PMRF-ISSS Teaching Programme

Prime Minister Research Fellowship students' teaching requirement facilitated by the Institute of Smart Structures and Systems

Module PMRF-ISSS035/2024

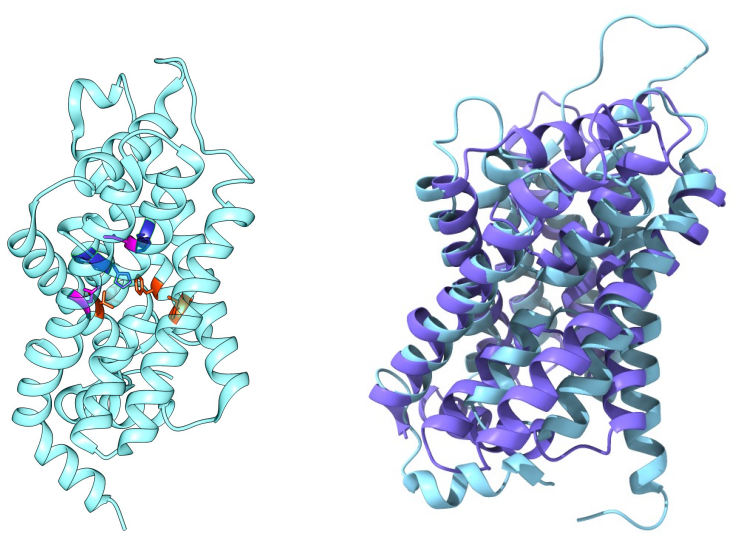
Membrane Biology and Protein Interactions

Name of the PMRF student

Himanshi Singh

Required background of the students taught

UG: Physics, Chemistry, Biology
PG: Biology and related fields



Details of the content of the module

Lectures on

1. **Introduction to Biological membranes**: What is a biological membrane, general membrane functions, basic composition of membranes, hydropathy index, fluid mosaic model, basic membrane properties-thickness, asymmetry, diffusion, melting behaviour, fluidity.
2. **Membrane protein:** How many membrane protein types are there, functions of membrane proteins, transportation across membrane- passive transports, secondary active transport, active transport, types of transporters, channels, pumps.
3. **Membrane protein folding:** membrane protein synthesis, membrane protein in diseases- cancers, cystic fibrosis, GPCRs associated diseases.
4. **Exploring the World of Membrane Proteins:** X-ray Crystallography, Cryogenic Electron Microscopy, Biophysical Techniques- Nanodiscs, Patch Clamp.
5. **Artificial Intelligence at the Service of Protein Structure:** Introduction to alpha fold, Basics of computer aided drug discovery (CADD).

Schedule of the module

Tentative timings

Start date: 04/05/24 (Saturday)

End date: 29/10/24 (Tuesday)

Tuesdays & Saturdays: 4-5pm

Meeting link : Will be shared later

Link

Contact email ID: isss.forum@gmail.com

Registration link:
https://forms.gle/6LNCDF5noiYh4gT29