

WCMM-LiU symposium Linköping 7-8 December 2017

Lecture hall Hugo Theorell, North entrance, level 9, Campus US

(Abstracts will be available at <https://people.ifm.liu.se/stekl/posterwcmm2017.pdf>)

We invite you to partake in the second annual WCMM-LiU symposium, an initiative focusing on the Medicine-Technology Interface.

- Invited keynote speakers
- Newly recruited WCMM group leaders
- Poster sessions presenting the Medicine – Technology Interface at WCMM-LiU

Preliminary program

Thursday 7 December 2017

13:00 – 13:25 Presentation WCMM

13:25 – 15:30 Protein Structure and Protein Pharma

15:30 – 16:00 Poster session with Coffee (all WCMM-areas presented)

16:00 – 18:00 Bioelectronics, biosensors, organ-on-a-chip

19:00 Dinner

Friday 8 December 2017

08:30 – 09:30 Poster session with Coffee (all WCMM-areas presented)

09:30 – 11:30 Personalized Medicine

11:30 – 12:30 Poster session with Wraps (all WCMM-areas presented)

12:30 – 14:15 Imaging

14:15 – 14:30 Closing remarks

WCMM

Linköping University, the University Hospital and the County Municipality of the region Östergötland, has received a generous donation from the Knut and Alice Wallenberg to launch one of the four Wallenberg Centre for Molecular Medicine (WCMM) nodes in Sweden. Our node will focus on the medicine-technology interface, and build upon our existing strengths in research within medical technology, materials science and bioengineering.

Organized by [Wallenberg Center for Molecular Medicine at Linköping University](#) together with the research school and network [Forum Scientium](#).

WCMM = [Wallenberg Center for Molecular Medicine at Linköping University](#)

For questions on the arrangement contact Stefan Klintström at stefan.welin.klintstrom@liu.se

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Thursday afternoon 7 December

Presentation WCMM

13:00-13:25 WCMM Linköping
Stefan Thor

Protein structure and protein pharma

Chairperson Eleonore von Castelmur

WCMM Fellow

Research Fellow, Division of Chemistry,
Faculty of Science & Engineering, LiU

Introduction:

Structural biology techniques such as X-ray crystallography, NMR and more recently Cryo-EM have enabled molecular studies of the structure and dynamics of biological macromolecules of varying size and complexity. Examining how alterations in the sequence and structure of proteins affect their function is essential to gain a better understanding of protein function in health and disease, in particular for disease-related homologs or mutated proteins. Combining structural biology with cell biology, biochemistry and biophysical techniques furthermore allows us to probe the molecular mechanisms of recognition & specificity that govern interactions also in cellular contexts. In this seminar, we show examples of how such joint approaches enable critical discoveries of new pharmaceutical strategies for improved patient care.

Program Thursday afternoon – first session

13:25 – 13:30

Intro to session

Eleonore von Castelmur

13:30 – 14:15

*“Structural Biology and Drug Discovery:
Meeting the Challenges of Cancer and
Infectious Disease”*

Prof Sir Tom Blundell, Dep of Biochemistry,
University of Cambridge, UK

14:15 – 14:45

*“Structural biology in drug discovery: from
fragment-based lead generation to
biopharmaceuticals”*

Dr Helena Käck, Discovery Sciences,
AstraZeneca R&D, Sweden

14:45 – 15:00

*“The proteasome deubiquitinase USP14 - a
cancer drug target?”*

Dr Pdraig D’Arcy, Drug Research, Faculty of
Medical and Health Sciences, LiU

15:00 - 15:15

*“From target identification towards the clinic
using a platform of biophysical techniques”*

Dr Katherine Stott, Biophysics Facility,
University of Cambridge, UK

15:15 - 15:30

*“Development of ligands selective for Tau
aggregates”*

Dr Therése Klingstedt, Chemistry, Faculty of
Science & Engineering, LiU

15:30 – 16:00

Poster session with Coffee

(all WCMM areas presented)



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Thursday afternoon 7 December

15:30 – 16:00 Poster session with Coffee
(all WCMM areas presented)

Bioelectronics, biosensors, organ-on-a-chip

Chairperson Eric Glowacki

WCMM Fellow

Laboratory of Organic Electronics,
Faculty of Science & Engineering, LiU

Introduction:

The field of bioelectronics seeks to bridge the gap between electronics and living systems. The great disparity between electronic devices, where electrons and photons transmit signals, and biology, where signals are ionic, requires novel transducer platforms. Accomplishing this requires crossing the divide between two highly mature disciplines – medicine and microelectronics. This seminar covers representative examples from the field, starting with optoelectronic nanodevices for retinal prosthetic implants, to artificial control of inflammation response, to next-generation electronic devices which are soft and conformable – creating a more natural bridge between the world of information technology and living systems.

Program Thursday afternoon – second session

16:00 – 16:05

“Intro to session”

Eric Glowacki, WCMM Fellow, Senior Lecturer, Laboratory of Organic Electronics, Faculty of Science & Engineering, LiU

16:05 – 16:50

“Bringing neurons to light with nano materials”

Yael Hanein, Professor, Micro and Nano Systems Laboratory, Tel Aviv University, Israel

16:50 – 17:20

“Neural Control of Inflammation”

Peder Olofsson, Senior Researcher, Cardiovascular Medicine, Karolinska, Stockholm, Sweden

17:20 – 17:35

Soft stretchable electronic materials and devices for interfacing of tissue

Klas Tybrandt, Research Fellow, Laboratory of Organic Electronics, Faculty of Science & Engineering, LiU

Dinner

19:00 -

at “Livgrenadjärmässen”

Brigadgatan 8, Linköping

Seven minutes walk from US Södra entrén.

Maps will be available at the symposium.



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Friday morning 8 December

Personalized Medicine will radically improve health care within the next decade - a seamless, interactive seminar for basic and clinical researchers

Chairperson Mikael Benson

Clinical and Experimental Medicine,
Faculty of Medicine & Health Sciences, LiU

Introduction:

One of the largest problems for health care and pharmaceutical companies is that many patients do not respond to treatment. Recent developments in diverse fields such as high-throughput technologies, big data, computer games, as well as basic and clinical research may solve this problem within the next decade. The seminar will start by a 10-minute introduction by a clinician, followed by talks from experts in high-throughput technologies, big data, drug development, visualization, computer games, as well as basic and clinical research. This will be followed by a discussion between the speakers and the auditorium.

Program Friday morning

08:30 – 09:30

Poster session with coffee

(all WCMM areas presented)

09:30 – 09:50

Intro to session

Mikael Benson

09:50 – 10:10

Drug discovery and development for personalized medicine

Anna Sandström, AstraZeneca R&D

10:10 – 10:25

Omics for personalized medicine

Colm Nestor, ass prof, Clinical and Experimental Medicine, Faculty of Medicine & Health Sciences, LiU

10:25 – 10:40

Single cell RNA sequencing for personalised medicine

Huan Zhang, MD, PhD, Clinical and Experimental Medicine, Faculty of Medicine & Health Sciences, LiU

10:40 – 11:10

Bioinformatics for personalized medicine

Danuta Gawel, M.Sc. and Mika Gustafsson, Senior Lecturer, Bioinformatics, Faculty of Science and Engineering, LiU

11:10 – 11:25

Discussion

Led by Mikael Benson

11:30 – 12:30

Poster session with wraps

(all WCMM areas presented)



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Friday afternoon 8 December

Imaging

Chairperson Anders Persson

CMIV and Division of Radiological Sciences,
Faculty of Medicine & Health Sciences, LiU

Introduction:

Personalised medicine is the key factor in future healthcare. Decisions and practices being tailored to the individual patient by use of genetic or other information. New methods will combine the ability to measure and quantify biological processes and with the ability to localise measured entities into a high-quality anatomical image. This will provide new versatile and useful biomarkers. The addition of genomic data allows new correlations to be made between cellular genomics and tissue-scale imaging.

Program Friday afternoon

12:30 – 12:35

Intro to session

Anders Persson

12:35 – 13:15

The remarkable potential of artificial intelligence for breast cancer histopathology

Jeroen AWM van der Laak

WCMM Guest Professor, Associate Professor, Computational Pathology, Radboud University Medical Center, Nijmegen, Netherlands

13:15 – 13:45

Will emerging technologies replace the radiologist?

Anders Persson

Prof, CMIV and Division of Radiological Sciences, Faculty of Medicine & Health Sciences, LiU

13:45 – 14:00

Non-invasive liver biopsy

Mikael Forsgren

PhD, Radiological Sciences, Faculty of Medicine & Health Sciences, LiU

14:00 – 14:15

Digital pathology

Martin Hallbeck

Professor, Neurobiology, Faculty of Medicine & Health Sciences, LiU

14:15 – 14:30

Closing remarks



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