

Program Announcement: Creation of “Arnold and Mabel Beckman Centers for Cryo-Electron Microscopy”

Advances in instrumentation and methods have revolutionized applications of cryogenic electron microscopy (cryo-EM) to determine atomic structures of biological samples that are currently beyond the reach of other structural biology methods. Examples include large complexes, membrane proteins, and samples with compositional and conformational heterogeneity. These advances have also led to new modalities for structure determination in nanocrystalline samples and cellular environments. However, the high cost of cryo-EM instrumentation stands as a major bottleneck, limiting both scientific discovery and the career advancement of young investigators in the cryo-EM field.

As part of its continuing mission to advance chemical and biological sciences, to foster innovation and instrumentation, and to support young scientists, the Arnold and Mabel Beckman Foundation will provide support for the creation of new centers in the field of cryo-EM to bridge the cost barrier associated with this important new paradigm for molecular discovery. The Foundation is requesting applications from invited non-profit U.S. Universities and Institutions to establish these new cryo-EM facilities.

Program Specifics

The Arnold and Mabel Beckman Foundation will provide several one-time awards to offset the purchase cost of cryo-electron microscopes and detectors. The funding will be used exclusively as a contribution towards the cryo-EM equipment purchase cost, up to \$2.5M per award.

The Foundation will consider proposals for a broad range of cryo-EM microscopes and detectors, from mid-level screening instruments to high-end microscopes outfitted with direct electron detectors. Applicants shall identify the exact configuration of microscope and detectors they would purchase in the proposal, and justify why that level of capability is appropriate for the research programs centered at the Institute. The Foundation will not consider grants that only add workflow equipment to existing cryo-EM facilities.

The Foundation will consider applications from individual institutions or from consortia of institutions whose combined resources meet the requirements below. For any consortium application, there must be a “Lead Institution”, defined as the institute that will have the new cryo-EM facility on their property; the Lead Institution must meet the eligibility requirements below.

Applicant institutions must:

1. Purchase the proposed cryo-EM within the first year of the grant. The new microscope must be installed and operational within two years of the start of the grant award.
2. Update laboratory space to provide adequate facilities for the cryo-EM system within the first year of the grant.

3. Commit to hire a junior-level faculty member who utilizes cryo-EM as a major research focus at the tenure-track assistant professor level (or equivalent) within the first two years of the grant.
 - a. This new faculty position must be at a U.S. University or Institution.
 - b. A new faculty member with this research focus whose employment start date is between July 1, 2016 – July 1, 2019 will be considered as fulfilling this requirement.
 - c. Evidence of a current active search is not required, but will be considered favorably in the proposal review.
4. Provide operating and maintenance costs for the first five years of operation of the cryo-EM (the five-year timeframe starts when the cryo-EM installation is complete), including a full-time PhD-level staff member dedicated to training and maintenance.
 - a. It may be possible to cover some or all operations with user fees, although the burden will fall on the applicant to demonstrate convincingly that an adequate and well-funded local user base exists to cover projected costs.

The new microscope facilities created by awards from the Arnold and Mabel Beckman Foundation will be named the “Beckman Center for Cryo-Electron Microscopy” in perpetuity, and the support of the Foundation will be acknowledged in all publications that result from the use of the facilities.

Eligibility Criteria

This is a Limited Submission opportunity:

- By invitation only
 - The “Lead Institution” must be invited, but other members of a proposed consortium need not be invited
- The “Lead Institution” must be a non-profit U.S. university, institution or national laboratory. Additional collaborators within a proposed consortium can be international or commercial entities.

Questions regarding eligibility or requests for an invitation can be directed to Dr. Anne Hultgren, Executive Director of the Arnold and Mabel Beckman Foundation, at BeckmanCryoEM@beckman-foundation.org.

Timeline

Request for Invitation: October 1, 2016

Online Submission Deadline: November 1, 2016 by 5 pm Pacific/8 pm Eastern

Award Notification: February 2017

Funds Disbursement: July 2017; one-time payment to the Lead Institution