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DISTINGUISHED SEMINAR

Epigenetic cell memory: how cells copy their epigenome

Lecturer: **Anja Groth** Ph.D.

Professor, Novo Nordisk Foundation Center for Protein Research, University of Copenhagen

Date: Tuesday, 4 November 2025

Time: 16:00 - 17:30

Venue: Conference Room
B1F, Faculty of Medicine Bldg. B

Eligibility: Academic Researchers and Students

Register here

My research group explores how the mammalian genome in its structural and functional context of chromatin is copied to maintain cell identity and fate, which is fundamental to organismal development, cancer and aging. We have pioneered the study of chromatin replication and epigenome maintenance, identifying mechanisms that underpin epigenetic cell memory and cell fate decision in development and disease. We have developed a panel of tailored omics technologies to address epigenome replication and combine these with structural studies and functional analysis in mouse embryonic stem cells. With these tools and approaches, we have provided evidence that i) histone-based information is transmitted by the DNA replication machinery to daughter strands, directly coupling epigenetic and genetic inheritance; ii) epigenomes undergo dramatic oscillations across the cell cycle, contrasting static textbook views; iii) inheritance of histone modifications is required to maintain genome regulation and stem cell identity; and that v) cell cycle controlled histone modifications (H4K20me0/2) are key regulators of error-free DNA repair and tumor suppression. I will discuss our latest insights into how histone recycling maintains chromatin structure and function in the face of DNA replication and transcription.

Hosted by Institute for the Advanced Study of Human Biology (WPI-ASHBi)

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