

Students' Annual Seminar

Chemogenetic Control of Phagocytosis

Payal Chaubey

Microglia are the central nervous system (CNS) resident innate immune cells that play a vital role in neuronal circuit development and brain homeostasis. Microglia sculpts neuronal circuits through synaptic pruning and eliminates cellular debris through controlled phagocytosis. The regulation of neuronal phagocytosis by microglia depends on the delicate balance between “eat-me” and “don’t eat me” molecules that are present on neurons. Disruption of the delicate equilibrium of “eat-me” and “don’t eat me” signals is associated with various neurological disorders, highlighting the significance in understanding the mechanisms governing the display and recognition of these signals and developing new strategies to manipulate microglial phagocytosis. Here, we aim to develop a platform technology for controlling phagocytic ability of microglia in the brain through cellular engineering. In this seminar, I will discuss the experimental attempts towards engineering microglia to modulate its phagocytosis for neuronal circuit remodelling and other potential applications.

Friday, Nov 29th 2024

14:00 Hrs (Tea / Coffee 13:45 Hrs)

Seminar Hall, TIFR-H