN, ranging from bachelor and master students to the fostering of new independent scientists. The energy and motivation of our young talents continue to impress. One important measure taken in CMBN is the investment in young talented 'Principal Investigators' to secure their scientific career ahead, so that they can establish new groups. We have dedicated efforts to ensure that our most promising young scientists can position themselves for independent funding. This is one significant way of keeping competence on board.



No project is more successful than its exit strategy. We are therefore committed to secure the CMBN legacy ahead, maintain the competence on board and nurture the most valuable scientific qualities of CMBN. At this stage of the CMBN project, a bottom-up exit strategy has been secured by re-shaping the three centre of excellence-application environments, addressing the healthy brain, brain adaptation and development and genome integration, respectively, into new Scientific Excellence Research Thematic Areas (SERTAs) at the Faculty of Medicine at the University of Oslo. In general, we are particularly grateful to our host institutions, the University of Oslo and the Oslo University Hospital, for generously accommodating us first as a CoE and subsequently as SERTAs to continue developing scientific output through the next decade.

It is our humble and enthusiastic dedication to maintain the distinguished line of science that has emanated from the CMBN, to secure the outcome of the Centre. Our ambition is to inspire the creativity, competence and productivity of our eminent CMBN scientists and students, to ensure and boost their success, and thereby the legacy of the CMBN.

Organization and Economy



THE CMBN BOARD

The Board is responsible for ensuring that CMBN develops in accordance with the current research plan and according to its statutes. The Board consists of:

Prof. Ole M. Sejersted, OUS/UIO
Prof. Kirsten Sandvig, OUS/UiO
Prof. Torgeir Bruun Wyller, OUS/UIO
Prof. John Torgils Vaage, OUS/UIO
Prof. Lars Terenius, Karolinska University Hospital Sweden
Mari Trommald, Helse SørØst (through spring 2011)

The Centre is founded on a decentralized, organizational model that has proved to be conducive to the fulfilment of the research commitments embodied in the Centre's research plan, which was based on expertise and ideas of the 11 founding group leaders (GLs). The Centre leader is spokesman and ambassador for the Centre. A prerequisite in this capacity is legitimacy as an active researcher. The specific tasks in the research plans are conducted by the individual GLs, and coordination of the activities is secured through the GL-based Steering group. The Steering group made up by the CMBN group leaders (GL) has functioned as the over-riding strategic body for the scientific development of the Centre. The work of the Steering group has been based on a mutual Consortium agreement. The interdisciplinary cooperation and the obligations formulated in the research plan are anchored in the Steering group. The individual group leader benefits from freedom to govern the respective group, but with clear obligations with regard to following the Centre's joint research plan. CMBN's organization model with extensive delegation of tasks to the GLs has allowed the Centre leader to maintain a high profile research activity.

CMBN FOUNDING DIRECTORS

Ole Petter Ottersen, Director (2002-2009)
Erling Seeberg, Co-Director (2002-2004, deceased)

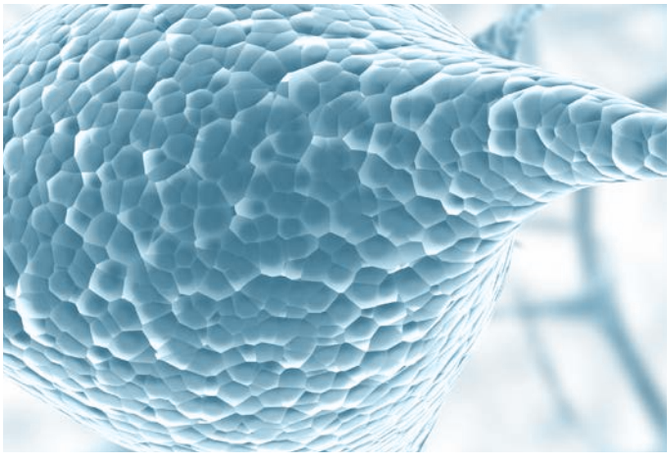
CMBN CURRENT DIRECTORS

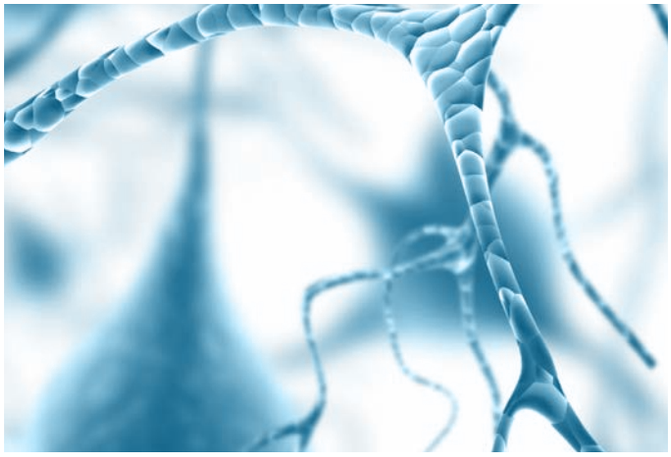
Tone Tønjum, Co-Director (2005-2009), Director (2009-2012)
Jon Storm-Mathisen, Co-Director (2009-2012)

CMBN GROUP LEADERS IN THE STEERING GROUP

Mahmood Amiry-Moghaddam
Magnar Bjørås
Jan G. Bjålie
Niels Chr. Danbolt
Arne Klungland
Mike Koomey
Stefan Krauss
Torbjørn Rognes
Johan F. Storm
Jon Storm-Mathisen
Tone Tønjum

In 2005, Magnar Bjørås replaced Seeberg; in 2009, Mahmood Amiry-Moghaddam replaced Ottersen, and Linda H. Bergersen became group leader of the Storm-Mathisen group.





ADMINISTRATION/MANAGEMENT

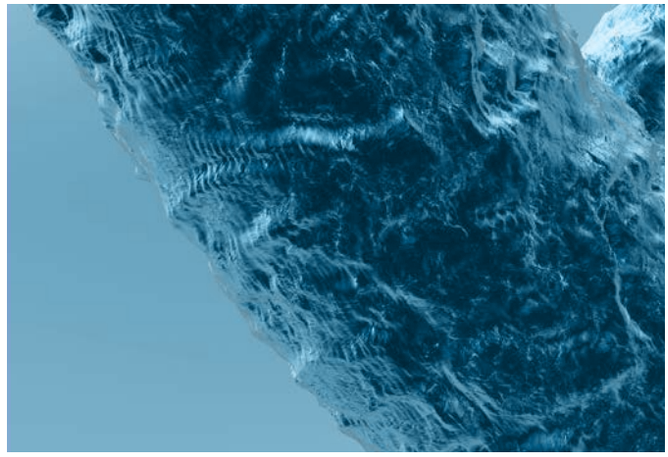
Professor Tone Tønjum is the Director of the Centre with overall scientific and administrative responsibilities for the activities of the Centre. In her duties, she is supported by professor Jon Storm-Mathisen as Deputy Director and Ms. Kristine Aa.S. Knudsen as Administrative head and Ms. Anne Haukvik as the Administrative consultant. The eleven group leaders create the Steering group of the Centre and they meet regularly to discuss important scientific, strategic and administrative issues.

As the Centre of Excellence status is temporary, the Centre draws on the competence of the existing administrative staff at its host institutions, the Faculty of Medicine at the University of Oslo and the Oslo University Hospital (Rikshospitalet). Five of the eleven groups are located at Domus Medica of the Faculty of Medicine, UiO, and five groups are located at Oslo University Hospital (Rikshospitalet). One group is located at the Faculty of Mathematics and Natural Sciences, at the Institute of Molecular Life Sciences.

STAFF AND RECRUITMENT

The Centre currently consists of 11 research groups as it did at its start-up in 2002, but the number of persons affiliated with the Centre has grown and has now passed 200 (including part-time positions). A large number of young and talented students have been recruited, many from abroad. Some 40 % of our staff comes from countries other than Norway. It should be noted that the Research Curriculum at the Faculty of Medicine ("Forskerlinjen") has been instrumental in securing a good recruitment base for the Centre. Examples of successful recruitments are EMBO long-term postdoctoral grants and Top Young Scientist Award in Europe for molecular biology granted by GE Healthcare together with the journal Science. In its recruitment efforts, CMBN has focused on establishing its own graduate-level researcher school, courses for researchers where students earn study credits, and a new series of international conferences. Several postdoctoral fellows have been recruited from prominent universities such as Yale, Cambridge, UC Berkeley and Oxford. Furthermore, a number of CMBN postdocs and young PIs have been recruited to prominent universities and frontline industry. The gender perspective is well balanced.

Organization and economy



CMBN FUNDING

The CoE/SFF core funding from RCN makes up 15-20% of the total funding of the Centre.

The distribution of the different sources of income to the Centre for the period 2003 to 2012 is as follows:

- Own contribution (host institution/active partner): 25 %

- CoE funding (the RCN): 15-20 %

- Other external projects: 50-55 %

The total CMBN budget of external funding and host institution support has in 2003-2012 amounted to 80-130 MNOK per year.

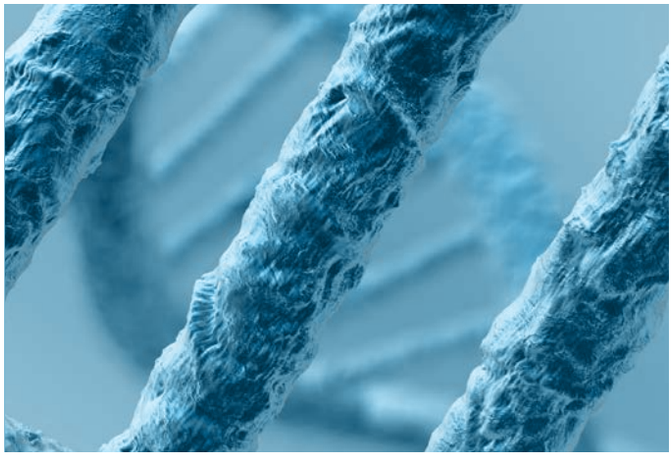
35 % of the RCN funding has been allocated to CMBN common strategic investments, prioritized and agreed upon by the Steering group. Such infrastructure investments have been advanced equipment with dedicated expert-trained personnel and consumables, meetings, one year salaries for new PIs ("ventelønn"), etc.

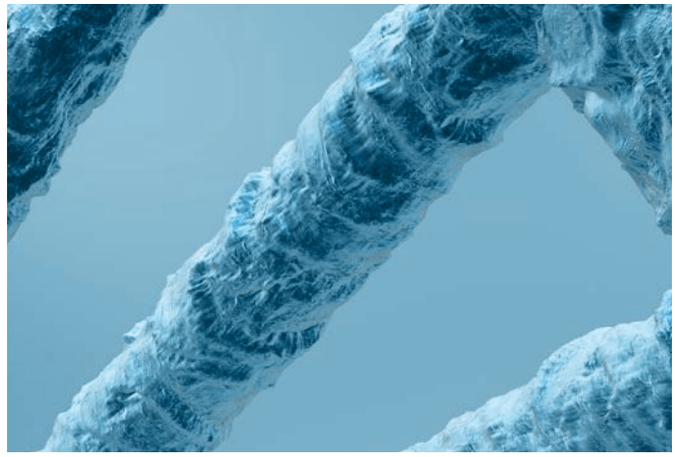
Contributions of the host institutions UiO and OUS to CMBN in 2002:

UiO: Med fak 2003-2012: 4 mNOK per year and administrative support

OUS: 2 full permanent research positions.

	UiO funding	CoE funding	Other funding	Sum
2003	4 000	23 010	72 209	99 219
2004	4 000	21 175	57 017	82 192
2005	4 000	21 183	74 482	99 665
2006	4 000	21 193	68 214	93 407
2007	4 000	21 203	89 227	114 430
2008	4 000	21 211	95 400	120 611
2009	4 000	20 805	98 212	123 017
2010	4 000	20 700	102 800	127 500
2011	4 000	20 700	105 500	130 200
2012	4 000	17 805	104 000+	125 805+
Total	40 000	208985	763 061	1 116 046





CMBN GUEST PROFESSORS

The Centre has appointed a series of Guest Professors of high international standing who have worked in the Centre for periods of time on a regular basis and have acted as ad hoc advisors for the Centre. It has been the policy of the Centre to forge alliances with the leading groups in the respective fields of research. Some of the collaborating groups are formally affiliated with the Centre, as CMBN Guest Professors. These guest professors also function as an informal scientific advisory board SAB) for the Centre. Therefore, in view of the adopted organizational model and expertise of the CMBN board, the management of the Centre has considered it unnecessary to establish an additional SAB.

1. Peter Agre, Professor and Nobel Prize winner in Chemistry, 2003, Johns Hopkins University, Baltimore, US. Funded by RCN and CMBN.

2. Vilhelm A. Bohr, Chief of Laboratory of Molecular Genetics, National Institute on Aging, NIH, US.

3. David Ussery, Associate Professor in the Centre for Biological Sequence Analysis, Technical University of Denmark, Denmark.

4. Shankar Subramaniam, Professor of Bioengineering, Chemistry and Biochemistry at the University of California at San Diego, US.

5. Farrukh A. Chaudhry, Associate Professor at the Biotechnology Centre, University of Oslo, Norway.

6. Pål Falnes, Professor at the Institute of Molecular Bioscience, University of Oslo, Norway.

7. Karl Peter Giese, Professor of Neurobiology and Mental Health, Centre for the Cellular Basis of Behaviour, King's College London, UK.

8. Tore Eid, Director, Human Brain Microdialysis Program, Assistant Director, Clinical Chemistry Laboratory, Yale School of Medicine - New Haven Hospital, US

9. Rolf Sprengel, Molecular Neurobiology, Max Planck Institute for Medical Research, Heidelberg, Germany.

RECRUITMENT OF YOUNG SCIENTIFIC INVESTIGATORS

Selected young scientific investigators who have expressed a wish to become independent PIs and to apply for ERC funding, but did not yet have their own funding, have been supported with one year of salary ("ventelønn"). CMBN young investigators who have received this support are:

Ole Herman Ambur
Linda H. Bergersen
Bjørn Dalhus
Torgeir Holen
Elisabeth Larsen

RESEARCHER TRAINING: CMBN IS A RESEARCH SCHOOL (FORSKERSKOLE)

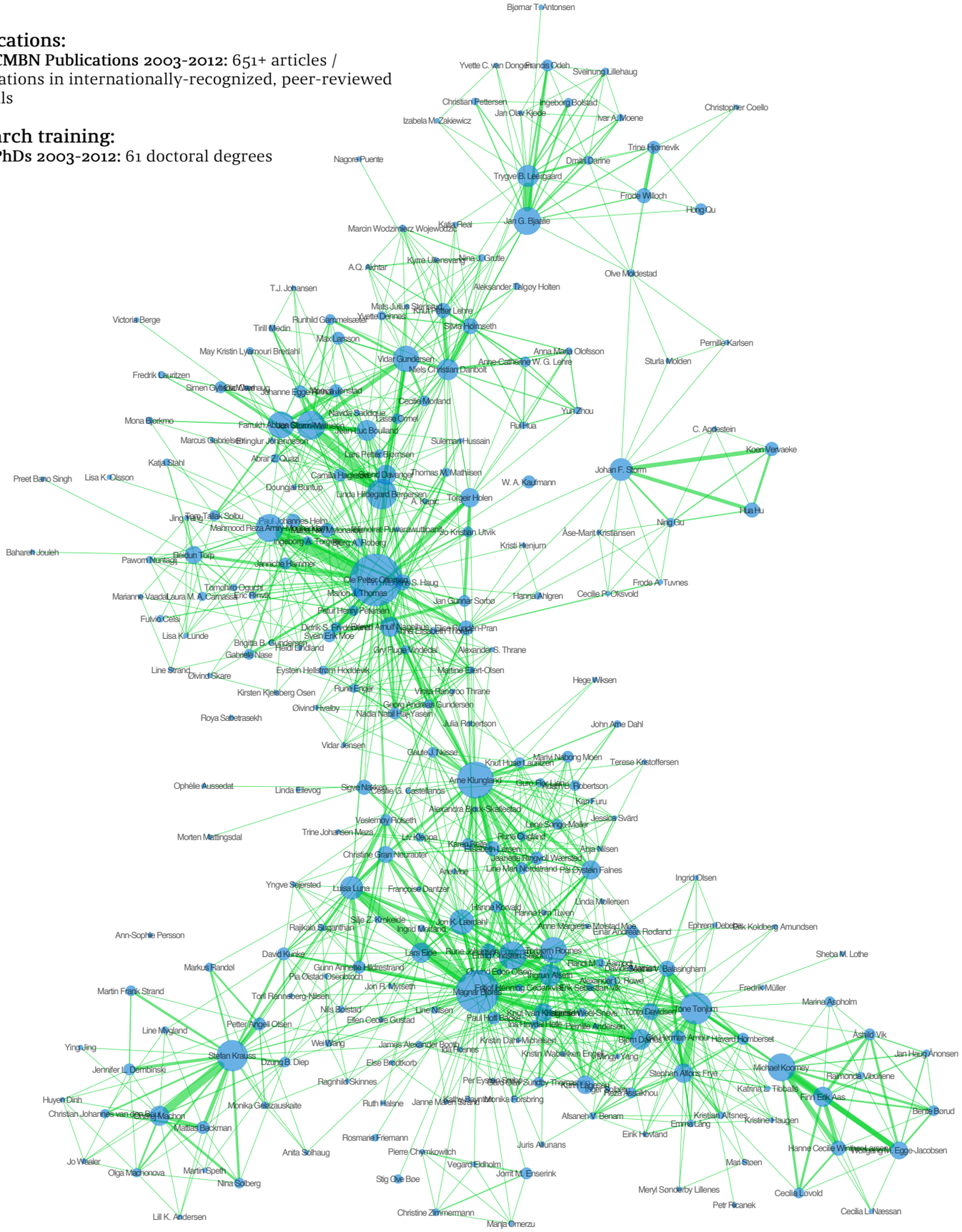
The Centre has invested heavily in the development of programs for graduate and postgraduate teaching. It is the Centre's policy that all courses and all lectures under the auspices of the Centre shall be open to all researchers – also those coming from other universities. CMBN has been appointed as a Research School ("Forskerskole") at the University of Oslo and CMBN courses has merited points for students who are in PhD training.

CMBN scientists and students commence weekly at seminars, frequently visited by prominent international guest speakers, contributing to an excellent learning environment.

Author Network

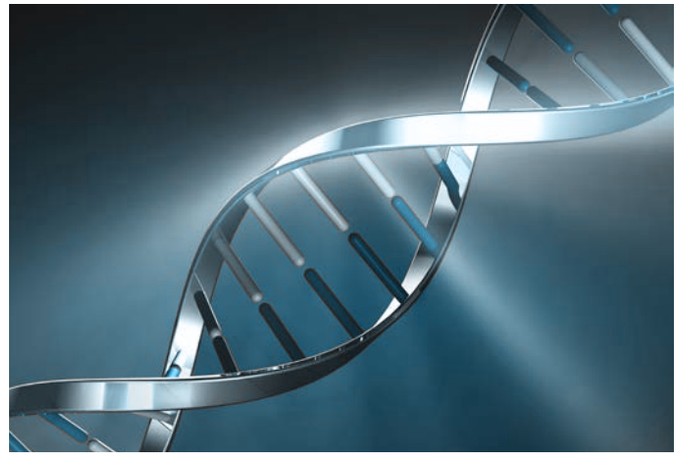
Publications:
Total CMBN Publications 2003-2012: 651+ articles / publications in internationally-recognized, peer-reviewed journals

Research training:
Total PhDs 2003-2012: 61 doctoral degrees



Co-publication network graph for all CMBN authors: The network is based on all types of journal articles published since CMBN was established. The area of the circles and the width of the lines are proportional to the number of publications by each author, and by the number of co-authored publications, respectively.

Publications



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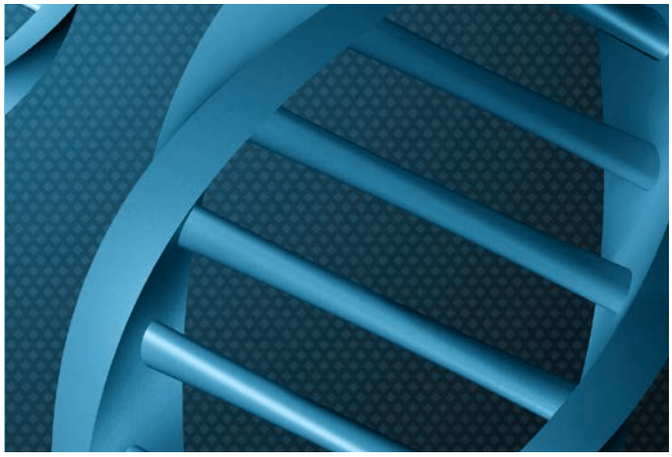

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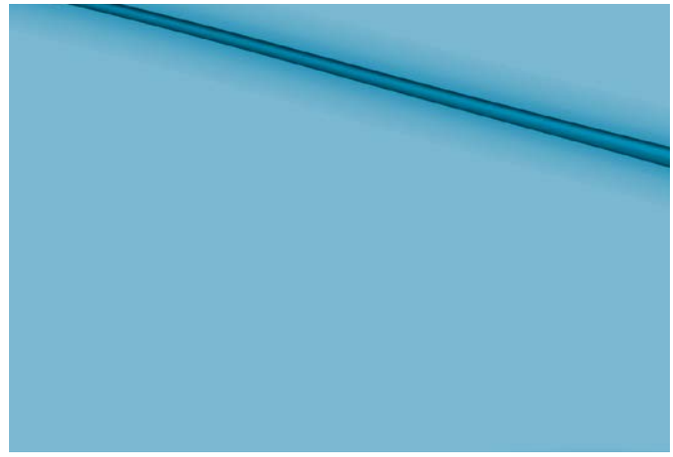

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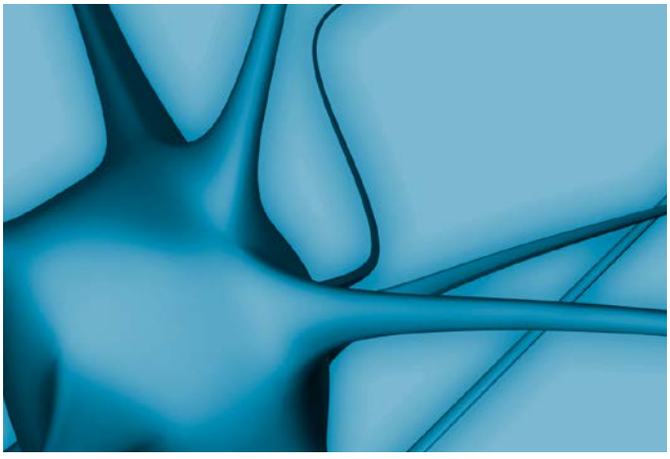

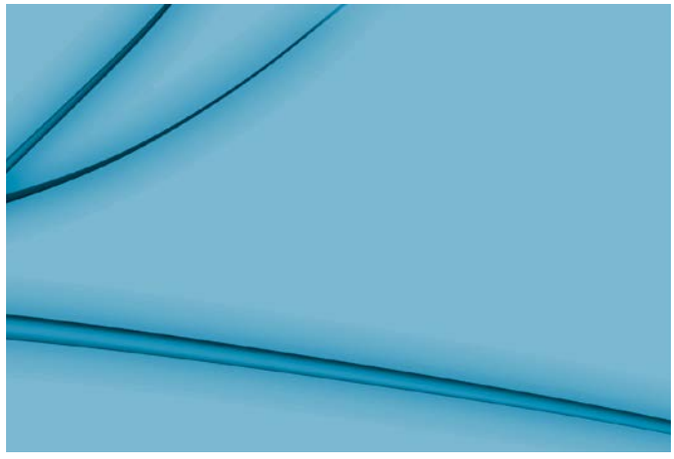

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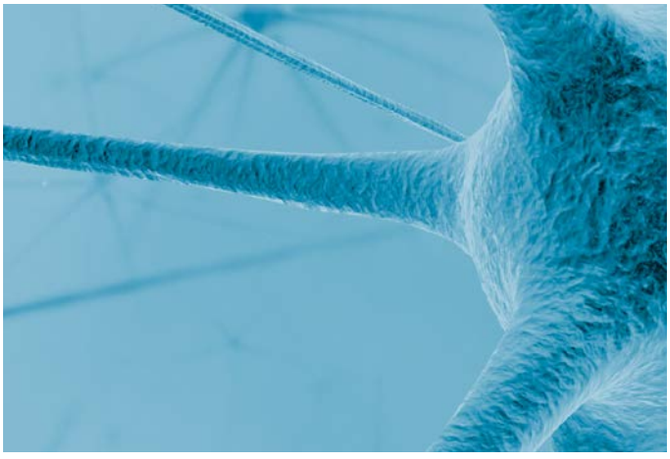

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