

## **Comprehensive Seminar**

### **Understanding the origin and the functioning of mitochondria by trying to 'look' at the MICOS complex and its key interactors**

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Mitochondria are vital double membrane organelles in eukaryotic cells, consisting of the outer (OMM) and inner mitochondrial membrane (IMM). The IMM is further divided into the inner boundary membrane (IBM) and the Cristae Membrane (CM), the latter of which hosts critical proteins, including the ETC chain components and the  $F_1-F_0$  ATP synthase. A recently discovered protein complex called Mitochondrial Contact Site and Cristae Organising System (MICOS) complex was shown to govern cristae biogenesis and dynamics. MICOS has also been shown to mediate interactions between the inner and outer mitochondrial membranes through SAM complex proteins, especially SAM50. The interaction between Mic60 and SAM50 is conserved since before mitochondria evolved from  $\alpha$ -proteobacteria, suggesting a fundamental importance of this interaction in the course of evolution.

We aim to use biophysical and biochemical experiments to understand some of the aspects of how the MICOS proteins and SAM50 function. We ultimately aim to determine the molecular structure and mode of action of MICOS and SAM complex proteins. This understanding could provide key insights into mitochondria's functioning and evolution.

***Monday, May 1<sup>st</sup> 2023***

***11:00 AM (Tea / Coffee 10.45 AM)***

***Auditorium, TIFR-H***