



Module PMRF-ISSS073/2025

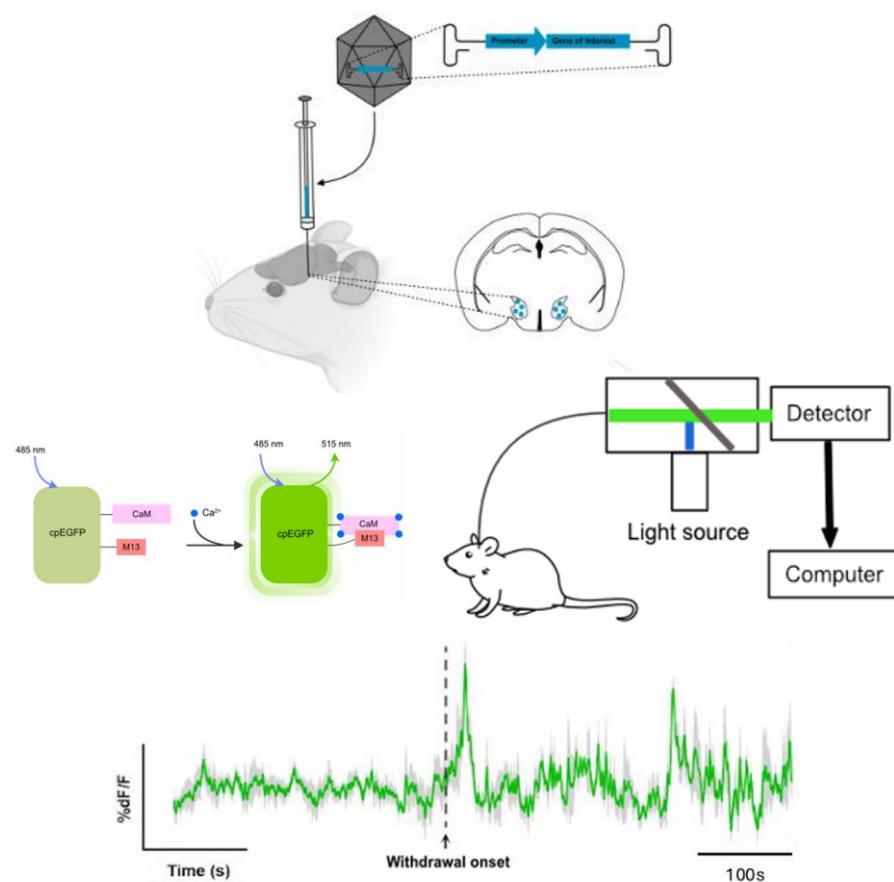
Genetically encoded tools for Neuroscience

Name of the PMRF student

Mousmi Rani

Required background of the students taught

UG/PG students from Life Sciences/
Zoology/ Biotechnology/ Molecular
Biology background. Research aspirants
interested in the field of Neurobiology



Details of the content of the module

- Introduction to the study of nervous system, diversity of neuronal population, and importance of anatomical distinction across brain. History of genetically encoded tools for neuronal identification and function.
- Introduction to fluorescent sensors (Calcium-based sensors, FRET, FLIM).
- DREADDs based chemogenic tools for neuroscientists to identify neural circuitry and cellular signals.
- Modulation of neural population using Optogenetics (Channelrhodopsin, Halorhodopsin, etc.).
- Insights into recent GRAB-based sensors for recording neuropeptide and/or neurotransmitter dynamics in-vivo.

Schedule of the module

Start date: 23rd September 2025

End date 22nd October 2025

Every Tuesday, Wednesday 6:30 pm-8:30 pm

Meeting link : Will be shared later

[Link](#)

Contact email ID: iss.forum@gmail.com

Registration link:

<https://docs.google.com/forms/d/e/1FAIpQLSezBvqCXUyc11r6TXkrlqe9Sg3llsaQ-Ac63vl1yLKxY-kfEQ/viewform>