

## Interrogating the functional roles of histone methylation in transcription

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Posttranslational modification (PTM) of histone proteins is widely believed to be essential for regulating chromatin structure and transcription. However, direct roles for various PTMs in these processes have mainly been inferred from correlative studies of disrupted enzymes that catalyze these modifications. Recent studies have demonstrated that chromatin-associated enzymes have many non-histone substrates as well as having functions decoupled from their enzymatic activity. Thus, more direct approaches are necessary to understand the specific role of histone PTMs in chromatin function.

At the meeting, I will present our different strategies to address the functional roles of some of the most studied histone PTMs in regulating transcription. Specifically, I will talk about the roles of histone H3 methylation on lysines 4, 27 and 36.

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Kristian Helin is the CEO and President of The Institute of Cancer Research (ICR) in London. Moreover, he is a professor in Epigenetics and Cancer at the University of London. He obtained a MSc in Chemical Engineering from the Technical University of Denmark and a PhD from University of Copenhagen. He was a research fellow at Harvard Medical School, started his own research group at the Danish Cancer Society in 1994 and subsequently became a founding member of the Dept of Experimental Oncology at the European Institute of Oncology in Milan, Italy. From 2003 to 2018 he was the founding director of the Biotech Research and Innovation Centre at University of Copenhagen and in 2018-2021 Prof Helin was the Chair of the Cell Biology Program and the Director of Center for Epigenetics Research at Memorial Sloan Kettering Cancer Center, New York.

The Helin laboratory has made several seminal discoveries in the field of cell cycle control, epigenetics and cancer. In addition to providing novel insights into mechanisms regulating transcription, stem cell identity and differentiation, the work in Prof Helin's lab has led to the establishment of the biotech companies EpiTherapeutics and Dania Therapeutics. Dr. Helin is an elected member of European Molecular Biology Organisation (EMBO), the Royal Danish Academy of Science and Letters, Fellow of the UK Academy of Medical Sciences and Fellow of the Royal Society (UK). He has received several prestigious awards for outstanding biomedical research and serves in several editorial boards, committees of advisory boards and grant committees.