Centre for Cancer Biomarkers
Norwegian Centre of Excellence
The Research Council of Norway
UNIVERSITAS BERGENSIS

CCBIO Newsletter

www.ccbio.no

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DIRECTOR'S COMMENTS

Dear all

The spring is here (almost), and I am happy to welcome you all to the 10th CCBIO Annual Symposium at Solstrand in just a few weeks – this time on-site – and we will also do online streaming. You should fill in the registration form if not already done. We have a strong program – and I am happy and proud to announce that our friend Robert S. Langer will join us at Solstrand in person for a CCBIO keynote presentation! Do not miss this opportunity to experience a true legend. As already announced in our emails, many other profiled scientists will present as well (see prefinal program).

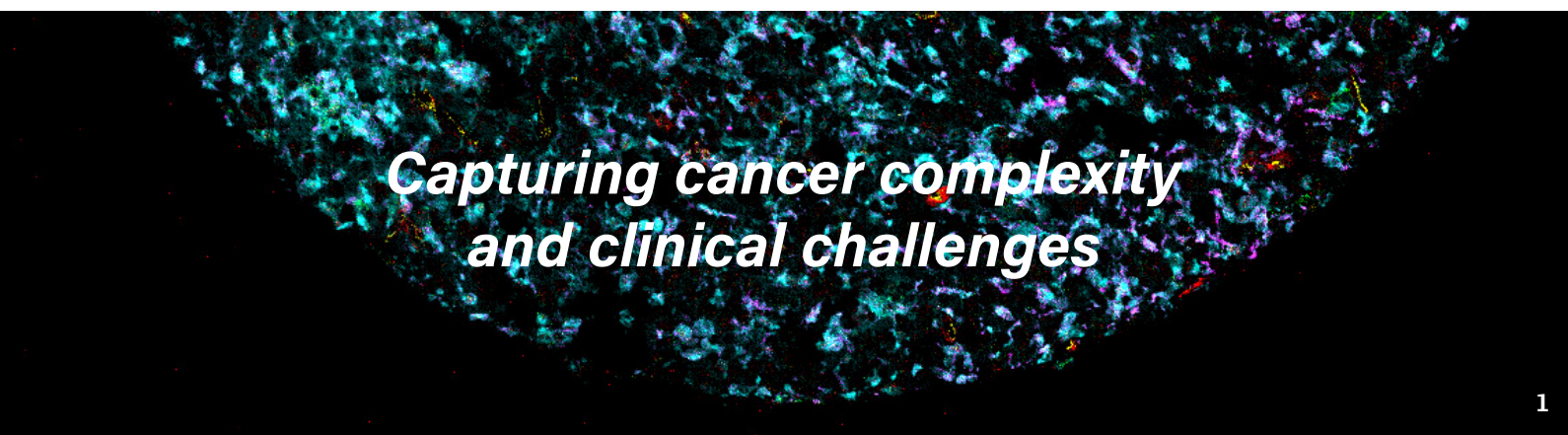
Congratulations to Anne Bremer and Roger Strand on their brand new book on cancer biomarkers – where issues at stake and matters of concern are being discussed. We are happy that this novel work has now been presented. The book and its concepts will be discussed in a targeted session at the annual symposium.

Many other important stories are also covered in this issue of the CCBIO Newsletter, on radiogenomics and use of artificial intelligence in endometrial cancer, experimental drugs and immunotherapy response in non-small cell lung cancer, prediction of female cancer, and other news. And not the least: Congratulations to Sheila Jasanoff for receiving the Holberg Prize! Professor Jasanoff (Harvard University) has been advicing CCBIO through our INTPART project. Read the full story inside.

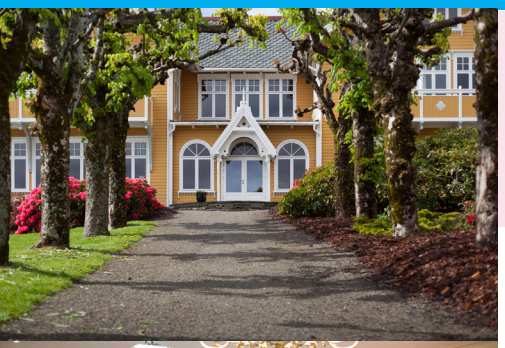
Congratulations also to our new PhDs who have recently defended their work, and good luck to those who will do so shortly.

Please consult this issue for information on courses, upcoming events this spring and during the fall, and read the information on important calls for external funding. See you all at Solstrand in May!

Best regards, Lars A. Akslen, Director



Prefinal program available for the 10th CCBIO Annual Symposium



Join us at the10th CCBIO Annual Symposium May 10-11 at Solstrand Hotel close to Bergen! This year you can choose between attending online for scientific updates or get the full experience in-person at Hotel Solstrand with great networking opportunities. Note registration deadline is April 20. We also encourage younger researchers to sign up for 3-minute speed talk and/or poster presentation.

The 2021 symposium was a success with more than 300 participants, and we expect the 2022 symposium to be even better, with both onsite and online participation. We expect the symposium to become fully subscribed, and strongly recommend you to register now. **Deadline is April 20.**

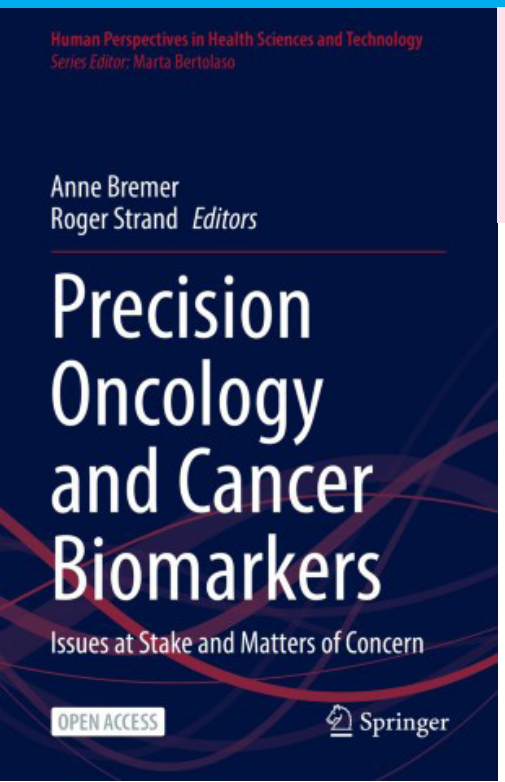
Speakers include among others:
Robert S. Langer, Malin Sund, Daniel Öhlund, Srinivas Malladi, Carina Strell, Silvio Gutkind, Olli Kallioniemi, Go van Dam, Sebastian Walchli, Christine Desmedt, Marta Bertolaso, Anne Bremer and Dominique Chu. See the prefinal program here.

Younger researchers will be offered slots for 3-minute speed-talks as well as two extended poster sessions with ample time for interaction between the participants.

The heavily subsidized registration fee is 2500 NOK/260 Euro per person. In order to enable us to accommodate 200+ participants in the 138 rooms available, we are dependent upon as many as possible sharing rooms (up to four). So, please indicate if, and with whom, you are willing to share your room when you register online.

For registration and the practical information sheet (obligatory reading before asking questions), please consult the links below:
Registration form
Practical information
Website for updated information

New book from CCBIO



Congratulations to editors Anne Bremer and Roger Strand with the completion and publishing of the new book "Precision Oncology and Cancer Biomarkers"! The book is a result of long-held collaborations between clinicians, philosophers, STSers, economists, ethicists, and media studies scholars, who, for the most part, are affiliated to CCBIO.

"The challenge we got from Lars and the CCBIO Scientific Advisory Board proved immensely useful: "Write The Major reference work on the ethics of cancer biomarkers". I am convinced that we have done that now, and that this volume will age well", says Roger Strand.

The book:

- Brings together an interdisciplinary group of expert scholars on the timely issue of precision oncology
- Proposes a highly reflexive and critical perspective on precision oncology by going beyond the common perceived goodness
- Takes a unique actor-centred approach allowing new insights into how imagine and work with this concept

This book is open access, which means that you can either buy a hardcopy or download it for free from Springer Link here.

Spotting aggressive endometrial cancer from radiologic images

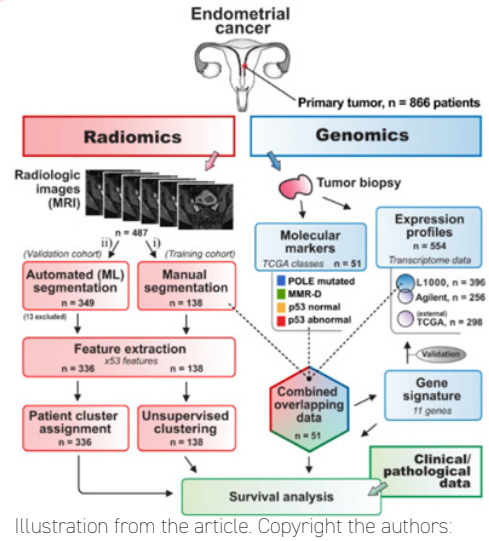


Illustration from the article. Copyright the authors: Erling A. Høivik et al,

Also see TV appearance and article at NRK.no.

Researchers from Bergen and CCBIO recently performed a study combining radiologic images and molecular/genetic data for prediction of high-risk endometrial cancer, spurring out from the Haldorsen and Krakstad laboratories. This work was recently highlighted in the national media as an example of how artificial intelligence can assist in more accurate cancer diagnosis and treatment.

In their radiogenomics approach, the team integrated preoperative magnetic resonance images (MRI) from Haukeland University Hospital and transcriptomes and molecular marker data obtained from resected biopsies.

Importantly, the researchers found that by analyzing radiologic images, they could predict high- or low-risk disease, already at the preoperative stage, which may come very handy for expedited treatment in the future. Moreover, the data extracted from the medical images could be fully automated through a machine-learning approach. Finally, the findings interpretated well with a transcriptome signature, adding biological information to the radiologic findings.

"We are quite happy that we were able to join forces in Bergen in a true interdisciplinary and translational approach" says shared first authors Erling A. Hoivik and Erlend Hodneland. "Our demonstration of the feasibility of automated tumor segmentation and expedited radiomic profiling will aid in clinical phenotyping and enable better prognostication and tailoring of treatment in endometrial cancer".

The article has been published in Communications Biology from the Nature publishing group and can be accessed here: https://rdcu.be/cJ0QF.

Experimental drug could spur immunotherapy response in non-small cell lung cancer patients

Research led by Rolf Brekken at UT Southwestern in collaboration with CCBIO suggests that an investigational drug could restore the ability of some non-small cell lung cancers (NSCLCs) to respond to an immune checkpoint blockade (ICB), a therapy that harnesses the immune system to fight malignant tumors.

The findings, derived from a preclinical lab model and published in Cell Reports Medicine, could lead to more effective treatments for this subset of NSCLCs.

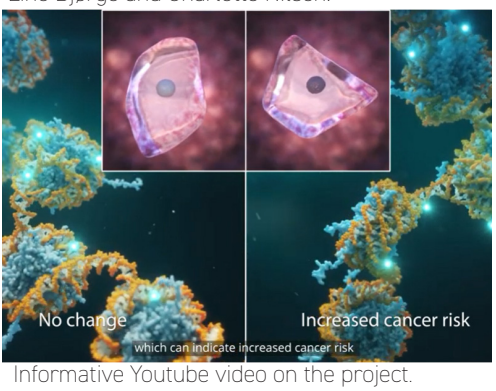
"These results provide hope that we can significantly enhance the efficacy of immune checkpoint blockade in non-small cell lung cancer patients for whom immunotherapies have not previously been effective," said study leader Rolf Brekken.

ICB has had a significant impact on outcomes in a variety of cancers, and patients who respond to these treatments tend to survive significantly longer compared to those treated with chemotherapy, radiation, and/or surgery. NSCLC patients whose cancers are driven by mutations in a gene called KRAS usually have a high response rate to ICBs. However, Dr. Brekken explains, about 20% of NSCLC tumors also carry mutations in a gene known as STK11/LKB1, which is associated with poor response to ICB therapy. The reason for this phenomenon has been unclear, preventing researchers from addressing it. The key finding from the study came when the scientists group found that inhibiting the AXL protein boosted the numbers of TCF1-expressing CD8+ T cells. This intervention restored the ability of mice harboring STK11/LKB1-mutated NSCLC tumors to respond to PD-1/PD-L1 inhibitors.

Authors with CCBIO affiliation includes Austin Rayford, Hani Gabra, Jim Lorens and Rolf Brekken.

New analytic tools to predict risk of developing female specific cancers

Involved Bergen team members Grete Augestad, Line Bjørge and Charlotte Nilsen.



Informative Youtube video on the project.

Results from the FORECEE project led by Line Bjørge at CCBIO suggest that tell-tale signatures can be found in smear tests for cervical cancer and used to detect early tumors in other female specific cancers. The FORECEE project ("Female cancer prediction using cervical omics to individualize screening and prevention") was a H2020-funded project with startup in 2015.

Altogether around 7000 women from all over Europe were included in the study. Of these, more that 500 women were included in Bergen.

The project has resulted in establishment of analytic tools that better can predict an individual's risk of developing female specific cancers. The cancer risk tests for breast and ovarian cancer, named WID-BC and WID-OC, respectively, were presented in two publications in Nature Communication in February this year.[1,2]

The biological test material used for the analysis is routine cervical screening samples. The tests do not detect an actual cancer but predict the individual's future risk. The research team suggest that the results should be used to direct more personalised screening approaches and prevention strategies.

1. https://www.nature.com/articles/s41467-021-27918-w
2. https://www.nature.com/articles/s41467-021-26615-y

Also read a BBC article on the project, and an article from the Eve Appeal, including a very informative Youtube video.

The Holberg Prize to Sheila Jasanoff

HOLBERG PRISEN

Roger Strand and Sheila Jasanoff. Photo by Emma Hjellestad.

Harvard Professor Sheila Jasanoff receives the 2022 Holberg Prize for her pioneering research in the field of Science and Technology Studies. CCBIO has for many years enjoyed Jasanoff's expertise, notably through project advisory support in the CCBIO-Harvard INPTART collaboration.

"I am very happy with the decision of the Holberg jury," says CCBIO PI and Professor Roger Strand at the Centre for the Study of the Sciences and the Humanities (SVT) at UiB, the Holberg Prize's expert contact for this year's laureate.

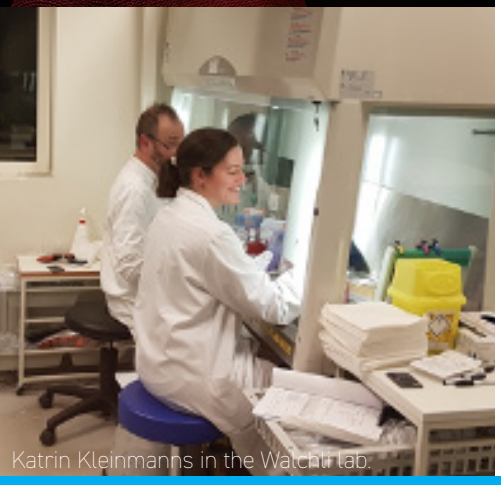
According to Strand, the UiB has collaborated with Jasanoff for 20 years. During this time, she has supported SVT in project advisory boards, through the Bergen-Harvard collaboration agreements within CCBIO, and in many other ways.

"An important inspiration for our work is Jasanoff's concept of sociotechnical imaginaries," says Roger Strand. In their article Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and North Korea, Jasanoff and co-author Sang-Hyun Kim provide the following definition of this concept: "... collectively imagined forms of social life and social order reflected in the design and fulfillment of nation-specific and/or technological projects."

"This concept has been particularly inspirational for CCBIO and the work of the recently completed Horizon 2020 project MAGIC, in which the SVT was a partner," says Strand. The notion of sociotechnical imaginaries is also central in a recently released open access book by Strand and SVT colleague Anne Bremer, Precision Oncology and Cancer Biomarkers.

Read more here. See also article from the Holberg committee, article by Roger Strand and Kjetil Rommetveit in Aftenposten Viten, and article by Irmelin Nilsen, Knut Helland and Roger Strand in Idunn.

Research stay at the Oslo Cancer Cluster Cellular Therapy Lab



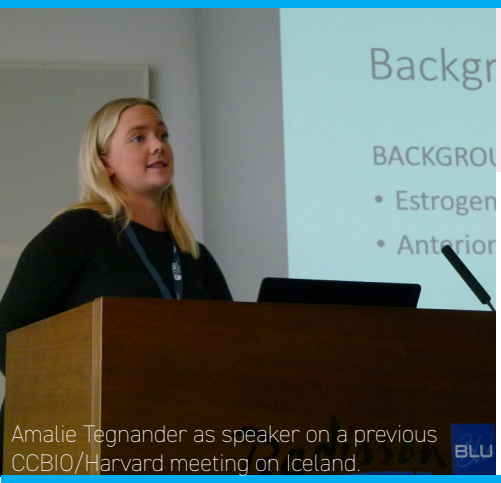
Katrin Kleinmanns in the Walchli lab.

Katrin Kleinmanns recently visited one of our collaboration partners in Oslo for three weeks, at the Cellular Therapy Lab of Dr. Sébastien Walchli, Radium Hospital, Oslo University Hospital. She got insights in how to design chimeric antigen receptors (CAR), how to produce CAR T cells and how to check their functionality for targeted cell-based immunotherapy in ovarian cancer.

The research lab of Dr. Sébastien Walchli has a strong expertise in CAR T cell design and manufacturing, and recently got their own developed CD37 CAR licensed. The CD37-targeted CAR T cells are produced in an innovative machine called a "cocoon", designed by the Dutch company CellPoint, which will be evaluated in Clinical trials at the second half of 2022. Together with postdoctoral researcher Nicholas Casey, Katrin could gain insights into the generation, production and quality assurance of ovarian cancer targeting CAR T cells, which she will be testing for functionality in an in vivo system in heterogenous patient-derived xenograft models her at UiB.

Katrin Kleinmanns is a postdoc in the McCormack and Bjørge groups, and also one of the first 8 participants in the CCBIO Masterclass program. Her research focuses on the development of immunocompetent patient-derived xenograft models of ovarian cancer to improve therapeutic interventions through novel immune therapies and targeted fluorescence image-guided surgery. Her research stay in Oslo will strengthen the collaboration with a successful and innovative research group, and the Bjørge group is looking forward to perform the planned experiments within the project, to make a change in immunotherpeutic treatment for patients diagnosed with ovarian cancer.

Talent scholarship to Amalie Tegnander



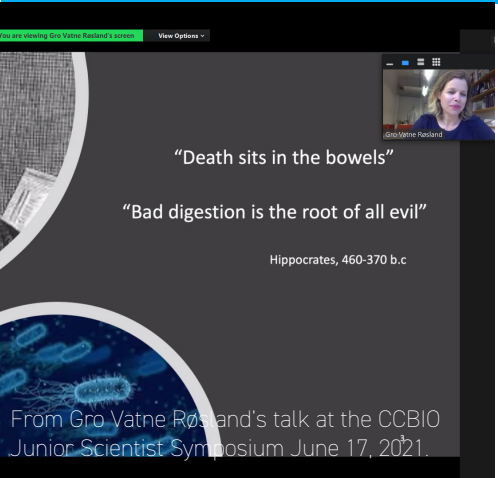
Amalie Tegnander as speaker on a previous CCBIO/Harvard meeting on Iceland.

SpareBank 1 SMN has awarded Medical Student Amalie Fagerli Tegnander with a talent award of 50 000 NOK, for her combination of medical studies with breast cancer research.

Amalie is one of the Medical Student Research Program students in the Akslen and Wik groups. The committee regards breast cancer of the young as a highly important topic, and is impressed with Amalie's work and dedication. You can read more here.

Amalie plans to use the grant to buy new computer equipment and for travels in connection with her research. Read more here.

In top ten of research outreach



From Gro Vatne Røsland's talk at the CCBIO Junior Scientist Symposium June 17, 2021.

Forskersonen, forskning.no's webpage for debate and popular science, has included Gro Vatne Røsland with two articles on their top ten list of the most popular articles in 2021.

Gro is a researcher in Jim Lorens' group. One of the most popular science articles on the top ten list is "Vern om dine mikrober om du vil unngå sykdom", on microbiota and their importance for a balanced immune system and the hormone balance, and how you can use food and diet as medicine. Gro also held a very engaging keynote presentation on the same subject in a CCBIO Junior Scientist Symposium in 2021.

Gro was also co-author on another article on the list, "En regnefeil ligger til grunn for anbefalte vitamin D-doser", on the need for vitamin D for a functional immune system.

Successful hybrid execution of CCBIO906

Dimitrios Kleftogiannis lectured on CNV detection and interpretation

Organizers Erling Høivik, Liv Cecilie Thomsen and Rebecca Nguyen and lecturer Tomasz Stokowy.

CCBIO906 Cancer Genomics was organized February 21-23 as a hybrid course with a mixture of on-site and online participants and lecturers. This did not hinder active participation and interesting discussions among the 40 registered participants.

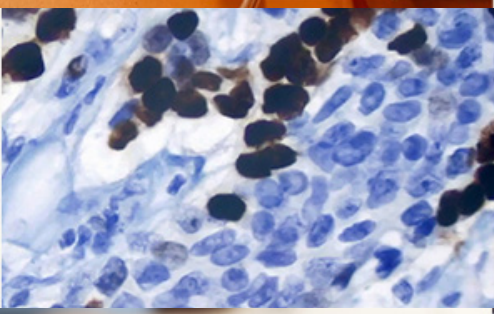
The course provides a broader understanding of the main aspects of cancer genome research by next generation sequencing (NGS) technologies and associated analytical tools, and how NGS can be applied both to identify new cancer biomarkers and for diagnostics as well as treatment selection.

The 2022 course covered a lot of interesting topics. An overview of NGS methods, data sharing and data management, as well as open sources for genomic data were covered. The topics also included single cell sequencing, data analysis of whole genome data, copy number variants, RNA, and structural variants. Furthermore, as there is increasing focus on liquid biopsies in current cancer research, this topic was highly relevant for demonstrating how NGS can be implemented into the clinical work with cancer patients via clinical studies and clinical trials. The possibilities and challenges of drug repurposing, and working with patients with heritable diseases and their families were presented.

This year, group work was an important part of the course, and after solving some virtual room-based challenges, the participants did an excellent job discussing and presenting relevant questions within the field of cancer genomics, covering some of the main focus areas of the use of NGS in research settings and potential clinical applications, as well as the ethical aspects of applying new findings clinically.

The students proved to be interested and active participants, and this, combined with the inspiring lectures, ensured that most questions posed by participants prior to the course were debated. Thank you to the course organizers **Liv Cecilie Vestheim Thomsen, Erling Høivik** and **Rebecca Nguyen** for providing a rewarding and fruitful three days on cancer genomics!

Coming CCBIO courses



CCBIO has just completed CCBIO906, and has two more courses running this spring plus the CCBIO905 course for the fall term. Other courses might also be available in the fall term, information on this will be announced later. All CCBIO courses are open for all interested, not only students, but mind the registration deadlines.

Coming courses this spring:
CCBIO904 Biomarkers and tumor biology in clinical practice will be run April 20-22 (now fully booked), and CCBIO908 Scientific Writing and Communication Seminar will be run May 23-24 (now only possible to register for non-ECTS participation).

Coming course this fall:
CCBIO905 Methods in Cancer Biomarker Research, September 27-29, 2022.

This 5 ECTS course has focus on the full panel of advanced and standard methods with relevance for cancer biomarkers. The intention is a methodological course that also includes components of ethics and economy. The thematic parts include methods ranging from basic techniques on nucleotides and proteins to more advanced approaches, as well as bioinformatics and biobanking.

The course will focus on methods to study tissue samples, blood samples, urin samples, and other biologic materials, like immunohistochemistry, in situ hybridization, PCR-techniques and sequencing, Western blot and ELISA, microarray methods, proteomics, circulating tumor cells and DNA, flow cytometry, bioinformatics and biobanks. Changes in nucleic acids and proteins in different settings will be covered.

Lars A. Akslen and **Agnete Engelsen** have the academic responsibility and **Ingeborg Winge** is the course coordinator.

Recent doctoral defenses


Calum Leitch. Photo by Spiros Kotopoulis.

Calum Leitch defended Friday February 11, 2022 his doctoral dissertation "Identification and development of small molecule therapies for the treatment of acute myeloid leukaemia" at the University of Bergen.

Calum did his work at the Department of Clinical Science and CCBIO, with main supervisor Professor Bjørn Tore Gjertsen and co-supervisor PhD Vibeke Andresen.

His project has focused on the identification and repurposing of approved medicines for therapy development in AML, with particular emphasis on mechanistic studies to determine likely responders in patient sub-groups.

See the press release (in Norwegian).

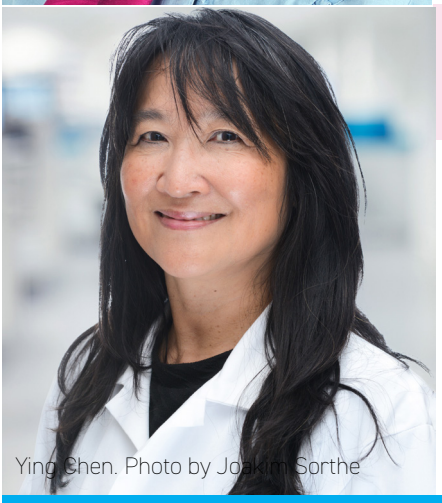

Nuha Mohammed. Photo by Jørgen Barth.

Nuha Mohammed Gaafar Mohammed defended Friday March 25, 2022 her doctoral dissertation "Prognostic biomarkers and tumour immune microenvironment characterization in oral squamous cell carcinoma" at the University of Bergen.

Nuha did her work at the Department of Clinical Science and CCBIO, with main supervisor Professor Daniela Elena Costea and co-supervisors Professor Anne Chr. Johannessen, PhD Elisabeth Sivy Nginamau and Senior Researcher Tarig Osman.

Her PhD project focused on prognostic biomarkers in oral squamous cell carcinoma patients with specific focus on the inflammatory host reaction and its correlation to survival of oral squamous cell carcinoma patients from Sudan.

See the the press release (in Norwegian).


Ying Chen. Photo by Joakim Sorthe

Ying Chen defended Friday April 8, 2022 her doctoral dissertation "The tumor microenvironment in breast cancer A study of stromal elastosis, tumor immune cells, vascular invasion, and the relation to detection mode" at the University of Bergen.

Ying did her work at the Department of Clinical Medicine and CCBIO, with main supervisor Professor Lars A. Akslen and co-supervisors Associate Professor Elisabeth Wik and PhD Tor Audun Klingen.

Her PhD project focused on breast cancer stroma and aims to identify the interplay between tumor-infiltrating lymphocytes, vascular invasion and stromal elastosis.

See the the press release (in Norwegian).

Coming doctoral defense


Hege F. Berg. Photo by Jørgen Barth

Hege Fredriksen Berg defends Friday April 22, 2022 her doctoral dissertation "Organoid models and novel biomarkers for improved treatment of endometrial cancer" at the University of Bergen. The trial lecture is the day before.

Hege has done her PhD work at the Department of Clinical Science and CCBIO, with main supervisor Professor Camilla Krakstad and co-supervisor PhD Erling Høivik.

Trial lecture: Thursday April 21, 2022 at 10:15, at the auditorium, AHH, Haukelandsveien 28
Topic: "Clinical implementation of multi-omics methodology in cancer diagnostics"
Doctoral defense: Friday April 22, 2022 at 08.15, at the auditorium, AHH, Haukelandsveien 28
Dissertation title: "Organoid models and novel biomarkers for improved treatment of endometrial cancer"

See the press release (in Norwegian).

Relevant calls for funding

Here is an overview of the upcoming deadlines for funding, relevant to our CCBIO students and researchers. For more details, please check the links below and the Medical Faculty's page on External funding opportunities.

The Norwegian Cancer Society (Kreftforeningen)

Researcher projects 2022: 2-8 MNOK, 2-4 years. Deadline May 31st, 2022.

- 130 MNOK are available to fund ground-breaking projects in all fields of cancer research (Open Call).
- 28 MNOK is earmarked breast cancer research (Rosa Sløyfe)
- 20 MNOK is earmarked for metastatic cancer.

Horizon Europe

ERC 2023

- Starting Grant: October 25th, 2022
- Consolidator Grant: February 2nd, 2023
- Advanced Grant: May 23rd, 2023
- Synergy Grant: November 8th, 2022

Marie Sklodowska-Curie Actions (MSCA)

- MSCA Postdoctoral fellowships: September 14th, 2022
- Doctoral Networks: November 15th, 2022

Missions in Horizon Europe – Conquering cancer

- We have been requesting input to shape the upcoming calls – this is key in making sure our interests are included. With your help, we will continue our efforts.
- Next upcoming deadline is September 2022, with more in Spring 2023.

EU4Health 2022

- Next upcoming deadline may 24th, 2022. More information here.

Diku

- UTFORSK: funding for increased quality and relevance in higher education, research and innovation in Norway through internationalization and cooperation with the business sector. Deadline April 20th, 2022. Max 3 MNOK and 4 years duration. Must be in collaboration with an international partner. More information here.
- Erasmus+: project establishment support for the development of applications for centralized information in Erasmus+. More information here.

Helse Vest

- Yearly deadline expected on September 15th, 2022. More information soon.
- Expected categories: PhD fellowships, postdoctoral/ researcher fellowships, clinical career fellowships, clinical researcher fellowships, short-term projects, and open project support.

UiB

- Erasmus+ employee mobility: deadline August 20th, 2022. More information here.
- Stays abroad for PhDs and postdocs at the Medical Faculty: next deadline October 1st. More information here.
- Gades legat, for reasearchers in pathology, microbiology or immunology, deadline May 2.

Individual fellowships and personal grants

- EMBO: personal fellowships and career grants, open year-round. More information here.

Innovation grants from the Norwegian Research council

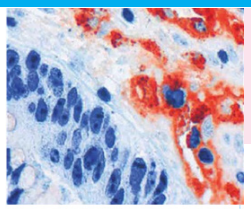
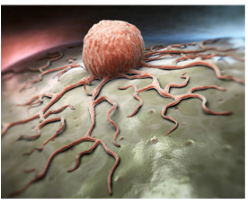
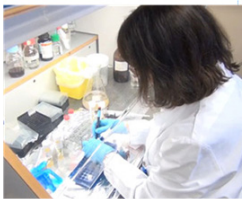
- Qualification – Research Commercialisation from Publicly Funded Research – Commercialisation Project 2022. Open-ended, 3-12 months, 200-500 000 NOK.
- Proof-of-Concept – Research Commercialisation from Publicly Funded Research – Commercialisation Project 2022. Open-ended, 12-36 months, 1-5 MNOK.

Research Advisor

For more info and advice on grants and applications, contact our CCBIO Research Advisor **Yamila Torres Cleuren** (Yamila.cleuren@uib.no).

Yamila can among other discuss relevant calls with you, guide your proposal design, review you proposals for national and international funding sources, from draft to submission stage, and provide information about and advice on implementation of cross-cutting issues into your project (gender perspective, user involvement, innovation, RRI, etc).

Coming CCBIO events


Make sure to save the dates in your calendar, and register when applicable. You can see all planned CCBIO events in the CCBIO web calendar.

- April 20-22, CCBIO904 course, Biomarkers and tumor biology in clinical practice.
- April 21, trial lecture by Hege Fredriksen Berg.
- April 22, doctoral defense by Hege Fredriksen Berg.
- April 28, CCBIO Seminar by Therese Sørlie, in Zoom.
- May 10-11, CCBIO's 10th Annual Symposium, Solstrand in Bergen + online.
- May 12, CCBIO Junior Scientist Symposium
- May 23-24, CCBIO908 Scientific Writing and Communication Seminar.
- August 25, CCBIO Special Seminar: Mapping of Early Breast Cancer; welcome seminar for Carina Strell (TMS Starting Grant)
- September 27-29, CCBIO905 course, Methods in Cancer Biomarker Research.
- November 14-15, SCANPATH, the Scandinavian Seminar on Translational Pathology, will this year be hosted by CCBIO in Bergen.

Other coming events

Illustration: colourbox.com

Events from collaboration partners and other relevant events.

- April 19 at 12.15, Falch Lecure by Kenneth Rothman "Epidemiology is easy – anyone can do it", at Alrek, in Midgard (aula downstairs).
- April 19 at 14.00, open meeting with Minister of Health and Care Services Ingvild Kjerkol, on the health services of the future, at Alrek, in Midgard (aula downstairs).
- April 22, Fremtidens kreftbehandling – hvordan sikre norske kreftpasienter den beste behandlingen i fremtiden? Oslo Cancer Cluster event at Litteraturhuset, Oslo, 08:30-10:30 AM. Also live streaming
- April 28-29, Nordic Precision Medicine Forum 2022, Stockholm
- May 11 - June 8, Course: Lean Innovation in Life Sciences, Oslo. Course by the Centre for Digital Life Norway
- June 3-7, ASCO Annual Meeting 2022, Chicago, USA + online
- June 9-10, Symposium on tumor and tissue fibrosis. Organizer: Donald Gullberg, at Hotel Terminus, Bergen and online.
- June 13-15, 6th conference of Digital Life Norway Research School, Oslo. Event by the Centre for Digital Life Norway
- June 16, Summer Gathering & Introduction of New Members (With a special feature for Cancer Crosslinks 2022). Oslo Cancer Cluster event
- September 14-15, The Norwegian Cancer Symposium, Oslo
- September 28-29, Nordic Life Science Days, Malmø, Sweden (Postponed from April 20-21)
- September 28-30, Norwegian Bioinformatics Days 2022, Sundvolden Hotel. Event co-organized by the Centre for Digital Life Norway
- October 20-21, Digital Life 2022, Trondheim. The annual conference for the Centre for Digital Life Norway

Publications

You can find the CCBIO publications on this pubmed link. See the most recent 5 below.

- **Zeltz C, Navab R, Heljasvaara R, Kusche-Gullberg M, Lu N, Tsao MS, Gullberg D.** Integrin α11β1 in tumor fibrosis: more than just another cancer-associated fibroblast biomarker? *J Cell Commun Signal.* 2022 Apr 4. doi: 10.1007/s12079-022-00673-3. Online ahead of print. PMID: 35378690 Review.

- **Rajthala S, Parajuli H, Dongre HN, Ljøkjel B, Hoven KM, Kvalheim A, Lybak S, Neppelberg E, Sapkota D, Johannessen AC, Costea DE.** MicroRNA-138 Abates Fibroblast Motility With Effect on Invasion of Adjacent Cancer Cells. *Front Oncol.* 2022 Mar 17;12:833582. doi: 10.3389/fonc.2022.833582. eCollection 2022. PMID: 35371970.

- **Thy JE, Bhargava S, Larsen M, Akslen LA, Hofvind S.** Early screening outcomes among non-immigrants and immigrants targeted by BreastScreen Norway, 2010-2019. *Scand J Public Health.* 2022 Mar 31:14034948221078701. doi: 10.1177/14034948221078701. Online ahead of print. PMID: 35361004.

- **Ekanger CT, Zhou F, Bohan D, Lotsberg ML, Ramnefjell M, Hoareau L, Røsland GV, Lu N, Aanerud M, Gärtner F, Salminen PR, Bentsen M, Halvorsen T, Ræder H, Akslen LA, Langeland N, Cox R, Maury W, Stuhr LEB, Lorens JB, Engelsen AST.** Human Organotypic Airway and Lung Organoid Cells of Bronchiolar and Alveolar Differentiation Are Permissive to Infection by Influenza and SARS-CoV-2 Respiratory Virus. *Front Cell Infect Microbiol.* 2022 Mar 14;12:841447. doi: 10.3389/fcimb.2022.841447. eCollection 2022. PMID: 35360113.

- **Brendbekken A, Robberstad B, Norheim OF.** Public participation: healthcare rationing in the newspaper media. *BMC Health Serv Res.* 2022 Mar 28;22(1):407. doi: 10.1186/s12913-022-07786-w. PMID: 35346177.

Recent CCBIO in the media

Recent media appearances by CCBIO PIs and group members. For all media hits, see CCBIO's web pages.

- 29.03.22, Forskning.no, "Slik driver forskere med «etterretning» for å forstå kreft", Lars A. Akslen.
- 22.03.22, Tidsskrift for den norske legeforening, "Forskning og patologi hånd i hånd", Lars A. Akslen.
- 21.03.22, The Harvard Crimson, "Harvard Kennedy School Professor Sheila Jasanoff '64 Awarded Prestigious Holberg Prize", Roger Strand.
- 15.03.22, På Høyden, "Tverrfaglig forskning skal flytte forskningsfronten", Emmet McCormack.
- 14.03.22, Aftenposten Viten, "Hvorfor blir vi enige om noe som helst?", Roger Strand.
- 01.03.22, Business Wire, "Papyrus Therapeutics Announces Formation of Scientific Advisory Board", James Lorens.
- 26.02.22, Ny Teknikk, "UiB koordinerer innsatsen på kunstig intelligens", CCBIO.
- 21.02.22, Dagens Medisin, "Venter en bølge av nye dyre behandlinger", Bjørn Tore Gjertsen.
- 23.01.22, SciTechDaily, "Obesity Is Linked With Cancer – Now We Finally Know Why", James Lorens, Noelly Madeleine, Stacey D'mello Peters, Cara Ellen Wogsland, Sturla Magnus Grøndal.
- 21.01.22, NRK.NO, "Supermikroskop kan finne svaret på kreftgåta", Lars A. Akslen, Kenneth Finne, Heidrun Vethe.
- 20.01.21, NRK1 Kveldsnytt, "Tror på gjennombrudd", Lars A. Akslen, Kenneth Finne, Heidrun Vethe.

Programs and Research Teams

Mechanisms of Tumor Micro-environment Interactions:
- Donald Gullberg
- Karl-Henning Kalland
- Emmet McCormack

Exploration and Validation of Cancer Biomarkers:
- Lars A. Akslen
- Jim Lorens
- Camilla Krakstad
- Daniela Costea
- Elisabeth Wik

Clinical Applications and Trial Studies:
- Bjørn Tore Gjertsen
- Oddbjørn Straume
- Line Bjørge

Health Ethics, Prioritization and Economics:
- Roger Strand
- John Cairns
- Ole Frithjof Norheim

Additional resources:
Bioinformatics and Big Data
- IngeJonassen

Strategic Advice
- Rolf Reed

Centre Director:
Prof. Dr.Med Lars A. Akslen
+ 47 55 97 31 82
lars.akslen@uib.no

Administrative Leader:
Geir Olav Løken
+ 47 55 58 54 36
geir.loken@uib.no

All administrative officers: link.

Norwegian Centre of Excellence
The Research Council of Norway

University of Bergen, Centre for Cancer Biomarkers CCBIO, Department of Clinical Medicine, Jonas Lies vei 87, 5021 Bergen. Tel. + 47 55 58 54 36
www.ccbio.no