

Colloquium

Institute Colloquium | Tim Clausen

Tim Clausen
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Host: Paul Schanda

The Dark Side of Ubiquitin: When Defence Turns into DiseaseThe ubiquitin system is best known for controlling protein degradation, but its molecular mechanisms extend into unexpected and largely unexplored territory. One intriguing aspect is its ability to modify non-protein substrates and coordinate cellular responses to infection and stress. How these unconventional activities are regulated and contribute to health and disease, remains poorly understood.At the heart of this non-mainstream ubiquitin biology are ZNFX1 and RNF213, two enigmatic members of a distinct family of ubiquitin (E3) ligases that challenge established concepts of how ubiquitin is used in cellular defence. Combining structural biology, biochemistry and cellular approaches, we uncovered surprising mechanisms by which these giant E3 ligases sense nucleic acids and changes in cellular energy levels, translating these signals into protective responses. Our findings reveal how molecular re-assembly and large-scale conformational changes control their activity, enabling cells to respond to diverse threats while preventing inappropriate activation and ubiquitin signalling. We also discovered how disease mutations can bypass the regulatory safeguards of E3 ligases, turning a protective immune mechanism into a driver of inflammation and cellular damage.

Monday, November 2, 2026 11:30am - 12:30pm

Raiffeisen Lecture Hall

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.
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https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.