GRADUATE STUDENT SEMINAR

Caspase-8 mediated regulation of PRMT1 in tumorigenesis

Caspase-8 is an initiator caspase that plays a central role in death receptor-mediated extrinsic apoptosisand participate in regulating inflammation and immune response. In addition to its apoptotic function, caspase-8 has been shown to mediate several non-apoptotic roles. Here we identified Protein arginine N-methyltransferase 1 (PRMT1) as a caspase-8 substrate. We observed thatcaspase-8 cleaves PRMT1 at a conserved aspartate residue under condition of alter metabolic homeostasis. Cleavage of PRMT1 abrogates its enzymatic function and reduces PRMT1 mediated asymmetric-di-methylation. Given the significant role of PRMT1 in tumor development, we further investigated its tumorigenic potential in the context of caspase-8 regulation. We observed that caspase-8 suppresses PRMT1 oncogenic functions. These findings expand the substrate repertoire of caspase-8 and highlight its pivotal role insuppressing tumorigenesis.

Anita Nandi

Molecular Oncology Lab

4:00 PM | THURSDAY | 29 MAY 2025

AUDITORIUM, NII

GRADUATE STUDENT SEMINAR

Understanding the role of Vitamin D Receptor (VDR) in the adaptation of gut epithelium to different metabolic conditions

Vitamin D is a fat-soluble secosteroid hormone that exerts its biological effects primarily through binding to the vitamin D receptor (VDR), a transcription factor. Upon activation, VDR heterodimerizes with the retinoid X receptor (RXR), and this complex binds to vitamin D response elements (VDREs) in the genome to modulate gene expression. In this study, we investigate how VDR signalling influences gene regulation in duodenal epithelial cells under varying dietary conditions. By integrating transcriptomic and genomics approaches, we aim to elucidate the mechanisms by which the Vitamin D–VDR axis orchestrates intestinal adaptation beyond its classical role in mineral absorption. Our findings will shed light on the broader regulatory landscape of VDR, highlighting its potential contributions to gut dietary responsiveness and nutrigenomic regulation. This work expands our understanding of VDR as a central node linking nutrient signals with transcriptional control in the gastrointestinal tract.

Namaste Kumari

Molecular Genetics Lab

4:30 PM | THURSDAY | 29 MAY 2025

AUDITORIUM, NII