

Young SBS Scientist Seminar Series (Y4S)

WEDNESDAY, 29 January 2020 | 4-5PM | SBS Classroom 1



Tyagi Anu

PI: Asst. Prof Shashi Bhushan

She obtained her Masters in Biotechnology from Banasthali Vidyapith, Rajasthan, India and Ph.D. from University of Würzburg, Germany. Currently, she is a Research fellow in Asst. Professor Shashi Bhushan's lab, working on structure determination using single particle cryo-electron microscopy.

“3D structure determination of a full-length mycobacterial MmpL transporter protein using single particle cryo-electron microscopy (cryo-EM).”

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* (Mtb). About one-third of the world's population carry Mtb in its latent form making it a serious threat for mankind. Although TB is treatable and curable but drug resistance against known anti-TB drugs has emerged as one of the greatest challenges in curing TB. Mycobacterial MmpL transporter proteins are members of the Resistance-Nodulation-Cell Division (RND) superfamily, a widespread class of transporters that drive the transport of a wide variety of compounds including organic substances, heavy metals, lipids, and antibacterial drugs. RND family transporters utilize proton motive force (PMF) for substrate transport via a rotating mechanism for substrate access, binding, and release. Currently, MmpL3 represents one of the most promising druggable anti-TB targets with extensive focus of the research. Multiple compounds have recently been shown to impair MmpL3 function in Mtb, targeting mycobacterial cell wall biosynthesis, a historical hot spot of anti-TB agents.

We aim to determine the 3D structure of a full-length mycobacterial MmpL transporter protein using single particle cryo-electron microscopy (cryo-EM).

