Financing a cryo-EM laboratory

Establishing a cryo-electron microscopy (cryo-EM) laboratory requires substantial resources for equipment and infrastructure. Also, operating expenses have to be planned. You must consider several aspects before financing a cryo-EM laboratory:

- Several possible grant schemes are available in Europe, US and Asia that allow for the purchase of a dedicated cryo-electron microscope. These public funding options are based on existing programs and, in general, open for academic researchers to apply for. Thermo Fisher Scientific can assist in getting a project started for these types of grant applications.
- In cases where the initial purchase cost must be spread over an extended period, Thermo Fisher Financial Services (TFFS) provides unique financing options that can be tailored to the individual customer’s needs and situation.

Importantly, investing in cryo-EM provides tremendous benefits not only to the research group, but to the institution as a whole. The availability of a state-of-the-art cryo-electron microscope, dedicated to structural biology research, has proven to be a strong attraction factor for the most talented scientists. Such an instrument empowers researchers to realize impactful research and publish in renowned journals.

Examples of existing grant schemes for the purchase of cryo-EM equipment

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<tr>
<th>United States</th>
<th>Europe</th>
<th>Japan</th>
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<tr>
<td>NIH High-End Instrumentation (HEI) Grant Program</td>
<td>European Research Council (ERC) Grant</td>
<td>Japan Agency for Medical Research and Development (AMED) Grant</td>
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<td>The High-End Instrumentation (HEI) Grant Program encourages applications from groups of NIH-supported investigators to purchase or upgrade a single item of expensive, specialized, commercially available instrument or integrated system that costs up to $2,000,000.</td>
<td>Principal Investigators from anywhere in the world who wish to carry out a project with a host institution in the EU member state or in one of the Associated Countries can apply for an ERC grant. The ERC awards funding to established research leaders and also to excellent investigators looking to set up or consolidate their own independent research team or program.</td>
<td>The Japanese funding agency was founded as a conglomerate from the Ministries of Education, Health and Economics. AMED promotes integrated research and development in the field of medicine, from basic research to clinical trials.</td>
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Besides these examples, other grant schemes may be applicable on the national, regional and university levels. Please discuss with a Thermo Fisher representative for specific information. These public funding options are generally open for applications from most academic researchers. We are happy to provide you with assistance you may need in order to start the grant application process.
Cryo-EM recognition and its benefits to the institution

Researchers using cryo-EM are producing outstanding breakthrough results, thanks to recent technological advances. In 2017, three pioneers of the technique were honored with the Nobel Prize in Chemistry. The success of cryo-EM has resulted in:

• Increasing number of structures resolved by cryo-EM primarily based on Thermo Scientific™ instruments (Figure 1)
• Increasing number of publications in the high impact factor scientific journals with structures resolved using Thermo Scientific™ Krios™ (Figure 2).

It has been recognized that cryo-EM brings significant benefits not only to the research groups but also to heightened institutional standing for accommodating the cryo-EM facilities:

• Increased scientific publications and discoveries
• Attractive location for recruiting researchers and grants
• Increase amount of international students – tuition

The technological success of cryo-EM also enables rapid progress in the search for more precise and powerful therapies for a wide array of human diseases, which triggered interest from the pharmaceutical industry:

• Collaboration on resolving pharmaceutically targeted structures via cryo-EM/XRD/NMR
• Financial support of research projects

Operating expenses for a cryo-EM laboratory

When planning a cryo-EM laboratory, it is important to include provision for the operating expenses. This cost can be grouped in three categories:

1. Personnel: It is advisable to have one full time employee to be responsible for the microscope however it is purely a choice of your institution/group since other arrangements are possible.

2. Service contract: To plan for the highest equipment availability, it is highly advisable to have the equipment covered by a service contract, which will include preventive as well as corrective maintenance. Contracts including application support are also possible. The broad service offerings portfolio for cryo-EM always ensures the availability of a suitable support plan meeting different needs and budget requirements. For an overview of the service contract options and a budget estimation please contact your local sales representative.

3. Other running costs: This consists of consumables, power consumption and HDD to carry the data. The price is ranging roughly from $60,000 to $75,000.