

NIH Transformative High Resolution Cryo-Electron Microscopy Program

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Cryo-electron microscopy (cryo-EM) is a method used to image frozen biological molecules without the use of structure-altering dyes or fixatives or the need for crystallization. This provides accurate model of the molecules and supports a greater understanding of biological function. Recent advances in cryo-EM detector and image processing technologies have made it possible for scientists to obtain detailed structures of many biological molecules, at resolutions as low as 2 Å, that cannot be obtained readily using other methods. Despite the emergence of cryo-EM as a powerful high-resolution imaging method, its use is hampered by inadequate access to equipment and a limited workforce.

The National Institutes of Health is supporting efforts to broaden biomedical scientists' access to cryo-EM through the trans-NIH Common Fund Program. The Transformative High Resolution Cryo-Electron Microscopy program has funded three national cryo-EM service centers to provide access to the technology and is supporting the development of cryo-EM training curricula to build a skilled workforce. The centers are established with six-year awards to provide scientists with access to state-of-the-art cryo-EM technology and training, from sample preparation to collection of high-resolution data and computational analysis. User access for data collection or cross training is provided through a peer reviewed open-access application process. The three-year grants for the creation of instructional and hands-on training in cryo-EM methodology will develop online video lectures, software and e-books, 3-D animations, and interactive virtual reality to train novice and more experienced users on cryo-EM technology and theory. Access the poster session or NIH Common Fund web site to find out more: <https://commonfund.nih.gov/CryoEM>.

