

Science and Engineering Research Board (SERB)

Call for proposals under IRHPA on

Cryo-Electron Microscopy for Macromolecular Structures and Complexes

Introduction: Cryo-Electron microscopy has revolutionized structural investigations of macromolecules in the recent times. The ever-increasing number of cryo-EM structures in global databases has risen from 8 – 10,000 between 2002 and 2020. It is a testimonial for a revolutionary technology for structural biologist, chemical biologists, and ligand discovery, which has gained clear edge over contemporary x-ray crystallography. **In light of these advancements, cryo-electron microscopy technique was recognized with the Nobel prize for the high-resolution structure determination of biomolecules in solution (2017).** The *revolution in resolution* resulted in atomic level understanding of the Zika virus surface proteins, thus aiding structure-based drug discovery, structure of hard-to-crystallize membrane proteins and other macromolecular complexes. This technology can help our researchers contribute significantly in the field of biomedical research focusing on structural biology, enzymology, virology, cell biology, ligand discovery, to name a few.

The existing cryo-EM research and facilities in the country are sub-optimal to leave a mark at the global stage. Given the significant advances in cryo-EM of large structures, it is recognized by SERB that concerted funding should be provided to establish leadership in this area to enable and empower Indian researchers to lead from the front. With this background, SERB announces a call titled “**Cryo-Electron Microscopy facility for Macromolecular Structures and Complexes**”, under Intensification of Research in High Priority Areas (IRHPA) with the following vision and mission:

Vision: Cryo-Electron Microscopy facility for Macromolecular Structures and Complexes

Mission: To create research knowledge base and skills for cryo-EM research in India to establish leadership in structural biology, enzymology, ligand/drug discovery, and to combat new and emerging diseases.

Eligibility Conditions

- Only public-funded national academic and research institutions can submit the proposal for Center on cryo-electron microscopy facility. It will be coordinated by a single institution and the PI must have at least 10 years of active service.
- Involve at least 5 superuser network involving not more than 50% from the home institution where the facility is going to be installed. The network partners can be identified from other public and private institutions, preferably in the region. PI, co-PIs from network partners should also have explicit interest and outstanding research plans.
- Proposal should clearly indicate contemporary areas of research and anticipated outcomes.
- Facility should be made available to users outside the network at specified charges.
- Organize periodic training programs to develop skilled manpower in cryo-EM and structure determination. A skill-training plan should be provided in the application.
- Should be self-sustained unit after project period (5 years) and provide continued service to the superusers. A letter of financial commitment from the host institution of PI would add great value to the proposal, including the cost of infrastructure development and dedicated manpower for smooth operation of the facility.
- According to this call, funding will be provided to establish Cryo-Electron Microscopy facility in the selected locations of the country.
- Institutions having existing Cryo-EM facility are not eligible to apply

Call for proposals will be opened from 15th August 2020 to 15th September 2020 (5pm). Proposals should be submitted as per prescribed IRHPA format through SERB online portal.

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