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Centre for Cancer Biomarkers
Norwegian Centre of Excellence – University of Bergen

Norwegian Centre of Excellence
The Research Council of Norway

UNIVERSITAS BERGENSIS

"CAPTURING CANCER COMPLEXITY AND CLINICAL CHALLENGES"

CCBIO Newsletter

EDITOR: eli.vidhammer@uib.no

DIRECTOR'S COMMENTS

Dear all

The Covid-19 pandemic has been an unexpected and unprecedented challenge for all of us. Initially, the university and labs had to close down, and the CCBIO Annual Symposium and other meetings were cancelled. Since then, courses and research seminars have been successfully organized on virtual platforms. As an example, the Scientific Writing Seminar, with Christine Møller (Copenhagen) and Randy Watnick (Boston), had nearly 300 participants. Thank you to all CCBIO scientists and staff for all their extra efforts during these times. Please follow our calendar closely for the upcoming events during the fall.

In this issue of our Newsletter, you can read about the concept of image-guided cytoreduction in ovarian cancer. McCormack and Bjørge, with Postdoc Kleinmanns and PhD Bischoff, and the rest of their teams, have published two papers "back-to-back" in the journal EBioMedicine, accompanied by a Commentary. Congratulations!

As also mentioned in the previous newsletter, CCBIO has received new funding for the INTPART project. You can read more about the fine evaluation of the application and the results from the first part.

CCBIO would like to congratulate PhD candidate Eirik Tranvåg with the 2020 Early Career Researcher Prize, sponsored by the Wellcome Trust, for the European region. And congratulations to those who defended their PhD work recently: Dongre, Hua, Dillekås, Haugse and Mohamed.

And PS: We have just received the great news that the Hyperion Imaging System is now up and running again!

I wish you all a good and healthy summer!

Best regards, Lars A. Akslen, Director

Programs and Research Teams

Mechanisms of Tumor-Microenvironment 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
- Inge Jonassen

Strategic Advice
- Rolf Reed

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CCBIO'S INTPART EFFORTS RECEIVES EXCELLENT EVALUATIONS

In addition to 3,5 mill in funding, CCBIO's application for continuation of it's INTPART project received a score of 6.7 from the RCN and DIKU, being among the 5 most highly rated of 87 applications.

The application is mainly a continuation of our ongoing INTPART project. We therefore perceive this as a confirmation of the high quality of CCBIO's INTPART project "Bergen-Harvard Cancer Studies Phase 2: Continued Parthership for Responsible Education, Research and innovation". Although the project is clearly a team effort, involving a multitude of scientific-, technical and administrative staff, there is no doubt that the efforts of the leader of the CCBIO Research School for Cancer Studies, Associate Professor Elisabeth Wik, are crucial for this success.

The project proposal was rated as "excellent" (7) on the two criteria Quality and Impact. Comments included:

- Good relevance in relation to INTPART goals
- Excellent result from phase 1
- Will result in advancing cancer research, education and innovation in Norway
- The proposal has clear objectives of high quality
- Proposed outputs is highly likely to give expected impact
- Excellent groups both in Norway and in US, including several researchers on different stages in career
- The team has complementary expertise

In the last CCBIO Newsletter, we featured the article "Continued support from RCN and DIKU for the CCBIO-Harvard INTPART project", where you can read more about the project and the plans for phase 2.

IMAGE GUIDED CYTOREDUCTION OF OVARIAN CANCER

Postdoc Katrin Kleinmanns, together with PhD Katharina Bischoff and Researcher Vibeke Fosse, recently published 2 articles in EBio-Medicine. Their work describing CD24-targeted near-infrared (NIR) fluorescence imaging in patient-derived xenograft (PDX) models of high-grade serous ovarian carcinoma (HGSOC), confirms an improvement of cytoreduction of ovarian cancer in PDX orthotopic surgical model with CD24-targeted NIR FIGS. The journal also features the 2 publications in their commentary.

Vibeke Fosse and Katrin Kleinmanns presenting poster of their work.

The project, financed by The MSCA-ITN programme (ispic.eu), CCBIO and innovation grants from Helse Vest RHF and Helse Bergen HF, has been part of the PhD works of Katrin Kleinmanns and Katharina Bischof.

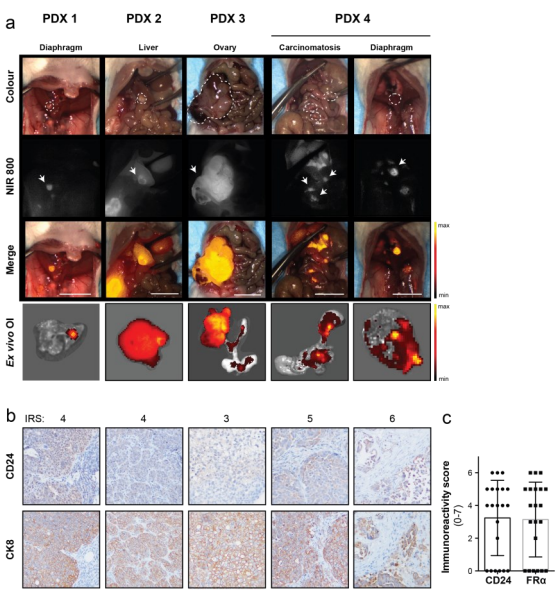
"The cell surface antigen CD24, currently postulated in theranostic settings, meets the requirements of a specific imaging biomarker and therefore suggests to be an ideal target for our imaging approach," Katrin says. "We want to develop our antibody-based fluorescence probe further into smaller targeting-moieties, as antibody fragments e.g. nanobodies, to meet enhanced pharmacokinetic characteristics. This can be tested in our palette of heterogenous orthotopic PDX models", she remarks.

"The results are very encouraging," said Medical director in Gynacological Oncology and CCBIO PI, Professor Line Bjørge. "The fluorochrome-marked probes for tumour tissue detection can be used intraoperatively in the treatment of most types of solid malignant tumours, and thus may be very useful tools to improve the degree of survival in patients with advanced cancer," she concludes.

"The next step is to trial this technique in dogs with naturally occurring cancer, an ethically appealing model for many common human cancers" states Fosse - veterinarian with specialisation in surgical oncology.

The 2 articles and commentary (A "light" guide for surgery) appear in the May edition of the journal, with CCBIO PI Emmet McCormack as senior author.

The publications:



Kleinmanns K, Bischof K, Anandan S, Popa M, Akslen LA, Fosse V, Karlsen I, Gjertsen BT, Bjørge L, McCormack E. *CD24-targeted fluorescence imaging in patient-derived xenograftmodels of high-grade serous ovarian carcinoma*. EBioMedicine 2020.

Kleinmanns K, Fosse V, Davidson B, de Jalón EG, Tenstad O, Bjørge L, McCormack E. *CD24-targeted intraoperative fluorescence image-guided surgery leads to improved cytoreduction of ovarian cancer in a preclinical orthotopic surgical model*. EBio-Medicine 2020.

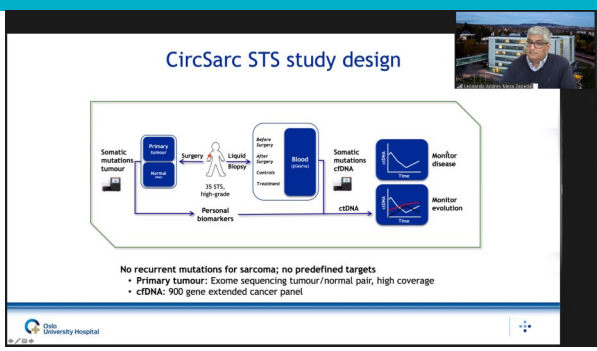
The commentary: Sato K. The "Light" Guide for Surgery. EBioMedicine 2020 Jun 4;56:102808.

ENORMOUS INTEREST IN CCBIO'S WEB BASED COURSES

The pandemic situation and lockdown of campus has forced CCBIO to think new in order to fulfill the goals for the CCBIO Research School of Cancer Studies. On fairly short notice, CCBIO rescheduled the 2 planned spring courses to new dates, and organized them through digital platforms. Despite of limited time to get the word out, registration for both courses soon had to close due to great interest from local, national and international attendants.

First off was **CCBIO904 Biomarkers and tumor biology in clinical practice**, May 25-27, with **Oddbjørn Straume** as academic responsible and **Reidun Kopperud** as coordinator.

"Before we knew it, more than 60 students had signed up and we had to close further registration," Reidun and Oddbjørn reports. "Normally, the course has mostly local participants. This time, we also had students from the other Nordic countries, some from elsewhere in Europe, and even one from California. We were happy to experience that the Zoom platform worked well and the number of participants was not a problem. The breakout rooms in Zoom worked well for the group assignments. Most of the talks were given live, some were uploaded as Kaltura Videos. Some of the regular teachers were not able to contribute on this short notice, but the stand-ins did a great job," they conclude.



CCBIO904 featured 9 different lecturers. Here, Professor Meza-Zepeda from the University of Oslo is teaching the students about circulation tumor DNA in sarcomas.

The CCBIO Scientific Writing and Communication Seminar (CCBIO908) took place June 8-11, as part of the CCBIO-Harvard INTPART collaboration. **Elisabeth Wik** was academic responsible and **Vandana Ardawatia** was coordinator.

From this year on, the course is approved as a 2 ECTS course. CCBIO Research School Leader Elisabeth Wik reports that the response for attending the course was overwhelming. Close to 300 participants signed up before we urgently closed for registration, including 150 students from institutions in Finland, Sweden, Iceland and Denmark, in addition to local UiB students and other students in Norway. This would of course not be possible in the traditional format. The Zoom breakout rooms functioned great to let the students meet each other in smaller groups, to discuss exercises and texts before plenary discussions.

Read more here.

Randy Watnick lecturing from his home office, which the observant viewer will see is onboard the USS Enterprise. A subtle referral to successful storytelling?

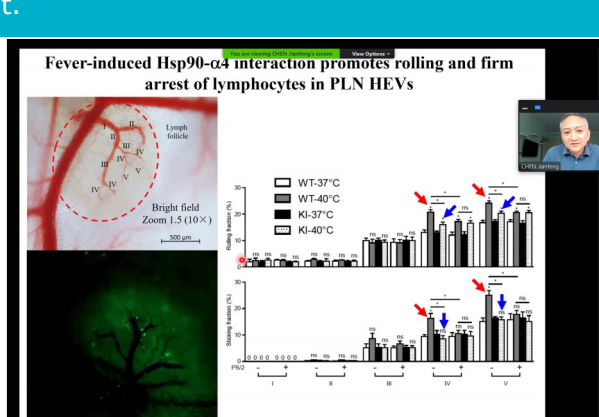
FIRST RUN OF CCBIO SEMINARS AS WEBINARS

This spring term was also the first time CCBIO ran CCBIO Seminars as webinars, in Zoom. First out was speaker Professor JianFeng Chen, Shanghai Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences, Shanghai, China. Chair Donald Gullberg had the honor of treading CCBIO's webinar path, assisted by CCBIO's administrative leader Geir Olav Løken, and UiB's IT department.

"The CCBIO seminar May 28th went very well, as did the questioning after the seminar, and all in all we had an intellectually stimulating seminar with a renowned integrin biologist," Donald explains. "From the host point of view it was well worth the effort, but cannot replace meeting in "real life" where one can discuss projects, have speaker interact with students and establish collaborations," he concludes.

CCBIO sums up the lessons learned so far for a successful webinar:

- Test the webinar link well in advance, the speaker's uploading capacity might be insufficient.
- Practice of the technical details is important (whose video is on and when, how does screen sharing work with the pending presentation, how is questioning after the seminar to be handled, informing about question handling at the start of the seminar, and consider a back-up with a pre-recorded version of the seminar (in Kaltura) in case of unforeseen server problems.



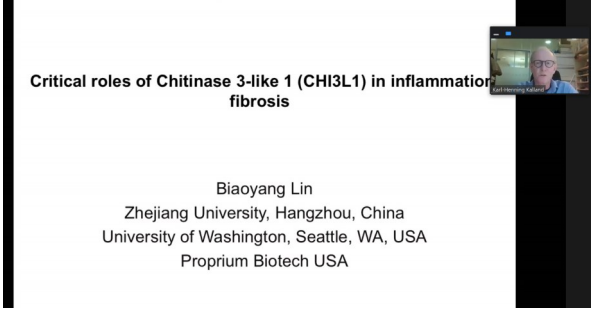
Professor JianFeng Chen gave the talk "Regulation of immune cell trafficking by extracellular microenvironment". See abstract and bio here.

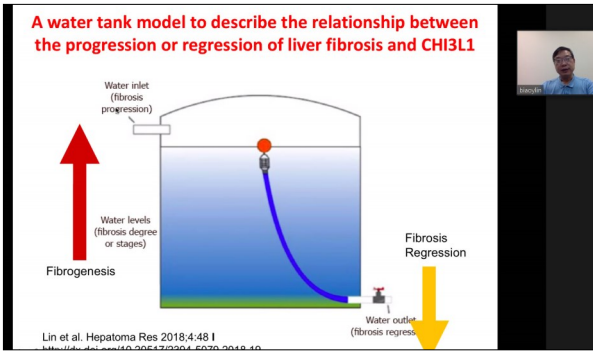
- If you have no prior experience in organizing webinars, it is crucial that you acquire qualified assistance.
- The person from the IT department that set up the webinar, should be available during the 30 minutes before the webinar to help in problem solving.
- Hosts should familiarize themselves with how to administer the "Participant Module" and "Raise hand function".

Karl-Henning Kalland chaired the next CCBIO Seminar June 11, with speaker Professor Biaoyang Lin, Zhejiang University, China. This seminar was also executed successfully.

Karl-Henning reports that the Zoom platform is excellent for meetings and webinars, but stresses the importance of checking in good time beforehand with the lecturer that login and band width on his/her side is sufficient for the presentation and "Share Screen" mode.

It remains to be seen how much CCBIO will use digital platforms for CCBIO Seminars in the future, in any case it is a useful tool when personal attendance is restricted.





Professor Biaoyang Lin gave the talk "Critical roles of Chitinase 3-like 1 (CHI3L1) in inflammation, fibrosis and cancer." See abstract and bio here.

EARLY CAREER RESEARCHER PRIZE TO CCBIO PHD CANDIDATE

Eirik Tranvåg, PhD Candidate in the ELSA group, won the 2020 Early Career Researcher Prize, sponsored by the Wellcome Trust, for the European region. The price was awarded to five early career researchers, one from each continent, and was given based on an article Tranvåg presented at the conference.

"The award is a great honor, and also came as a great surprise," Tranvåg says, who received the award in a live Zoom event. "It gives me a lot of motivation for completing the paper. The announcement of the price was just before the kids' bedtime, so it was a bit hectic to take care of my one-year old daughter while simultaneously give a short presentation about the paper. But I guess that illustrates well how early career researchers must balance family life and work, and that it is actually possible to do both," Tranvåg concludes.

The 15th World Congress of Bioethics was to be held in Philadelphia US June 19 - 21 but was converted to a virtual conference due to the corona pandemic. More than 550 participants met digitally, under the conference theme "Autonomy and Solidarity: Bridging the Tensions".

The article "Precision medicine and the principle of equal treatment: a conjoint analysis" is part of Tranvåg's PhD work and will be submitted for publication later this summer. The paper is based on an online survey of Norwegian doctors treating cancer patients and use a Discrete Choice Experiment to elicit stated preferences for individual patient characteristics in hypothetical priority setting decisions for new cancer drugs. Based on the findings, the paper discusses ethically relevant and irrelevant factors for treating patients unequal, and consider a possible framework for how cancer biomarkers can be seen as ethically acceptable for treating patients differently.

Tranvåg's PhD project is a collaboration between CCBIO and the Bergen Centre for Ethics and Priority Setting and aims to analyze how cancer biomarkers are used in priority setting decisions for new cancer drugs in Norway, and to discuss how concepts of precision and uncertainty may be addressed in the priority setting process.

COMING CCBIO COURSES

CCBIO's next 2 courses will be run as web courses, as the pandemic situation might stille be unresolved in the fall term. You therefore have the opportunity to attend in the comfort of your home office. The same ECTS as originally planned for the courses will be maintained. The courses are open to everyone, but notice that there are 2 registration links for each course: one for those who are interested in the ECTS or course diploma, and thereby will attend the entire course, and those who are just interested in the lectures for professional updates and want to hop in and out as they please.


Illustration: colourbox.com

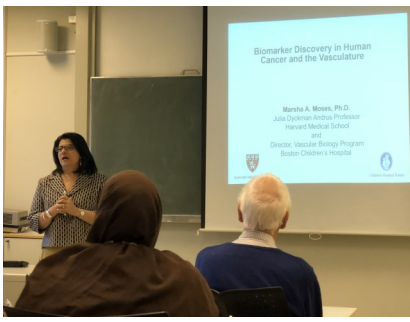
CCBIO907 Cancer-related vascular biology, September 21 - October 2, 2020

CCBIO907 is a 6 ECTS course that provides broad theoretical and practical understanding of basic aspects of vascular biology, cancer-related vascular biology, and other processes and diseases where vascular biology is relevant. The course presents knowledge about relationships between vascular biology, cancer progression, and diagnostic and treatment options directed towards the vasculature. Applied methods for studying vascular biology and biomarkers reflecting cancer-related vascular biology are taught. Also, the course aims to stimulate to scientific thinking, critical election and professional discussions.

CCBIO907 is part of the CCBIO-Harvard INTPART collaboration, and participants attending this course will benefit from the knowledge of researchers who have been in the frontline of vascular biology research for decades, and who are experienced lecturers at Harvard Medical School. This year, you will get to meet Edward R. Smith, Joyce Bischoff and Hong Cheng in addition to Randy Watnick and Mike Rogers. Elisabeth Wik and Lars A. Akslen have the academic responsibility, and Heidrun Vethe is the course coordinator.

Note that there are 2 registration links:
With ECTS: For those who attend the complete course, incl. group assignments, and be eligible for the 6 ECTS or a course diploma: Reg. link full course.
No ECTS: For those who are only interested in the lectures and want to hop in and out as they please (will not get ECTS or diploma): Reg. link lectures.
Registration will be closed at no notice when maximum is reached.

Read more here about the course.



Classroom settings, as here with Vascular Biology Program Director and INTPART project partner, Marsha Moses (top) and Professor Diane Bielenberg (below) in the 2018/19 CCBIO907 course, will this time be digital classrooms.

CCBIO905 Methods in Cancer Biomarker Research, October 27-29, 2020

CCBIO905 is a 5 ECTS course with 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 supplemented by presentations on ethics and economics of cancer biomarkers.

The course will focus on methods to study tissue samples, blood samples, urine 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 also be covered. Lars A. Akslen and Jim Lorens have the academic responsibility and Ingeborg Winge is the course coordinator.

Note that there are 2 registration links:
With ECTS: For those who attend the complete course, incl. group assignments, and be eligible for the 6 ECTS or a course diploma: Reg. link full course.
No ECTS: For those who are only interested in the lectures and want to hop in and out as they please (will not get ECTS or diploma): Reg. link lectures.
Registration will be closed at no notice when maximum is reached.

Read more here about the course.

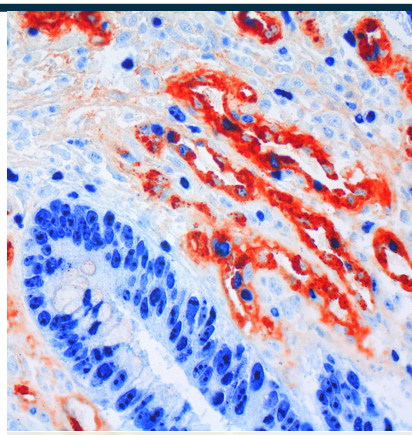



Photo: Ingvild Festervoll Melien

RECENT DOCTORAL DEFENSES

Harsh Dongre defended April 30, 2020, his doctoral work "Biomarkers and preclinical models for more precise diagnosis and personalized treatment of oral and vulva carcinomas - Study on human samples and experimental models".

Main supervisor: Professor Daniela Elena Costea, co-supervisors: Professor Line Bjørge and Professor Anne Christine Johannessen.

Based on immunohistochemistry and *in situ* hybridization, Dongre has established protocols that allow simultaneous study of different types of molecular markers (proteins and microRNAs), and used these to identify patients with poor prognosis and increased risk of relapse for both diseases. Dongre has also developed and established several preclinical model systems for vulva cancer. The models have been used to study the interaction between HPV-infected cancer cells and surrounding connective tissue cells, and endothelial cells from blood vessels and lymph vessels. See press release.

Yaping Hua defended May 4, 2020, her doctoral work "Discovery and characterization of novel STAT3 and androgen receptor inhibitors in prostate cancer cells".

Main supervisor: Professor Karl-Henning Kalland, co-supervisor: Professor Xisong Ke.

In her doctoral dissertation, Yaping Hua has screened hundreds of small molecule compounds from a biobank of so-called phytochemicals that the group's partner in Shanghai has made available for collaboration. New small molecules with inhibitory activity of stepwise tumor development of prostate cells were found. Molecular methods were then used to characterize the interaction between the identified molecules and protein in the cancer cells. One of the new molecules binds to the transcription factor androgen receptor (AR), which is a key protein in prostate and prostate cancer and a target for both the traditional hormone-inhibiting treatment of prostate cancer and for the new high-potency androgen and AR inhibitors. However, the new drug binds to a different region of AR than the drugs currently used, and is therefore not affected by resistance to the current drugs.

Another small molecule found in the screening was found to inhibit the transcription factor STAT3, which is increasingly activated in aggressive development of prostate cancer. This new molecule was shown to bind to STAT3 in a functionally important region, and this results in inhibition of STAT3. See press release.

Hanna Elisabet Dillekås defended June 4, 2020, her doctoral work "Importance of physical trauma on recurrence of breast cancer".

Main supervisor: Professor Oddbjørn Straume, co-supervisors: Associate Professor Svein Arthur H Jensen and Professor Olav Mella.

Dillekås has studied relapse patterns and dynamics following breast cancer treatment. Patients who do not receive additional treatment after surgery, more often have a relapse pattern with many metastases (daughter tumors) of similar size early on following surgery. This may indicate that surgery stimulates synchronous growth in some patients. Furthermore, a peak of relapse was found after breast reconstruction. This may indicate that this surgery may stimulate growth of microscopic accumulations of cancer cells that were previously dormant. This effect was independent of the time from cancer treatment to reconstruction. The incidence of relapse was not greater in patients who had undergone breast reconstruction. Patients who had complications during reconstruction had a greater proportion of early relapses. As a conclusion, the dissertation points out that the surgery period is important for tumor biology and recurrence of cancer. See press release.

Ragnhild Haugse defended June 17, 2020, her doctoral work "Molecular mechanisms of sonoporation in cancer therapy".

Main supervisor: Associate Professor Spiros Kotopoulis. Co-supervisors: Professor Emmet McCormack and PhD Anika Langer

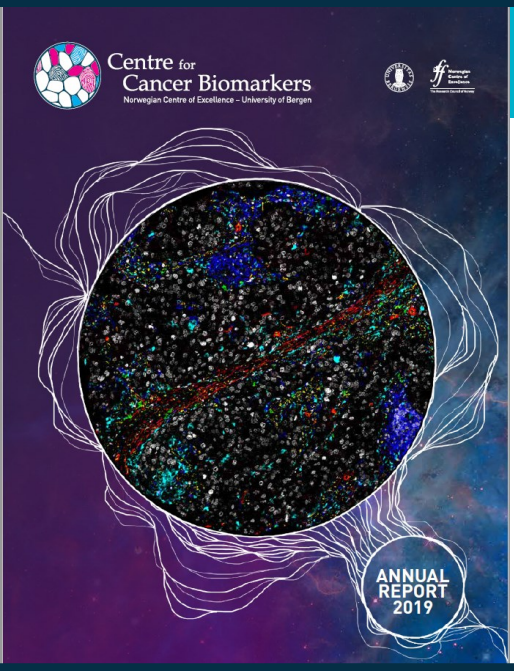
In her doctoral work, Haugse showed that different cell types found in the microenvironment of a tumor, respond differently to ultrasound and microbubbles, and that this host is controlled by ultrasound parameters, dose and type of microbubbles. Healthy peripheral blood cells are shown to have little effect on the host. Ultrasound and microbubbles lead to changes in the transmission of signals within the cells, which are, among other, important for the regulation of cell growth/death, protein synthesis and what protein the cells produce. It is known that these signaling pathways are often misregulated in cancer cells and are important in targeted cancer treatment. Therefore, this work can help to optimize the clinical use of ultrasound and microbubbles, as well as to select the drug for combination therapy with sonoporation. It is also worth noting that these effects were observed at low ultrasound intensity which is also used for other purposes, such as diagnostic ultrasound. See press release.

Nazar Gafar Abdulrahman Mohamed defended June 19, 2020, his doctoral work "Biomarker Identification in Oral Squamous Cell Carcinoma: Study on Cohorts of Patients from Sudan".

Main supervisor: Professor Daniela Elena Costea. Co-supervisors: Professor Anne Christine Johannessen, Professor Ahmed Sulaiman and PhD Elisabeth Sivy Nginamau.

Nazar has tested a new method for diagnosing oral cancer, aiming to find a method so cheap and easy to use that it can be used in a village in a low-income country. He tested out a so-called "electronic nose", a portable device that can detect substances from exhaled air from a person with oral cancer. He found that the electronic nose could detect oral cancer with a high degree of specificity and sensitivity, and may lead to earlier diagnosis of oral cancer. He has also analyzed the types of fungi that occur in saliva from people with oral cancer and whether these are different compared to healthy people. In total, he detected a total of 102 different fungal species in the saliva. These were largely the same in the two groups. An important finding was that people with oral cancer had a composition of immune cells in the cancerous tumor that could be related to some of the fungal species in the saliva. The findings may contribute to a better understanding of how oral cancer occurs, and contribute to earlier diagnosis. See press release.

THE CCBIO ANNUAL REPORT 2019 IS AVAILABLE



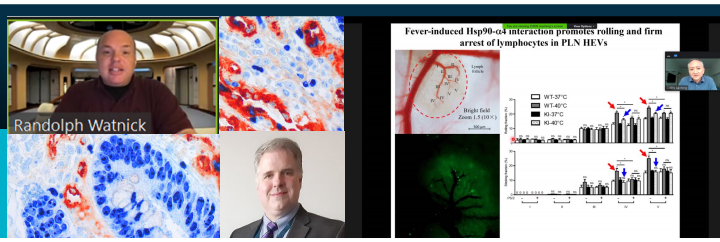
Make sure to take a look at the CCBIO Annual Report 2019!

You can read it through this link (allow a minute to download as it is a large file). The printed version will be circulated as soon as possible (depending on the virus-situation).

In the CCBIO Annual Report 2019, you can find:

- An overview of our research groups and their scientific activities and progress
- Presentations of our international affiliated investigators
- CCBIO Opinion pieces with views on current topics
- Overview of other CCBIO activities, including doctorates, seminars, mini-symposia, meetings and courses
- Minibios on PhD candidates and postdocs
- Interesting facts and figures
- A lot of great photos
- - and much more!

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.

Note that most CCBIO events for the fall term will be organized as digital events through Zoom, as a precaution as long as the Covid-19 situation is still unresolved.

- August 27, CCBIO Seminar as Webinar, speaker to be announced. Digital event.
- September 17, CCBIO Junior Scientist Symposium, Bergen, Haukeland campus (relative small group).
- September 21-October 2, CCBIO907 Cancer-related vascular biology, digital event.
- September 24, CCBIO Seminar as Webinar, speaker to be announced. Digital event.
- October 27-29, CCBIO905 Methods in Cancer Biomarker Research, digital event.
- October 29, CCBIO Seminar as Webinar, speaker to be announced. Digital event.
- November 26, CCBIO Junior Scientist Symposium, Bergen, Haukeland campus (relative small group).
- November 26, CCBIO Seminar as Webinar, speaker to be announced. Digital event.
- December 17, CCBIO Seminar as Webinar, speaker to be announced. Digital event.

OTHER COMING EVENTS



- Available until July 8,2020, The 9th International Cancer Cluster Showcase, OCC virtual event, access to videos and pitches
- June 3 but still available online, Oslo Cancer Cluster Webinar: Integrating clinical trials in cancer treatment.
- August 12, Digital bootcamp for helhetlig kreftbehandling, virtual event, Oslo Cancer Cluster,
- August 24-27 and October 12-13, Transdisciplinary life science – a Digital Life Norway course, Trondheim. For PhD students and postdoctors who want to learn more about working on transdisciplinary research projects within biotechnology and the life sciences.
- September 10, Knowledge for growth, the 16th edition of Europe's finest life sciences conference knowledge for growth, in Ghent, Belgium. (Postponed date, was originally planned for May 28.)
- September 14-16, Science, Technology, and Society: RRI Course Digital Life Norway, Centre for Digital Life Norway, Bergen (Solstrand).
- September 21-26 and October 5-9, A hands-on introduction to artificial intelligence in computational biotech and medicine, Centre for Digital Life Norway, Bergen.
- September 24-25, Crash course in navigating your PhD or postdoc, Centre for Digital Life Norway, Trondheim.

PUBLICATIONS

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

- Gajurel R, Gautam DK, Pun CB, Dhakal HP, Petrovski BÉ, **Costea DE**, Sapkota D. Trends and clinicopathological characteristics of oral squamous cell carcinomas reported at a tertiary cancer hospital in Nepal during 1999 to 2009. Clin Exp Dent Res. 2020 Jan 12. doi: 10.1002/cre2.278. Online ahead of print.PMID: 32488959
- Mercatelli D, Bortolotti M, Andresen V, Sulen A, Polito L, **Gjertsen BT**, Bolognesi A. Early Response to the Plant Toxin Stenodactylin in Acute Myeloid Leukemia Cells Involves Inflammatory and Apoptotic Signaling. Front Pharmacol. 2020 May 8;11:630. doi: 10.3389/fphar.2020.00630. eCollection 2020.PMID: 32457623
- Pandey S, Follin-Arbelet B, Pun CB, Gautam DK, Johannessen AC, Petersen FC, **Costea DE**, Sapkota D. Helicobacter pylori was not detected in oral squamous cell carcinomas from cohorts of Norwegian and Nepalese patients. Sci Rep. 2020 May 26;10(1):8737. doi: 10.1038/s41598-020-65694-7.PMID: 32457404
- Kleinmanns K, Fosse V, Davidson B, de Jalón EG, Tenstad O, **Bjørge L**, **McCormack E.** CD24-targeted intraoperative fluorescence image-guided surgery leads to improved cytoreduction of ovarian cancer in a preclinical orthotopic surgical model. EBioMedicine. 2020 May 23;56:102783. doi: 10.1016/j.ebiom.2020.102783. Online ahead of print.PMID: 32454402
- Kleinmanns K, Bischof K, Anandan S, Popa M, **Akslen LA**, Fosse V, Karlsen IT, **Gjertsen BT**, **Bjørge L**, **McCormack E.** CD24-targeted fluorescence imaging in patient-derived xenograft models of high-grade serous ovarian carcinoma. EBioMedicine. 2020 May 23;56:102782. doi: 10.1016/j.ebiom.2020.102782. Online ahead of print.PMID: 32454401

RECENT CCBIO IN THE MEDIA

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

11.06.20, Dagens Medisin, "Mener ny behandling ikke bare kan drives av de mest entusiastiske legene", Line Bjørge.

04.06.20, LMI, "Diskuterte mulighetene for nye prioriteringssystemer i helsetjenesten", Ole Frithjof Norheim.

04.06.20, Khrono, "Rapporten om ordningen med SFF er klar. Vi er takknemlige for komiteens omfattende og grundige arbeid", Lars A. Akslen.

02.06.20, Dagens Medisin, "Norge aktivt med på ASCO", Line Bjørge.

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15.05.20, Frontiers in Immunology, "Editorial: Targeting the Tumor Microenvironment for a More Effective and Efficient Cancer Immunotherapy", James Lorens.

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