Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

Colloquium

Regulation of cysteine biosynthesis in Mycobacterium tuberculosis

Vinay K Nandicoori

CCMB, Hyderabad

Mycobacterium tuberculosis (Mtb) is exposed to a continuum of dynamic host-induced stresses, including toxic reactive oxygen species (ROS). *Mtb* produces mycothiol, the major antioxidant in actinomycetes, ergothioneine, a low molecular weight thiol, and several enzymes that act concertedly to subvert host-induced redox stress. The redox-active group of both mycothiol and ergothioneine are derived from L-cysteine. *Mtb's* genome encodes three cysteine synthases – the canonical CysK1 and non-canonical CysM and CysK2 enzymes. In addition, *Mtb* can also synthesise cysteine through a reverse transsulfuration pathway from methionine. We have previously identified a novel transcription factor AosR that specifically upregulates CysM-dependent non-canonical cysteine biosynthesis pathway through an auxiliary intragenic stress-responsive promoter. I would discuss our most recent findings on cysteine biosynthesis pathways, wherein we addressed their functional redundancy and therapeutic potential for adjunct therapy.

Tuesday, Jan 17th 2023

11:30 AM (Tea/Coffee at 11:15 AM)

Auditorium, TIFR-H