PROGRAMME

NSHG-PM 2023 WORKSHOP

PRECISION MEDICINE: THE BRIDGE FROM RESEARCH TO HEALTHCARE

19 - 21 JUNE 2023 · TALLINN · ESTONIA

NOS-M
The Joint Committee of the Nordic Medical Research Councils

THANKS FOR SUPPORTING US

Centre of Genomics, Evolution & Medicine

cGEM

The NSHG-PM 2023 workshop is organized together with Centre for Genomics, Evolution and Medicine (cGEM) of Institute of Genomics, University of Tartu (European Union's Horizon 2020 grant no 810645).

For further information please visit https://cgem.ut.ee/

NOS-M

The Joint Committee of the
Nordic Medical Research Councils

The Joint Committee of the Nordic Medical Research Councils (NOS-M) is a collaborating body for the Nordic research councils that finance medical research and is a sponsor of the NSHG-PM 2023 workshop in Tallinn.

For further information please visit: https://nos-m.org/

NSHG-PM 2023 WORKSHOP

HTTPS://NSHG-PM2023.ORG

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JOIN NSHG-PM

The Nordic Society of Human Genetics and Precision Medicine (NSHG-PM) represents a rapidly growing movement of scientists, clinicians, and other stakeholders who are demonstrating the value of combining information from genetics, -omics, imaging, and a variety of health and other registry data, with the goal of more precision in disease prevention and treatment. In order to achieve this, we need to build bridges from research to public health and clinical implementation of precision medicine.

Regular membership is open to researchers, clinicians, and others working on precision medicine research, translation, infrastructure, and practice in the Nordic countries. Trainee membership is available for advanced-degree precision medicine professionals during fellowships, as well as students working toward a post-baccalaureate or bachelor's degree.

1-Year Membership	EUR 50
1-Year Membership – Trainee/Student	EUR 30

For more information please visit
www.nshg-pm.org/membership

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WELCOME

We are delighted to see you join us in the historic city of Tallinn this summer for an enriching academic event. This gathering is brought to life through the concerted efforts of the Nordic Society of Human Genetics and Precision Medicine (NSHG-PM) and the University of Tartu.

Our program is meticulously designed to foster an environment ripe with stimulating discussions aimed at propelling Nordic precision medicine forward. Our organizing committee has arranged an agenda featuring over 20 insightful talks that delve into a range of pertinent subjects. These include the implementation of polygenic risk scores (PRS) and whole-genome sequencing in the clinic, potential applications of pharmacogenomics, machine learning, and custom disease risk scoring tools, among others.

This event holds a special focus on the young researchers and clinicians who are shaping the future of our scientific landscape. To this end, we have introduced workshops to this year's NSHG-PM annual meeting, addressing pivotal topics for the future of personalized medicine, including machine learning, Mendelian randomization, and PRS. Furthermore, we have organized a poster session, providing a platform for at least 25 young researchers to present their latest findings. The most promising of these will have the opportunity to deliver short talks to the auditorium.

We envision this workshop as a steppingstone towards establishing a framework that will fuel future public health, clinical care, and innovation in the Nordic region.

Join us in Tallinn for this enriching experience and seize the unique opportunity to network with fellow human geneticists, big data scientists, biobankers, epidemiologists, hospital clinicians, biomedical industry researchers, and executives.

Looking forward to seeing you in Tallinn!

On behalf of the Local Organizing Committee:

Lili Milani
Head of Estonian Genome Centre,
Institute of Genomics,
University of Tartu

Erik Abner
Estonian Genome Centre,
Institute of Genomics,
University of Tartu

Andres Metspalu
Head of Estonian Biobank,
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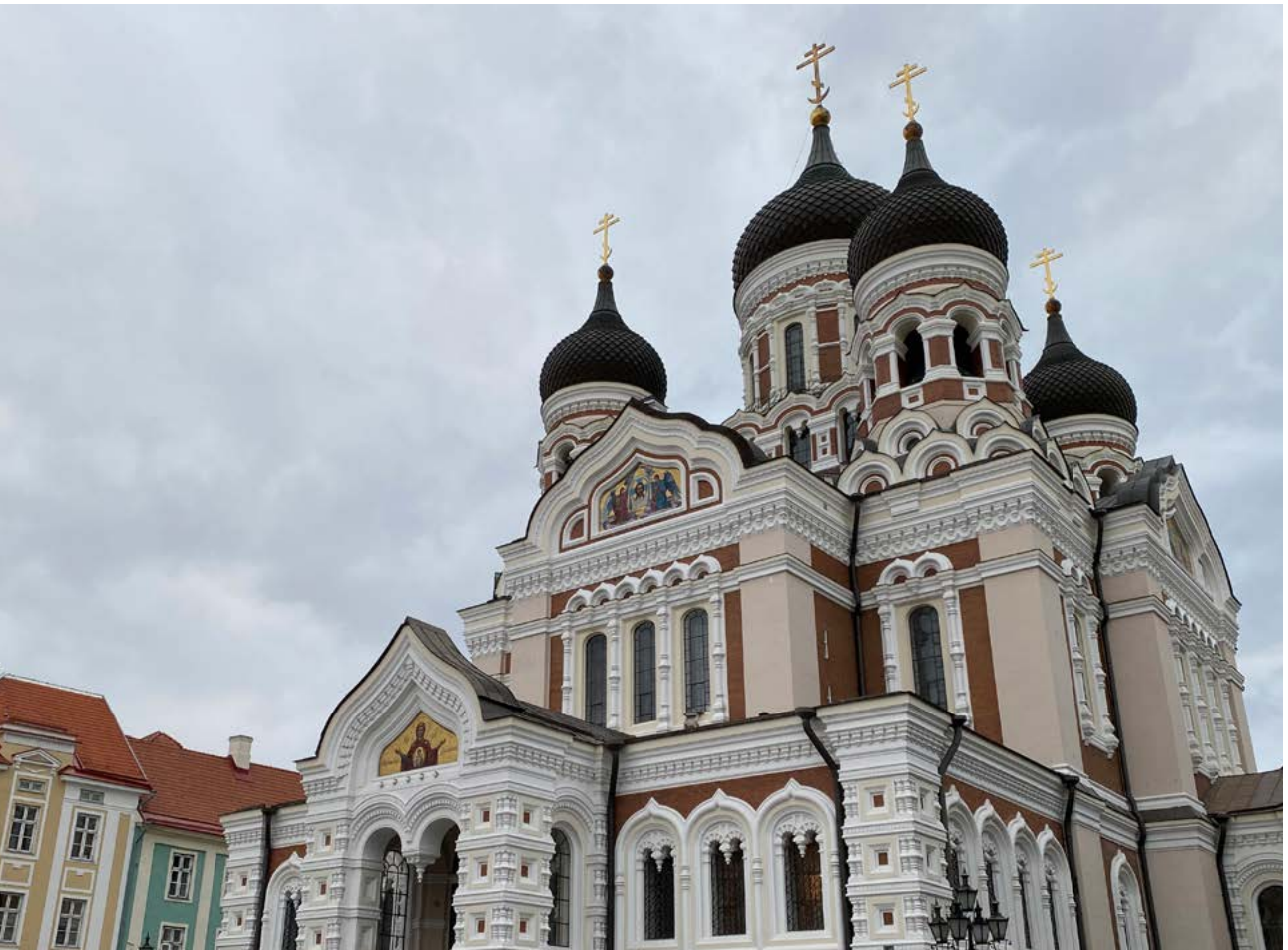
Jon Anders Eriksson
Head of Centre for Genomics,
Evolution and Medicine,
Institute of Genomics,
University of Tartu



GENERAL INFORMATION

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Conference Venue
Swissotel Tallinn
Tornimae Street 3
10145 Tallinn, Estonia

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Use #NSHGPM2023 when posting about the workshop!

Abstract Book
An electronic abstract book is available online at:
nshg-pm2023.org/posters-and-abstracts

Certificates of Attendance
Certificates of attendance will be available as self-print after the conference. A link will be provided by e-mail to all participants.

Lunch, coffee and buffets
Lunch and coffee are available in the exhibition area. See programme for exact time of breaks. An evening networking buffet as well as a light poster session buffet will also be set up in the area. All food and beverages are included in the registration fee.

Speaker Information
Please bring your presentation to the conference room before your session begins. We recommend you upload your presentation in a break before your session starts. A technician will be present to assist in the upload if necessary.

Please bring your presentation on a USB. Use of personal laptops is not allowed. Unless otherwise agreed all presentations will be deleted after the conference to make sure no copyright issues may arise.

Posters
Posters are to be mounted on Monday 19 June from 15.00-16.00 and must be removed by the end of the poster session on Tuesday 20 June. The measurement of your poster should be A0 Portrait.

The NSHG-PM Conference Secretariat provides equipment for setting up the posters on the wall or boards. The conference secretariat takes no responsibility for left or damaged posters.

Wi-fi
The Wi-fi code at Swissotel is: events.

Mobile phones
All mobile phones must be on silent mode during the sessions. We encorage you to share pictures and experinces from the conference with colleagues - both in person and on social media, but please show consideration for the people in your photographs when you share them.

Free public transport
The city of Tallinn has offered to sponsor free public transport during the workshop days from 18-22 June 2023 for our participants. The tickets are valid on Tallinn bus lines nr 1-73, trolleybuses, and trams.

Please find your ticket and more information here:
nshg-pm2023.org/venue

PROGRAMME

Monday, 19 June 2023

15.00-16.00	**Welcome & registration**
16.00-16.15	**Welcome from organizers:** **Lili Milani, University of Tartu, Estonia**
16.15-17.00	**KEYNOTE: Andrew McIntosh,** University of Edinburgh, Scotland **“Key insights from genomic studies of depression”**
17.00-17.30	**Coffee & snacks**
17.30-19.00	**CARDIOMETABOLIC SESSION** **Moderator: Maris Alver, Institute of Genomics, University of Tartu** Talk 1: Jacob Bergstedt, Karolinska instituttet, Sweden: **"Shared genetic liability, risk factors, and causal effects explaining the association between major depressive disorder and cardiovascular disease"** Talk 2: Samuel Jones, University of Helsinki, Finland **"Circadian GWAS of glucose and vitamin D identifies time-dependent genetic effects”"** Talk 3: Tove Fall, Department of Medical Sciences, Uppsala University, Sweden: **"SCAPIS, a new resource of detailed data for precision medicine research"** Talk 4: Dennis van der Meer, NORMENT, University of Oslo, Norway: **"Genome-wide association study of MRI-derived measures of body composition reveals genetic overlap with cardiometabolic traits and disorders”**
19.00-21.00	**Networking and evening buffet**

Tuesday, 20 June 2023

08.00-09.00	**Welcome registration & morning coffee**
09:00-10.30	**METHODS FOR INTERVENTION** **Moderator: Marc Vaudel, University of Bergen, Norway** Talk 1: Elise Koch, CoE NORMENT, University of Oslo, Norway: **"Genomic Prediction of Antipsychotic Prescription Patterns"** Talk 2: John Shorter, Roskilde University, Denmark: **"The performance and implementation of PRS from the trans-Nordic collaboration on major depressive disorder"** Talk 3: Hreinn Stefansson, deCODE genetics, Iceland: **"Variants conferring high-risk of schizophrenia affect cognition in controls"** Talk 4: Pekka Vartiainen, University of Helsinki, Finland: **"Risk factors and clinical prediction model for severe RSV infection in infants"**
10.30-11.00	**Coffee & snacks**
11.00-12.30	**ENVIRONMENT EFFECTS ON HEALTH** **Moderator: Ingrid Kockum, Karolinska Institute, Sweden** Talk 1: Ingibjörg Magnusdottir, Centre of Public Health Sciences, University of Iceland: **"Mental, Physical and Cognitive manifestations of the post COVID-19 condition: Results from the international COVIDMENT consortium"** Talk 2: Triin Laisk, University of Tartu, Estonia: **"Genetics of cervical cancer and high-risk HPV infection"** Talk 3: Lars Alfredsson, Karolinske Institutet, Sweden: **"Airborne environmental exposure and risk of MS and RA"** Talk 4: Jon Anders Eriksson, University of Tartu, Estonia: **"Gene-environment interactions in metabolic traits: challenges and opportunities for personalised medicine"**
12.30-13.30	**Lunch**
13.30-15.30	**USE OF POLYGENIC RISK SCORES IN SCIENCE AND CLINIC** **Introduction by: Kari Stefannson, deCODE genetics, Iceland (TBC)** Speakers: Joeri Meijsen, Institute of Biological Psychiatry (IBP), Sct. Hans, Denmark: **"Fundamentals of Polygenic Risk Scores"** Kristi Läll, University of Tartu, Estonia: **"Pitfalls and opportunities of polygenic risk scores"** Elisabeth Widen, University of Helsinki, Finland: **"Polygenic Risk Scores - Potential to Impact Clinical Care"** Neeme Tõnisson, University of Tartu, Estonia: **"Polygenic risk scores in Estonian studies with research participants and beyond"** Round-table discussion **Moderator: Kristi Läll, University of Tartu, Estonia**

Tuesday, 20 June 2023

15.30-16.00	**Coffee & snacks**
16.00-17.00	**Technology session** **Moderator: Tõnu Esko, University of Tartu, Estonia** Cindy Lawley, Director, Population Health, Olink: **"Accelerating translational research at population scale, enabling biobanks and clinical cohorts as valuable tools for precision medicine"** Sini Kerminen, Senior Data Scientist, Nightingale Health: **"Population scale blood biomarkers for preventative health"** Shantanu Kaushikkar, Head of Business Development, Thermo Fisher: **"Predictive genomics: harnessing the genome to prevent disease"** Danielle Folkard, Sales Director, EMEA North, Oxford Nanopore: **"What you're missing matters"**
17.00-19.00	**Poster session short talks:** Talk 1: Pernilla Stidh, Karolinska Institutet, Sweden: **"A novel locus associated with multiple sclerosis severity implicates CNS resilience in disease outcome"** Talk 2: Mischa Lundberg, Institute of Biological Psychiatry, Denmark: **"Incorporating family history in GWAS of Major Depressive Disorder improves detection of polygenic signal"** Talk 3: Kira Detrois, Institute for Molecular Medicine Finland (FIMM), Finland **"Polygenic risk scores enhance onset prediction for 7/18 diseases when added to models with environmental and clinical risk factors"** Talk 4: Karolina Anja, University of Tartu, Estonia: **"The genetic basis of eating behaviors"** Talk 5: Ingunn Olea Lund, Norwegian Institute of Public Health, Norway: **"Prenatal maternal stress: triangulating evidence for intrauterine exposure effects on birth and early childhood outcomes across multiple approaches"** Talk 6: Eero Aaltonen, Institute for Molecular Medicine Finland (FIMM), Finland: **"Integrating a chat-based doctor's appointment to KardioKompassi encourages preventive action in individuals with elevated risk of coronary artery disease."** **+** **Presentations in poster exhibition including light snacks**

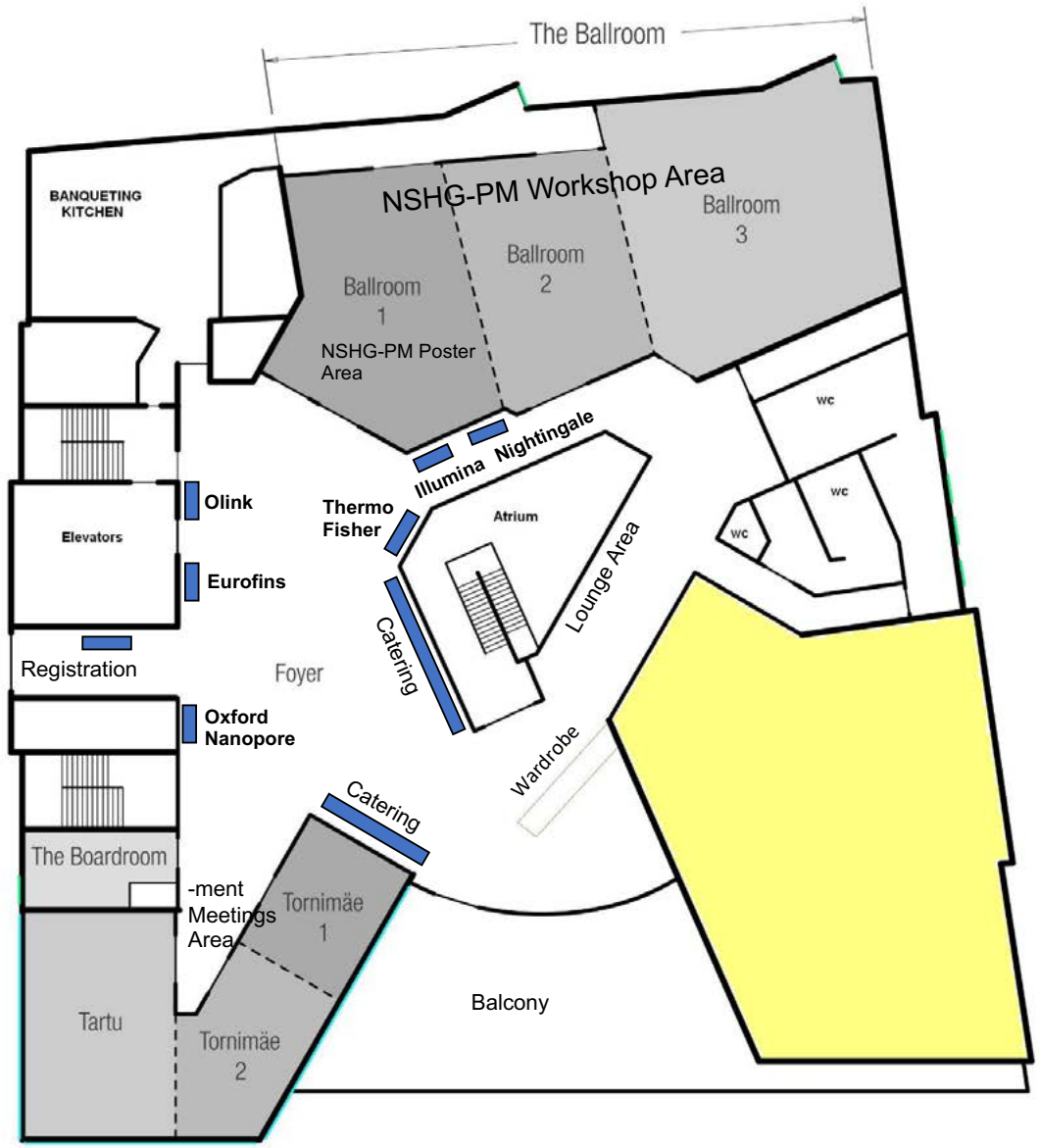
Wednesday, 21 June 2023

08.30-09.00	**Welcome & morning coffee**		
09.00-09.30	**Workshop intro** **Workshops:** **A: Polygenic risk scores** **B: Mendelian randomization** **C: AI & Machine learning** Participants must choose one of the three workshops		
	Polygenic risk scores **Co-Leaders:** **John Shorter,** Roskilde University, Denmark **Joeri Meijsen,** Institute of Biological Psychiatry, Denmark	**Mendelian randomisation** **Co-Leaders:** **Joëlle Pasman,** Karolinska Institutet, Sweden **Guðmundur Einarsson,** deCODE genetics, Iceland	**AI & Machine Learning** **Co-Leaders:** **Anders Dale,** University of California, San Diego, USA **Hafsteinn Einarsson,** deCODE genetics, Iceland
11.00-11.30	**Coffee & snacks**		

Wednesday, 21 June 2023

11.30-12.30	**Workshop A**	**Workshop B**	**Workshop C**
	Polygenic risk scores The purpose of this workshop is to understand the strengths and limitations of polygenic scores through hands-on exercises. Participants will work with two different tools to better understand polygenic scores. This includes the PGS Catalog, which is an open database of published polygenic scores, and LDpred2, which is a method for deriving polygenic scores from GWAS summary statistics. No previous experience with coding is needed for the exercise with the PGS Catalog. Experience with the programming language R would be helpful (but not required) for the LDpred2 exercise. By the end of the workshop, participants will: understand how PGS are created, how to evaluate their predictive performance, and how to search for performance differences across different ancestry groups.	**Mendelian randomisation** In this workshop, you will learn the theoretical basis and practical skills needed to understand and conduct Mendelian Randomization (MR). You will learn to use the webtool MR Base as well as conduct your own analyses in R, using real GWAS summary statistics to test the causal relationship between your favorite disease traits. After this workshop, you will be able to evaluate the bold causal claims often made by studies using MR, and you will have the skills and scripts to conduct basic MR analyses yourself.	**AI & Machine Learning** The advent of new machine learning approaches has led to numerous real-world applications, particularly in the healthcare sector. Techniques such as image analysis and pattern recognition have become increasingly relevant in practice, enhancing diagnostic capabilities and patient care. When combined with genetics, these advancements have the potential to usher in a new era of personalized medicine, transforming the way we understand and treat a myriad of health conditions. To better understand the potential of this new approach, we invite you to participate in the machine learning workshop.
12.30-13.30	**Lunch**		
13.30-14.30	**Workshop A**	**Workshop B**	**Workshop C**
	Polygenic risk scores	**Mendelian randomisation**	**AI & Machine Learning**
14.30-15.00	**Coffee & snacks**		
15.00-16.00	**Summary session & closing event**		

FLOOR PLAN


The Ballroom
BANQUETING KITCHEN
NSHG-PM Workshop Area
Ballroom 1
Ballroom 2
Ballroom 3
NSHG-PM Poster Area
wc
wc
wc
Illumina
Nightingale
Olink
Thermo Fisher
Atrium
Elevators
Eurofins
Lounge Area
Catering
Registration
Foyer
Oxford Nanopore
Wardrobe
Catering
The Boardroom
-ment
Meetings
Area
Tornimäe 1
Tartu
Tornimäe 2
Balcony

POSTER OVERVIEW

No.	Title	Presenter
1	Hormonal imbalance and risk of multiple sclerosis in women: findings from a nationwide cohort study and genome-wide cross-trait analysis	Yean Jiang
2	Shared genetic architecture between schizophrenia and anorexia nervosa: a cross-trait genome-wide analysis	Zheng-An Lu
3	Using common genetic variance to study Copy Number Variations (CNVs) role in complex human traits	Yelyzaveta Snihirova
4	Rare copy number variation in Addison's disease	Haydee Artaza
5	Genome-wide association study reveals a locus in ADARB2 gene for complete freedom from headache	Isa Olofsson
6	Polygenic risk scores enhance onset prediction for 7/18 diseases when added to models with environmental and clinical risk factors	Kira Detrois
7	A map of genetic and phenotypic associations across male reproductive phenotypes	Jéssica Figuerêdo
8	A DNA Methylation Study of Common and Specific Treatment Effects of Three Antipsychotics in the Treatment of Psychosis	Jonelle Villar
9	Integrating a chat-based doctor's appointment to KardioKompassi encourages preventive action in individuals with elevated risk of coronary artery disease	Eero Aaltonen
10	COVID-19 and risk of mental health problems: A mendelian randomization study using data from the Norwegian Mother, Father and Child Cohort Study	Bin Wang
11	Risperidone treatment reverts differences in estimated blood cell proportions and DNA methylation in antipsychotic-free first episode of psychosis	Leticia Spindola
12	Quantifying The Assortative Mating of Psychiatric Disorders and its Consequences in Danish Population	Saeid Rasekhi Dehkordi
13	Genetic associations with age of rheumatoid arthritis	Karina Patasova
14	Quantifying the relative importance of genetics and the environment on the comorbidity between mental and cardiovascular disorders using register data	Joeri Meijsen
15	Repeats R/T ratio is associated with Human Y chromosome Haplogroups	Tarmo Puurand
16	Investigating the causal effects of childhood and adulthood adiposity on later life mental health outcome: a Mendelian randomisation study	Sweta Pathak
17	Polygenic scores for psychiatric disorders associate with year of first bipolar disorder diagnosis: a register-based study between 1972 and 2016	Lina Jonsson
18	Mutational analysis profile in patients with myeloproliferative neoplasms in relation to hemostatic complications – a retrospective study	Ines Vaide
19	Preliminary Genome-Wide Analysis of Self-Reported Psychotic Experiences in the Norwegian Mother, Father, and Child study	Viktoria Birkenæs
20	Personality traits predict vaccination against COVID-19 better than a polygenic score and demographics	Uku Vainik
21	Eating problems among adolescents before and during the Covid-19 pandemic	Johanne Pettersen
22	Prenatal maternal stress: triangulating evidence for intrauterine exposure effects on birth and early childhood outcomes across multiple approaches	Ingunn Olea Lund
23	Incorporating family history in GWAS of Major Depressive Disorder improves detection of polygenic signal.	Mischa Lundberg
24	A novel locus associated with multiple sclerosis severity implicates CNS resilience in disease outcome	Pernilla Stridh
25	Explaining familial risk of diseases with interpretable unsupervised latent representations from comprehensive nationwide Finnish data	Tuomo Hartonen
26	The genetic basis of eating behaviors	Karolina Anja
27	Phenome-wide association study of ADHD genetic liability and ICD-10 medical conditions in the Estonian Biobank	Elis Haan

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NOTES

BIOBANKS, RESEARCH, AND PRECISION MEDICINE

A Joint Nordic Conference on Future Health

September 10-12, 2024 ❖ Trondheim, Norway

Nordic Biobank Conference

2nd Biennial Conference

hosted by

Biobank Norway

Nordic Society of Human Genetics and Precision Medicine

3rd Biennial Conference

NSHG-PM

Mark your calendars for a gathering of the Nordic precision health community!

Next year, the biobank and research communities will join forces for a special Nordic-wide community gathering to explore the present and future of precision health. Make plans now to join us September 10-13, 2024, in lovely Trondheim, Norway, for:

- Overviews of precision prevention, diagnosis, and treatment in the Nordics
- Research symposia covering the breadth of cutting-edge research
- Critical discussion of the issues important to Nordic biobanks
  - Funding priorities
  - Legal and ethical considerations
  - Citizen involvement
- Policy discussions about the best way forward

We anticipate more than 700 participants and invite you to contact us early with ideas. We welcome partners and sponsors from all sectors that have a stake in the successful development of a cooperative Nordic precison health future: policy organizations, health systems, research entities, industry, as well as journals and other media.

Contacts: Nordic Biobank Network, Kristian Hveem (kristian.hveem@ntnu.no) or NSHG-PM Jan Kristensen (jnk@cap-partner.eu) to learn more.

Tallinn

Thanks to the city of Tallinn for sponsoring free public transport during the workshop days from 18-22 June 2023 for our participants.

Please find the ticket here: https://nshg-pm2023.org/venue

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