WEDNESDAY

# 16 September

## 08:00 - 09:30 SESSION 7

### Reproductive biomarkers

Chairs: Associate professor *Kirstine Kirkegaard* (Horsens DK) and Associate professor *Else Marie Vestergaard* (Horsens DK)

08:00 - 08:30

State of the ART in Reproductive Biomarkers

Professor *Andres Salumets*

Department of Clinical Science, Intervention and Technology Karolinska Institutet, Stockholm, Sweden

08:30 - 09:00

Signaling mechanisms during the initial follicle recruitment in the ovary

Professor *Karin Lykke-Hartmann*

Department of Biomedicine, Aarhus University, Aarhus, Denmark

09:00 - 09:30

Transcriptomic profiling in relation to complications of pregnancy

Professor *Thomas Hviid*
Department of Clinical Biocheistry, Zealand University Hospital, Køge Roskilde, Denmark

## 08:00 - 09:30 SESSION 8

### Presentation of working groups (session by NSMB)

Chairs: Chief Physician *Morten Lindberg* (Tønsberg, NO) and Head of Medical Section *Erik Koldberg Amundsen* (Oslo, NO)

08:00 - 08:10

Introduction

Chief Physician *Morten Lindberg*

Department of Clinical Science, Intervention and Technology Karolinska Institutet, Stockholm, Sweden

08:10 - 08:30

Recommended use of HbA1c in patients with thalassemia or hemoglobin variant

Chief Physician *Eva Camilla Langsjøen*

Fürst Medical Laboratory, Oslo, Norway

08:30 - 08:50

TBA

08:50 - 09:30

Discussion about possible cooperation between the Nordic countries

## 08:00 - 09:30 SESSION 9

### Extracellular vesicles as new diagnostic tools

Chair: Professor *Aase Handberg* (Aalborg, DK)

08:00 - 08:30

Potential of extracellular vesicles (EVs) as new disease markers. Experience from new EV based diagnostic tools for screening for ovarian cancer and pregnancy complications

Professor *Carlos Salomon*
UQ Centre for Extracellular Vesicle Nanomedicine, UQ Centre for Clinical Research, The University of Queensland, Brisbane, Australia

08:30 - 08:50

Next Generation Diagnostics, a pipeline for extracellular vesicles based diagnostics of obesity complications and colon cancer

Associate Professor *Maiken Mellergaard* and Associate Professor *Malene Møller Jørgensen*

Department of Clinical Biochemistry and Department of Clinical Immunology, Aalborg University Hospital, Aalborg, Denmark

08:50 - 09:10

What needs to be addressed before extracellular vesicles could be used as diagnostic tools in routine clinical laboratories?

Research fellow *Kristiina Kurg*, MD PhD
Institute of Clinical Medicine, Department of Internal Medicine, University of Tartu, Estonia

09:10 - 09:30

Discussion

## 09:45 -10:30 PLENARY LECTURE

### Sex, sex differences and biomarkers

Chair: Associate professor *Anne Winther Larsen* (Aarhus, DK)

Professor *Claus H. Gravholt*, Department of Endocrinology, Aarhus University Hospital, Aarhus, Denmark

How do we determine sex? In a clinical setting we determine sex based on chromosomal sex (46,XY or 46,XX), gonadal sex (testis or ovaries), hormonal sex (testosterone or estrogen), and anatomical sex (internal (to have a uterus or not) and external (penis or vagina)). This is usually straightforward in most cases, however in case of disorders of sex development (DSD) there may be incongruency between these different levels of sex and for example we may see an individual with a typical feminine appearance and 46,XY, testis, high levels of testosterone and without a uterus (46,XY female DSD with androgen insensitivity). Patients with DSD typically presents a challenge, when assessing biochemical measures, and this may initially lead to confusion, until a diagnosis is reached. In addition to these levels of sex, which are easily determined clinically, we also talk about the social gender or the perception of oneself, which again may not be congruent with the sex assigned at birth. Some of these individuals choose to change sex – transpersons. In transpersons (female-to-male (FtM), male-to-female (MtF)), many biochemical measures will change in line with the administered sex steroid therapy.

## 10:45 -12:00 **PLENARY SESSION - PRIZE COMPETITION**

### The NFKK young researcher award

Chair: Professor *Lars Melholt Rasmussen* (Odense, DK)

NFKK Prize Competition

The Nordic Society for Clinical Chemistry rewards contemporary Nordic research work related to the field of clinical chemistry by the *NFKK Young Researcher Award* (previously known as *The Astrup Prize*)
Nordic scientists below 40 years of age who have not previously received the Astrup Prize are invited to submit an abstract. Abstracts are judged by a committee consisting of five senior scientists within the clinical chemistry field – one from each Nordic country.
Three abstracts are selected for oral presentation at the Nordic Congress and the prize committee will award 3 prizes at a value of respectively DKK 40,000, DKK 20,000 and DKK 10,000 for 1st, 2nd and 3rd prize.
The prizes will be awarded to the winners during the gala dinner on September 17th.

## 12:00-13:00 **LUNCH**

## 12:30-13:00 **POSTERWALK I**

## 13:00 -13:45 **PLENARY LECTURE**

### Next steps for microbiome therapies: mechanism of action

Chairs: Clinical Bioinformatician Louise Bruun Thingholm (Aarhus DK) and Professor Christian Lodberg Hvas (Aarhus DK)

Professor *Curtis Huttenhower,* Harvard Chan Microbiome in Public Health Center, Harvard University, Boston, USA

Several microbiome-derived therapies have now received or are undergoing regulatory approval, including both live biotherapeutic products (LBPs) and bioactive small molecules of microbial origin. However, almost none have established mechanisms of action, be they chemical, immune-mediated, ecological, or otherwise. This process is impeded by the extent of microbial "dark matter" even in the well-studied human gut microbiome: some 50-75% of microbial proteins cannot be assigned even putative function from metagenomes alone, and this fraction is above 95% in other environments. We have developed new methods that provide potential pathway assignments for approximately 25% of human gut microbiome proteins, as well as guidelines for extending them to other hosts and environments. Examples include new chemotaxis and B-vitamin metabolism cassettes in Hungatella hathewayi, implicated in inflammatory bowel disease and colorectal cancer, and CRISPR system members in the "anti-inflammatory" Faecalibacterium prausnitzii. In addition to metabolic functions, many previously uncharacterized sequences are likely to be viral, and we find perturbations in both DNA and RNA viromes during inflammation (e.g. E. coli phage correlated with increased E. coli abundance) using novel profiling methods. Finally, many of these new functions can be linked to small molecule chemistry as well, e.g. putative bilirubin derivatives depleted in IBD. These approaches thus aid in identifying the molecular mechanisms underlying ecological, metabolic, and disease phenotypes and treatments.

## 13:55 - 14:15 **COMPANY SESSION**

### Siemens Healthcare A/S

## 13:55 - 14:15 **COMPANY SESSION**

### Sarstedt ApS

## 13:55 - 14:15 **COMPANY SESSION**

### Vingmed A/S

GEM Premier 7000 – a study on blood gas analysis and hemolysis

Chief Physician *Mads Nybo*

Department of Clinical Biochemistry, Odense University Hospital, Odense, Denmark
Hemolysis is the most frequent preanalytical error, but it is undetected in traditional blood gas analysis.
The GEM Premier 7000 enables hemolysis detection, which we have tested to elucidate the number of hemolyzed samples and the potential clinical impact.

## 14:30 - 16:00 SESSION 10

### Fibrinogen and fibrinolysis in health and disease

Chair: Associate Professor *Julie Brogaard Larsen* (Aarhus DK)

14:30 - 15:00

**Fibrinolysis: How to measure, and why?**

Associate Professor *Julie Brogaard Larsen*

Department of Clinical Biochemistry, Aarhus University Hosital, Aarhus, Denmark

15:00 - 15:30

**Fibrinogen in health and disease**

Professor *Else Marie Bladbjerg*
Department of Clinical Biochemistry, University Hospital of Southern Denmark, Esbjerg, Denmark

15:30 - 15:50

**Fibrinolysis in venous thromboembolic disease**

PhD student *Anne Lind Malte*
Department of Clinical Biochemistry, Aarhus University Hosital, Aarhus, Denmark

## 14:30 - 16:00 SESSION 11

### AI in Diagnostics: Where are we now and what lies ahead?

Chairs: Associate Professor *Anders Mønsted Abildgaard* (Aarhus DK) and Associate Professor *Stefan Stender* (Copenhagen DK)

14:30 - 15:00

**Data-driven innovation in healthcare – between clinical rationales, standards, and AI**

Postdoctoral researcher *Christopher Haargaard Gyldenkærne*

CAISA (National Center for AI in Society), University of Copenhagen

15:00 - 15:30

**From Data to Diagnosis: Making AI Reliable in Laboratory Medicine**

Medical Director *Andreas Bietenbeck*

Labor Poing, Munich, Germany

15:30 - 16:00

**Bespoke Biology: How AI-Designed Proteins are Reimagining Diagnostics and Therapeutics**

Postdoctoral researcher *Kasper Haldrup*
Digital Biotechnology Lab, Technical University of Denmark, Kongens Lyngby,

## 14:30 - 16:00 SESSION 12

### Mass spectrometry-based proteomics in clinical biochemistry

Chairs: Professor *Hans Christian Beck* (Odense DK) and associate professor *Martin Overgaard* (Odense DK)

14:30 - 14:55

**Proteomics—Illusion or Diagnostic Revolution?**

Professor *Nicolai J. Wewer Albrechtsen*

Department of Clinical Biochemistry, Copenhagen University Hospital, Copenhagen, Denmark

Proteomics promises to transform diagnostics by moving beyond single biomarkers toward comprehensive molecular disease profiles. But is clinical proteomics ready for routine implementation, or are we still navigating technical, interpretive and translational illusions? This talk explores the diagnostic potential, current limitations and future role of proteomics in clinical biochemistry.

14:55 - 15:20

**Dried blood spots and other smart-samplers: Advancing Clinical LC–MS Protein Bioanalysis**

Professor *Trine Grønhaug Halvorsen*

Section for Pharmaceutical Chemistry, Oslo University

15:20 - 15:45

**Subtyping of amyloidosis and diagnosis of other rare protein deposition diseases by mass spectrometry-based proteomics**

Professor *Hans Christian Beck*
Department of Clinical Biochemistry, Odense University Hospital, Odense, DK

15:45 - 16:00

Selected abstract

## 16:15 - 17:45 SESSION 13

### Outcome studies in laboratory medicine

Chair: Head of Medical Section *Erik Koldberg Amundsen* (Oslo, NO)

16:15 - 16:45

**Introduction to outcomes studies in laboratory medicine with focus on pragmatic implementation studies, IFCC TF-OSLM.**

Head of Medical Section *Erik Koldberg Amundsen*

Department of Medical Biochemistry, Oslo University Hospital, Oslo, Norway

16:45 - 17:05

**Modelling for outcome studies and health economic outcomes**

Medical Director *Paul Juelicher*

## 16:15 - 17:45 SESSION 14

### Updates from Nordic screening and screening pilots (session by SKKY)

Chair: Chief physician *Anna Linko-Parvinen* (Turku, FI)

16:15 - 16:45

**Lipoprotein (a) cascade screening in cardiovascular disease**

Specialist Dr. *Karin Littman*

Department of Medicine Huddinge, Karolinska Institutet, Stockholm, Sweden

16:45 - 17:15

**Current strategies in prostate cancer screening**

Professor *Anssi Auvinen*

## 16:15 - 17:45 SESSION 15

### The microbiome and human health

Chairs: Clinical Bioinformatician *Louise Bruun Thingholm* (Aarhus DK) and Professor *Christian Lodberg Hvas* (Aarhus DK)

16:15 - 16:45

**Gut virome and human health**

Professor *Dennis Sandris Nielsen*

Department of Food Science, University of Copenhagen; copenhagen, Denmark

16:45 - 17:15

**Faecal microbiota transplantation (FMT) – current usage and future perspectives**

Professor *Christian Lodberg Hvas*

Health Economics & Outcomes Research, Core Diagnostics, Abbott, Germany.

Health economic modelling links diagnostic performance and test information to patient outcomes and system impact. This talk outlines modelling approaches in laboratory medicine, highlights challenges in demonstrating value, and emphasizes robust multi-layer validation as key to credible, decision-relevant evidence for access, reimbursement, and clinical adoption.

17:05 - 17:25

Cluster-based study designs. Interventions to improve appropriateness of test ordering in primary care

Biochemist *Serena Lillo*

Department of Biochemistry and Immunology, Lillebaelt Hospital, Vejle, Denmark

17:25 - 17:45

RCTs in laboratory medicine. The WESTCOR-POC study, use of POC Troponin in the Emergency Department

Professor *Kristin Moberg Aakre*

Haukeland University Hospital and Department of Clinical Science University of Bergen, Bergen, Norway.

Prostate Cancer Research Center, Faculty of Medicine and Health Technology, Tampere University, Finland

PSA-based prostate cancer screening reduces prostate cancer mortality, but results in overdiagnosis of clinically insignificant cases. MRI-based screening with improved specificity for high-grade cancer has the potential to tip the balance of benefits of harms and benefits. Three large screening trials are on-going and have reported interim results. In this talk, I will review the current evidence.

17:15 - 17:45

Screening for monoclonal gammopathies

Postdoctoral Researcher *Thorir Einarsson Long*

Skåne University Hospital, Nephrology, Lund, Sweden

Department of Gastroenterology, Aarhus University Hospital, Aarhus, Denmark

FMT is a life-saving therapy in Clostridioides difficile infection. Specific microbial therapies are under development, but remain inferior to the transfer of a complete intestinal microbiome. Understanding mechanisms of action gets increasingly important as FMT use expands to new indications such as inflammatory bowel diseases, liver cirrhosis, and Parkinson disease.

17:15 - 17:45

TBA

Professor *Clarissa Schwab*

Department of Bioprocess Engineering, Aarhus University, Aarhus, Denmark