WEDNESDAY

# 16 September

## MAIN HALL

### 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

Assisted reproduction technologies are an integral part of modern family life. An increasing number of children, 10% in Europe, are conceived through IVF. Considering the low success rate per cycle, IVF carries an emotional burden for couples and creates substantial pressure on healthcare systems. Therefore, biomarkers predicting IVF success are researched. This presentation discusses the history and current trends in the search and usability of IVF biomarkers.

**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

## HALL 2

### 08:00 - 09:30 SESSION 8

Structure and organization of working groups in Norway - a potential for Nordic collaboration? (session by NSMB)

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

**08:00 - 08:15**

Introduction

Chief Physician *Morten Lindberg*

Central laboratory, Vestfold Hospital Trust, Tønsberg, Norway

Targeted working groups drive clinical biochemistry forward. Learn how the Norwegian Society organizes their working groups in areas ranging from reference intervals to HbA1c in hemoglobinopathies. See our structured model, hear highlights from active groups, and join the discussion. Building on legacies like NORIP, can we unite for new, impactful Nordic collaborations?

**08:15 - 08:45**

Report from WG: Recommended use of HbA1c in patients with thalassemia or hemoglobin variant

Chief Physician *Eva Camilla Langsjøen* and Chief Physician *Gunhild Øygard Fosse*

Fürst Medical Laboratory, Oslo, Norway and University Hospital of North Norway

## HALL 3

### 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

This talk presents our program of work on extracellular vesicle (EV)-derived biomarkers as a novel liquid biopsy approach for ovarian cancer detection. We will discuss the clinical and analytical validation of a new diagnostic test built on EV biomarkers, highlighting its performance characteristics, translational potential, and relevance to clinical biochemistry practice. The talk will address how EV-based liquid biopsies can complement or improve upon current diagnostic pathways for ovarian cancer, and what this means for adoption in clinical laboratories.

**08:30 - 08:50**

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

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

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

Development of a minimally invasive colorectal cancer screening test based on extracellular vesicle (EV) biomarkers isolated from a single finger-prick blood sample collected on dried blood spots. Using the microarray-based EV Array technology, the test enables highly multiplexed EV profiling to improve early cancer detection, reduce false positives, increase screening participation, and decrease unnecessary colonoscopies.

Plasma-derived extracellular vesicles (EVs) from the liver carry information about metabolic dysfunction-associated steatotic liver disease (MASLD) in individuals with obesity. Characterizing circulating levels and phenotypes of liver-derived EVs using high-resolution flow cytometry and proteomics, we present novel methodology while revealing spiring organ-specific biomarker potential of circulating EVs.

**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

Molecular biological investigations based on sample material from clinical patient cohorts in relation to assisted reproduction, recurrent pregnancy loss and pre-eclampsia are presented. Based on results from the studies further investigations of the identified gene expression signatures and clinical perspectives are discussed.

**08:45 - 09:15**

Report from WG: Reference intervals and decision limits

Head of Medical Section *Erik Koldberg Amundsen*

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

Established in 2025, the Norwegian Interest Group for Reference Intervals (RIs) and Decision Limits (DLs) seeks to improve the quality and harmonization of RIs and DLs in Norway. This presentation outlines the group's organization and ongoing activities, including projects on ALP RIs and ferritin DLs.

**09:15 - 09:30**

Discussion about possible cooperation between the Nordic countries

**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

In routine clinical laboratories, we rarely question the rigid quality systems that surround us. However, how can we move highly promising scientific biomarkers, such as extracellular vesicles, from science into routine? After all, other liquid biopsy markers, such as cfDNA, have bridged this gap. What are the biggest problems we need to address and is it even possible to overcome them all?

**09:10 - 09:30**

Discussion

MAIN HALL

## 09:45 - 10:30 PLENARY LECTURE

### Sex, sex differences and biomarkers

Chair: Associate professor *Anne Winther Larsen* (Aarhus, DK) and Associate professor *Anne-Birgitte Garm Blavnsfeldt* (Horsens, 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.

**10:45 - 11:10**

The circulating proteome as a molecular clock of the human menstrual cycle

*Jonas Ghouse*
Department of Clinical Biochemistry, Aarhus University Hospital, Aarhus, Denmark

**11:10 - 11:35**

Clinical implementation of plasma p-tau217 testing for Alzheimer's disease in routine laboratory practice: analytical validation, biological confounders, and real-world performance

*Burak Arslan*
Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

**11:35 - 12:00**

Translational proteomics for biomarker discovery in frontotemporal lobar degeneration

*Joel Simrén*
Clinical Chemistry, Sahlgrenska University Hospital, Gothenburg, Sweden

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

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

MAIN HALL

## 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.

MAIN HALL

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

### Siemens Healthcare A/S

Laboratory screening for colorectal cancer in symptomatic patients – performance of FOB Gold on Siemens Healthineers platforms

HALL 2

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

### SARSTEDT ApS

Bridging Psychiatry and Somatic Care: A Simple Infrastructure Investment with Major Clinical Impact.

HALL 3

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

### Vingmed A/S

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

Lead Consultant, *Steven McCann*

Department of pathology, Stepping Hill Hospital, Manchester, UK

The use of faecal immunochemical tests (FIT), which detects blood in faeces, has become established as the initial screening test for colorectal cancer (CRC). This presentation will summarise the experience of this Hospital moving from HM-Jack to FOB-Gold analysis used on Siemens Healthineers platforms.

Chief Biomedical Laboratory Scientist *Nina Mogensen*

Department of Clinical Biochemistry and Immunology, Hospital Lillebælt, University Hospital of Southern Denmark

Background: Psychiatric patients experience delayed laboratory diagnostics despite high somatic morbidity. Methods: Following integration of psychiatric and somatic services, a pneumatic tube system linked the psychiatric hospital to the central laboratory. Results: The 90th percentile turnaround time for STAT samples fell from 72 to 61 minutes, and results within 60 minutes increased from 76% to 89%. Conclusion: A simple infrastructure upgrade improved equity and predictability of laboratory diagnostics.

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.

## MAIN HALL

## 14:30 - 16:00 **SESSION 10**

### Fibrinogen and fibrinolysis in health and disease

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

**14:30 - 14:55**

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

Associate Professor *Julie Brogaard Larsen*

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

The balance between fibrin clot formation, breakdown and remodelling is crucial in order to secure haemostasis and at the same time uphold vascular patency. Nevertheless, the process of fibrin clot breakdown (fibrinolysis) has traditionally been challenging to measure, and robust and standardized biomarkers for fibrinolytic capacity are lacking. This state-of-the-art talk will give an overview of the fibrinolytic process, methods for quantification of fibrinolysis, and old and emerging clinically relevant fibrinolysis biomarkers.

**14:55 - 15:15**

#### Fibrinolysis in venous thromboembolic disease

PhD student *Anne Lind Malte*

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

## HALL 2

## 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

## HALL 3

## 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

Venous thromboembolism (VTE) is associated with substantial morbidity and a high risk of recurrence. Although fibrinolytic biomarkers may aid risk stratification, evidence has largely been based on plasma-based assays. In this talk, we explore whole-blood fibrinolytic capacity and its potential role in thrombotic risk assessment.

Dried blood spot microsampling is a minimally invasive alternative to conventional blood sampling, enabling patient-centric collection.
This presentation highlights recent advances in clinical LC-MS/MS protein bioanalysis from dried microsamples, including smart samplers that integrate proteolysis or affinity extraction into the sampling step. These simplify laboratory workflows and support efficient protein bioanalysis.

**15:15 - 15:45**

Fibrinogen in health and disease

Professor *Else Marie Bladbjerg*

Department of Clinical Biochemistry, University Hospital of Southern Denmark, Esbjerg, Denmark

Fibrinogen is a multifunctional plasma glycoprotein that extends far beyond its role in hemostasis. This presentation explores fibrinogen and fibrin structure and function, including isoforms and assays for fibrinogen. The focus will be on the role of fibrinogen and selected isoforms in obesity and cardiometabolic diseases such as fatty liver disease, stroke, and recurrent thrombosis.

**15:30 - 16:00**

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

Postdoctoral researcher *Kasper Haldrup Björnsson*

Digital Biotechnology Lab, Technical University of Denmark, Kongens Lyngby, Denmark

**15:20 - 15:40**

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

Mass spectrometry-based proteomics is the current gold standard for amyloid subtyping, providing accurate and unbiased identification of amyloid proteins in clinical specimens. This presentation will present the diagnostic workflow together with the results of a prospective evaluation of the clinical performance of the MS-based amyloid typing service at the Amyloidosis Center in Odense, Denmark

**15:45 - 16:00**

Fibrinogen Aarhus, FGA c.112A>G (p.Arg38Gly): A recurrent Danish Variant Associated with Dysfibrinogenemia Suggesting a Possible Founder Effect

Associate Professor *M. Vakur Bor*

Department of Clinical Biochemistry, University Hospital of Southern Denmark, Esbjerg, Denmark

We retrospectively investigated Danish patients with congenital fibrinogen disorders and identified seven carrying the FGA c.112A>G (p.Arg38Gly) variant, historically known as Fibrinogen Aarhus and predominantly associated with dysfibrinogenemia and bleeding in the literature. None of the Danish patients experienced bleeding, whereas two developed pulmonary embolism. Its recurrence across unrelated Danish families suggests a possible founder effect and highlights a more complex genotype–phenotype relationship.

**15:40 - 16:00**

Selected abstract

## MAIN HALL

## 16:15 - 17:45 **SESSION 13**

### Outcome studies in laboratory medicine

Chair: Head of Medical Section *Erik Koldberg Amundsen* (Oslo, NO) and Associate Professor *Kristina Laugesen* (Aarhus DK)

**16:15 - 16:45**

## HALL 2

## 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**

## HALL 3

## 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**

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

This presentation will give a brief introduction to outcome studies in laboratory medicine and outline the work of the TF-OSLM. I will discuss an example of an observational study on the introduction of measurements of DOACs for patients with acute stroke.

**16:45 - 17:05**

Modelling for outcome studies and health economic outcomes

Medical Director *Paul Juelicher*

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

This presentation will explore the use of cluster-based study designs to evaluate interventions aimed at improving the appropriateness of laboratory test ordering in primary care. Using vitamin D as an example of a commonly requested laboratory test, it reviews strategies to optimize test utilization and examines their impact on ordering behavior, healthcare resource use, and patient outcomes.

**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.

Lipoprotein (a) cascade screening in cardiovascular disease

Specialist Dr. *Karin Littman*

Department of Medicine Huddinge, Karolinska Institutet, Stockholm, Sweden

Elevated lipoprotein(a) [Lp(a)] is an independent, causal, genetically determined dyslipidaemia that increases the risk of cardiovascular disease. This presentation provides an overview of Lp(a), its clinical significance, and strategies for cascade screening to identify individuals with elevated Lp(a) levels and increased cardiovascular risk.

**16:45 - 17:15**

Current strategies in prostate cancer screening

Professor *Anssi Auvinen*

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

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*

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**

Gut Microbiome and Diet: Discussions about Lactose?

Professor *Clarissa Schwab*

Department of Bioprocess Engineering, Aarhus University, Aarhus, Denmark

Lactose is the main carbohydrate in milk. Worldwide, 70% of population are lactase non-persisters, suggesting that lactose will become available to the gut microbiota. This presentation will highlight and discuss the latest research findings on the utilization of lactose by microorganisms in the gut and the consequences for the host.