ENS – IISER Network / BIOSANTEXC Project

Internship Proposal Form
France to India

(Discipline/Field name)

Internship title: Protein biochemistry and structural biology of multiprotein complexes

Keywords related with the subject (minimum 3): protein purification, mammalian cell culture, cryo-EM, bioinformatics

Name of the Institute: BRIC-NCCS Pune

Name of the laboratory(ies): Laboratory of structural biology

Name of the internship supervisor(s): Dr. Radha Chauhan

Email(s): radha.chauhan@nccs.res.in/radha75@gmail.com

Prerequisites for the internship:
Requested level: very good understanding of protein biochemistry

Foreseen internship dates: flexible

Internship type (refer to page 1):
⬜ **3–6-month internship** ⬜ Research stays ⬜ **6+6 months internship**

For 3 to 6 months internships, please indicate the desired duration: ex. 4 months: 6 month would be preferred, 3 month summer internship is possible during May-July

For 6+6 months internships, please also fill in: Jan-June or July- Dec semester is fine

- **Name of the internship co-supervisor: Prof. Kiran Padmanabhan**
- **Name of the co-supervisor's laboratory/entity: IGFL, Lyonne**
- **Email of the co-supervisor:** kiran.padmanabhan@ens-lyon.fr

BIOSANTEXC is a project co-funded by the French Ministry of Europe and Foreign Affairs (Ministère de l'Europe et des Affaires Etrangères).

Internship proposal (description and expected training outcomes / half page min, 1 page max):

Purification of the components of the human nuclear pore complex and characterization for structural studies.

Then human nuclear pore complex is is intricate assembly of about 34 distinct proteins called nucleoporins and they together form a permeability barrier between the cytoplasm and nucleus. How thes ecomponents mediate the bidirectional nucleocytoplasmic transport is poorly understood. Our lab is pursuing biochemical reconstitution based approach to study these proteins and their role in the cellular functions. We employ interdisciplinary approaches such as protein biochemistry, cell and molecular biology, cryo-EM and computational biology.
Expected training outcomes: in the duration of about 6-12 months, it is expected that the trainee will acquire training in protein purification, biochemical assays such as liquid-liquid phase separation (LLPS) and sample preparation for cryo-electron microscopy. In short term training(3-6 months): The trainee is expected to carry out protein purification and immunoflourescence microscopy based studies of the the Nucleoporins.

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