EpiChrom 2022

Hall X, Uppsala University Main Building
Uppsala, Sweden
September 8th-9th 2022

Swedish Epigenetics and Chromatin Meeting (EpiChrom 2022)

Date: *September 8th & 9th 2022*

Venue: *Hall X, University Main Building, Biskopsgatan 3, 753 10, Uppsala*

Scientific organizers

Carlos Guerrero-Bosagna, Department of Organismal Biology, Environmental Toxicology
Joëlle Rüegg, Department of Organismal Biology, Environmental Toxicology
Andrea Hinas, Department of Cell and Molecular Biology, Microbiology and immunology
Parisa Norouzitallab, Department of Organismal Biology, Comparative Physiology

Invited speakers

Richard Pilsner - Wayne State University, MI, USA – Keynote (Invited by CRU)
Marc Bühler - Friedrich Miescher Institute, Basel, Switzerland - Keynote
Katarina Gapp – ETH Zürich, Switzerland
Anita Öst – Linköping University, Sweden
Jorge Fernandes – Nord University, Norway
Karin Broberg – Karolinska Institute/ Lund University, Sweden
Vaishali Katju – Uppsala University, Sweden
Oskar Karlsson – Stockholm University

The conference was sponsored by ArimaGenomics, BioNordika, Diagenode, Integrated DNA Technologies, Techtum and the Wenner-Gren Foundation. The Centre for Reproductive Biology in Uppsala (CRU) covered the travel expenses and accommodation of Dr. Richard Pilsner, Keynote speaker on the second day of the conference (September 9th).

In total, 81 registered participants affiliated to 5 Swedish Universities and 4 Research Institutes (Karolinska Institute, Linköping University, SciLifeLab, Stockholm University, Swedish University of Agricultural Sciences (SLU), Umeå Centre for Molecular Medicine (UCMM), Umeå Plant Science Center (UPSC), Umeå University, Uppsala University) attended both days of the conference, while several other non-registered attendees followed selected lectures on site.

The program of the conference is shown below. Except from the oral presentations included in the program, there were also 19 registered posters, mostly registered by young scientists in the field of Epigenetics in Sweden. The abstract booklet of the conference can be found here.

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Dr. Richard Pilsner affiliated to the Department of Obstetrics and Gynecology from Wayne State University School of Medicine, MI, USA, gave an excellent keynote lecture in the morning of September 9th 2022, entitled "*Do men matter? Preconception phthalates, sperm epigenetic aging and early-life development*", which triggered the interest of the audience, maybe most than any of the other lectures.

Dr. Pilsner and the rest of the invited speakers of EpiChrom 2022 had also a guided tour in Linneaus trädgård and Linneusmuseum, so they could explore deeper the cultural and scientific importance of Uppsala.

More information regarding Dr. Pilsner's keynote lecture can be found below.

Do men matter? Preconception phthalates, sperm epigenetic aging and early-life development.

Rick Pilsner[1,2]

[1]Department of Environmental Health Sciences, University of Massachusetts Amherst, Amherst, MA, USA.
[2]Department of Obstetrics and Gynecology & Center for Molecular Medicine and Genetics, Wayne State University, Detroit, MI 48201, USA.

The Pilsner lab addresses the interface of environmental epidemiology, toxicology, and reproductive health with a particular emphasis on epigenetic mechanisms. Specifically, our research provides a paternal perspective by delineating the role of sperm epigenetics as a pathway linking paternal preconception environmental exposures to reproductive and offspring health. Such research is critical to understand the paternal environmental determinants of reproductive health, early-life development, and future health of offspring. The second arm of research in the Pilsner lab aims to identify novel sperm biomarkers of male infertility and couples' reproductive success. Ongoing research is also developing novel sperm epigenetic clocks (i.e., a proxy of biological aging of sperm) to understand its relationship with reproductive outcomes in IVF and non-clinical populations as well as to determine the environmental factors accelerating sperm epigenetic aging. As such, my presentation will provide an overview of windows of susceptibility during spermatogenesis and phthalates, a class of environmental disrupting chemicals, and then discuss research findings on preconception phthalate exposures, sperm epigenetics and early-life development. I will conclude the presentation by discussing our novel epigenetic clock in sperm and how they associate with couples' time-to-pregnancy in the general population as well as phthalate exposure.

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Program Overview

Day 1 (September 8th)	
8:30 – 9:15	**Registration and coffee**
9:15 – 9:30	**Welcome Notes and Introduction of the Keynote Speaker**
	Session 1 – Epigenetic mechanisms and evolution Host: Andrea Hinas (ICM-UU)
9:30 – 10:15	**Marc Bühler (FMI, Keynote speaker)**
10:15 – 10:30	Kanwal Tariq (Stockholm Uni)
10:30 – 10:45	Keyi Geng (KI – SciLifeLab)
10:45 – 11:15	***Fika (with poster viewing)***
11:15 – 11:45	**Vaishali Katju (UU, invited speaker)**
11:45 – 12:00	Silvia Remeseiro (Umeå Uni)
12:00 – 12:15	Gianluca Zambanini (LiU)
12:15 – 12:30	Carlos Gallardo Dodd (KI – SciLifeLab)
12:30 – 13:30	***Lunch (with poster viewing)***
	Session 2 - Epigenetic effects of environmental factors Host: Joëlle Rüegg (IOB-UU)
13:30 – 14:00	**Katharina Gapp (ETH Zurich, invited speaker)**
14:00 – 14:15	Fábio Pértille (UU)
14:15 – 14:30	Melisa Gómez Velázquez (Helmholtz Inst.)
14:30 – 14:45	Andrea Cediel-Ulloa (UU)
14:45 – 15:15	***Fika (with poster viewing)***
15:15 – 15:45	**Oskar Karlsson (SU, invited speaker)**
15:45 – 16:00	Marti Quevedo (Umeå Plant Sci. Center)
16:00 – 16:35	**Sponsor presentations: Bionordika, IDT**

Day 2 (September 9th)	
8:30 – 9:15	
9:15 – 9:30	**Introduction of the Keynote Speaker**
	Session 3 - Epigenetics and Reproduction Host: Carlos Guerrero Bosagna (IOB-UU)
9:30 – 10:15	**Rick Pilsner (Wayne St Uni, CRU Keynote speaker)**
10:15 – 10:30	Christian Sommerauer (KI – SciLifeLab)
10:30 – 10:45	Cyrinne Achour (Umeå Uni)
10:45 – 11:15	***Fika (with poster viewing)***
11:15 – 11:45	**Anita Öst (LiU, invited speaker)**
11:45 – 12:00	John Lees (UU)
12:00 – 12:15	Maike Bensberg (LiU)
12:15 – 12:30	Björn Gylemo (LiU)
12:30 – 13:30	***Lunch (with poster viewing)***
	Session 4 - Epigenetic Biomarkers Host: Parisa Norouzitallab (IOB-UU)
13:30 – 14:00	**Jorge Manuel de Oliveira Fernandes (Nord Uni, invited speaker)**
14:00 – 14:15	Germán Martinez Arias (SLU)
14:15 – 14:30	Johan Henriksson (Umeå Uni)
14:30 – 15:00	**Karin Broberg (KI, invited speaker)**
15:00 – 15:30	***Fika (with poster viewing)***
15:30 – 15:45	Guido Basil (KI)
15:45 – 16:00	Ewoud Ewig (KI)
16:00 – 16:15	**Sponsor presentations: Diagenode**

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Detailed program

Day 1 – September 8th 2022

Time	
8:30 – 9:15	**Registration and coffee**
9:15 – 9:30	**Welcome Notes and Introduction of the Keynote Speaker**
	Session 1 – Epigenetic mechanisms and evolution **Host:** Andrea Hinas (Department of Cell and Molecular Biology - Uppsala University)
9:30 – 10:15	RNAi-mediated transgenerational epigenetic gene silencing **Marc Bühler (Friedrich Miescher Institute, Keynote speaker)**
10:15 – 10:30	Non-coding RNAs from the rDNA intergenic repeats regulate rRNA gene transcription **Kanwal Tariq** (Stockholm University)
10:30 – 10:45	Unexpected CRISPR/Cas9 editing consequences when targeting noncoding genomic regions **Keyi Geng** (Karolinska Institute – SciLifeLab)
10:45 – 11:15	***Fika (with poster viewing)***
11:15 – 11:45	Through the lens of experimental evolution: a genome-wide view of the spontaneous rate, spectrum and stability of epimutations in a metazoan **Vaishali Katju (Uppsala University, invited speaker)**
11:45 – 12:00	Rewiring of the promoter-enhancer interactome and regulatory landscape in glioblastoma orchestrates gene expression underlying the neurogliomal synaptic communication **Silvia Remeseiro** (Umeå University)
12:00 – 12:15	A New CUT&RUN Low Volume-Urea (LoV-U) protocol uncovers Wnt/b-catenin tissue-specific genomic targets **Gianluca Zambanini** (Linköping University)
12:15 – 12:30	Cell type-specific deployment of codons and anticodons via combined single-cell ATAC and RNA sequencing **Carlos Gallardo Dodd** (Karolinska Institute – SciLifeLab)
12:30 – 13:30	***Lunch (with poster viewing)***
	Session 2 - Epigenetic effects of environmental factors **Host:** Joëlle Rüegg (Department of Organismal Biology – Uppsala University)
13:30 – 14:00	Stress signatures in sperm **Katharina Gapp (ETH Zurich, invited speaker)**
14:00 – 14:15	The neuro-epigenome of piglet´s brain is differentially affected by their maternal environment and behaviour **Fábio Pértille** (Uppsala University)
14:15 – 14:30	Paternal mitochondrial function influences offspring metabolism **Melisa Gómez Velázquez** (Helmholtz Institute)
14:30 – 14:45	Functional impact of methylmercury-associated DNA methylation – from epidemiological observations to experimental evidence **Andrea Cediel-Ulloa** (Uppsala University)
14:45 – 15:15	***Fika (with poster viewing)***

15:15 – 15:45	The Exposome and Paternal Epigenetic Inheritance **Oskar Karlsson (Stockholm University, invited speaker)**
15:45 – 16:00	Discovery of plant chromatin regulators responding to chloroplast signals **Marti Quevedo** (Umeå Plant Science Center)
16:00 – 16:35	**Sponsor presentations: Bionordika, IDT**
19:00 – 22:00	**EpiChrom 2022 official dinner, Uppsala Castle (Slottet)**

Day 2 – September 9th 2022

Time	
9:15 – 9:30	**Introduction of the Keynote Speaker**
	Session 3 - Epigenetics and Reproduction **Host:** Carlos Guerrero Bosagna (Department of Organismal Biology – Uppsala University)
9:30 – 10:15	Do men matter? Preconception phthalates, sperm epigenetic aging and early-life development **Rick Pilsner (Wayne State University, CRU Keynote speaker)**
10:15 – 10:30	Are female sex hormones the key in preventing obesity-induced liver diseases? **Christian Sommerauer** (Karolinska Institute – SciLifeLab)
10:30 – 10:45	Mechanisms of METTL3 in breast cancer and metastasis **Cyrinne Achour** (Umeå University)
10:45 – 11:15	***Fika (with poster viewing)***
11:15 – 11:45	Dietary sugar shifts mitochondrial metabolism and small RNA biogenesis in sperm **Anita Öst (Linköping University, invited speaker)**
11:45 – 12:00	Stressing the symbionts: Investigating the influence of developmental metabolic stress upon mitochondrial physiology and epigenomics **John Lees** (Uppsala University)
12:00 – 12:15	Tandem Repeat Expansions on the X-chromosome (TREX): A high-resolution and high-throughput screening method for skewed X-chromosome inactivation **Maike Bensberg** (Linköping University)
12:15 – 12:30	A landscape of X-inactivation during human T-cell development **Björn Gylemo** (Linköping University)
12:30 – 13:30	***Lunch (with poster viewing)***
	Session 4 - Epigenetic Biomarkers **Host:** Parisa Norouzitallab (Department of Organismal Biology – Uppsala University)
13:30 – 14:00	Epigenetics of muscle growth in fish and identification of epimarkers with potential application in aquaculture **Jorge Manuel de Oliveira Fernandes (Nord University, invited speaker)**
14:00 – 14:15	Understanding the role of small RNAs in the orchestration of the epigenetic, transcriptional, and translational landscape during the maturation of plant gametes **Germán Martinez Arias** (Swedish University of Agricultural Sciences)
14:15 – 14:30	Single-cell Multiomics: What can be said about the cell cycle? **Johan Henriksson** (Umeå University)

14:30 – 15:00	Epigenetics of common toxicants **Karin Broberg (Karolinska Institute, invited speaker)**
15:00 – 15:30	***Fika (with poster viewing)***
15:30 – 15:45	Identification of novel factors controlling non genetic cell plasticity in Chronic Myeloid Leukemia **Guido Baselli** (Karolinska Institute)
15:45 – 16:00	Extensive evidence for aberrant B cell hypomethylation in relapsing-remitting Multiple Sclerosis **Ewoud Ewig** (Karolinska Institute)
16:00 – 16:15	**Sponsor presentations: Diagenode**

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