



Leibniz-Institut für Analytische
Wissenschaften – ISAS – e.V.

Dortmund

COLLOQUIUM

Metabolism and Epigenetics during Aging and Stress Response

Speaker:

Prof Dr Peter Tessarz, Chair of the Department Human Biology
at Radboud University, NL-Nijmegen

Time:

Thursday, January 23, 2025 – 1 pm

Venue:

ISAS Campus, Lecture Hall
Otto-Hahn-Straße 6b
44227 Dortmund

Abstract

Chromatin architecture is important for transcriptional regulation as well as cellular states. Thus, cell differentiation is often accompanied by chromatin re-arrangements. Similarly, metabolism contributes to cellular fate decisions and switches in metabolic activity are associated with differentiation processes. Importantly, metabolic and chromatin states are heavily intertwined. Metabolites serve as essential cofactors and substrates for chromatin-modifying enzymes and their availability can strongly impact the activity of these enzymes. My research group would like to understand how gene expression is regulated by chromatin architecture on a molecular level and how metabolic states and switches as well as tissue microenvironment contribute to the establishment of chromatin states. In the seminar, I will discuss these aspects by highlighting two projects. In the first, I will address the role of acetyl-CoA fluxes in regulating chromatin states and differentiation decisions in the context of ageing and stress response in mesenchymal stem cells. In the second, I would like to demonstrate how the usage of spatial transcriptomics and single-cell sequencing approaches in combination with lipidomics allows us to address the impact tissue architecture exerts on the metabolism-epigenetics interplay.