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Understanding the role of UHRF1 in maintaining genomic stability

Ubiquitin-like with PHD and RING Finger domains 1 (UHRF1), an E3 ligase that plays a pivotal role in maintaining genomic stability by regulating gene expression, DNA methylation, and DNA damage repair. We have identified the novel direct interacting partner of UHRF1, the NHEJ factor Ku70/80. To investigate the importance of UHRF1 interaction with Ku70/80, we assessed the chromatin recruitment of Ku70/80 in UHRF1 depleted cells and found that in the absence of UHRF1, the chromatin recruitment of Ku70/80 gets significantly reduced. Since UHRF1 is an E3 ligase, we further examined the ubiquitination status of Ku70/80 in UHRF1-depleted cells and identified that UHRF1 mediated K63-linked polyubiquitination of Ku70 in the presence of DNA damage, which may help in its recruitment to the sites of DNA damage. These findings highlight UHRF1's essential role in regulating the chromatin recruitment of Ku70/80 following DNA damage, thereby contributing to the maintenance of genomic stability.

4:00 PM | THURSDAY | 8 MAY 2025

● ● ● **AUDITORIUM, NII**

Tavleen Kaur
Signal Transduction Laboratory II

GRADUATE STUDENT SEMINAR

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AI/ML-guided prediction of host-virus protein-protein interactions

Study of human-virus protein-protein interactions (HVPPIs) is crucial for antiviral drug development. While experimental methods provide accurate insights, they are time-consuming and cannot scale with the rapid emergence of new viruses like SARS-CoV-2. We aim to develop machine learning models that can predict HVPPIs for viruses not present in the dataset used for training of the AI/ML model. Using SARS-CoV-2 PPIs as blind test set, we demonstrate that our AI/ML models automatically learn conserved interaction features to predict novel PPIs efficiently.

4:30 PM | THURSDAY | 8 MAY 2025
AUDITORIUM, NII

Shweta Mahapatra
Bioinformatics Centre