National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Structure-function validation of Glycosyl transferases of Mycobacterium tuberculosis as plausible drug targets and studies on human Zn-metallopeptidases in various therapeutics
Speaker	: Dr Urvashi Sharma, Ex-Dbt Ramalingaswami Faculty Fellow
Supervisor	: Dr. Nivedita Patra
Venue	: BM Department Seminar Room
Date and Time	: 19 Mar 2025 (04:00 PM)
Abstract	: The cell wall of Mycobacterium tuberculosis (MTb) is a robust network of mycolyl arabinogalactan-peptidoglycan (mAGP) complex, making it hydrophobic and resistant to hydrophilic drugs. The biosynthesis of peptidoglycan and capsular alpha glucans in MTb involves a complex network of enzymes that are suitable targets for TB drug discovery. Glycosyl transferases (GTs) are implicated for their roles in capsular alpha glucan biosynthesis and thus play an essential role in cell wall biosynthesis of MTb and disease pathogenesis. Based on sequence alignment and homology modelling we have identified the putative substrate binding sites of some of the selected GTs. An overview with recent preliminary results will be presented. On the other hand, lipid translocation in MTb for the synthesis of mycolic acid precursors is an important event, a few first findings on a lipid binding lipase protein of MTb identified using in-silico ligand binding studies will also be presented. Separately, some of the interesting research findings on metzincin family of human zinc metallopeptidases which are directly implicated in regulation of fibrillar collagen processing, as well as in maturation of several components of extracellular matrix (ECM) will be briefed with an emphasis on developing therapeutics against fibrosis, arthritis etc.