A U S H A N G

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Freitag, 4. April 2025, 9:00 Uhr

Ort: Seminarraum 005

(Fachbereich Mathematik und Informatik, Takustr.9, 14195 Berlin)

Disputation über die Doktorarbeit von

Emel Comak

Thema der Dissertation:

Integrative Analysis of enhancer hijacking events in cancer reveals recurring patterns and functional implications

Thema der Disputation:

From Peak Calling to Super-Enhancers: Defining Regulatory Landscapes

Die Arbeit wurde unter der Betreuung von **Prof. Dr. M. Vingron** durchgeführt.

Abstract: Gene regulation is orchestrated by complex enhancer landscapes that control cellular identity and function. This talk explores the methodologies and implications of defining these regulatory elements, from computational peak calling to the identification of super-enhancers. We begin by examining how chromatin immunoprecipitation sequencing (ChIP-seq) peak calling enables the identification of active regulatory regions. Peak calling algorithms identify regions enriched for transcription factors and histone modifications while distinguishing them from background noise. We will discuss different peak calling methods, including Model-based Analysis of ChIP-Seq (MACS) and Zero-Inflated Negative Binomial Algorithm (ZINBA), and their influence on detecting regulatory elements.
Building on this foundation, we will then explore the definition of super-enhancers, which are distinguished by their signal intensity, spatial organization, and high occupancy of transcriptional coactivators such as Mediator and BRD4. The second part of the presentation will focus on my thesis work on integrative analysis of enhancer hijacking in cancer.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. M. Vingron