GRADUATE STUDENT SEMINAR

# Novel insights into the cell division of malaria parasite

The malaria parasite exhibits atypical and unusual features of division. During the blood stage schizogony, it undergoes multiple rounds of nuclear division, preceding single round of cytokinesis. Cell signalling plays an important role in most critical processes including cell division. Reversible phosphorylation mediated by protein kinases and phosphatases plays an important role in cell division. Studies related to a protein kinase, which is indispensable for the parasite will be presented. This kinase plays an important role during asexual division of the parasite.

**Annu Nagar**

Eukaryotic Gene Expression Laboratory

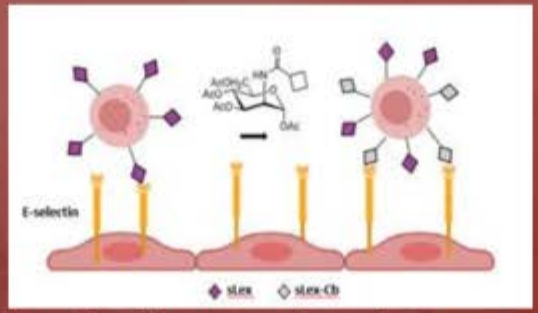
**4:00 PM | THURSDAY | 9 MAY 2024**

**AUDITORIUM, NII**

GRADUATE STUDENT SEMINAR

# Enhancement of sialyl Lewis X (sLeX/CD15s) levels through metabolic glycan engineering

Interaction Sialyl-Lewis X (sLeX/CD15s), a tetrasaccharide epitope found on both glycoproteins and glycolipids, with E-selectin (CD62E) regulates extravasation of leukocytes and hematopoietic stem cells (HSC) to bone marrow. sLeX is rapidly lost in HSC during harvest leading to inefficient homing. Current efforts to improve sLeX levels focus on enzymatic exo-fucosylation and genetic expression of fucosyl transferases, with very few pharmacological agents known.




Herein, using metabolic glycan engineering (MGE) methodology, we show that a novel analogue of N-acetyl-D-mannosamine (ManNAc) – a committed metabolic precursor for biosynthesis of sialic acid – was able to enhance the levels of sLeX in both HL-60 and KG1a cells (human acute myeloid leukemia), in an analogue-structure dependent manner and resulted in enhanced cell adhesion to E-selectin. The application of carbohydrate-based small molecules capable of modulating of cell migration and homing have the potential to open novel therapeutic avenues for HSC engraftment and leukocyte adhesion deficiency disorders

**Simran Aittan**

Chemical Glycobiology Laboratory

**4:30 PM | THURSDAY | 9 MAY 2024**

**AUDITORIUM, NII**