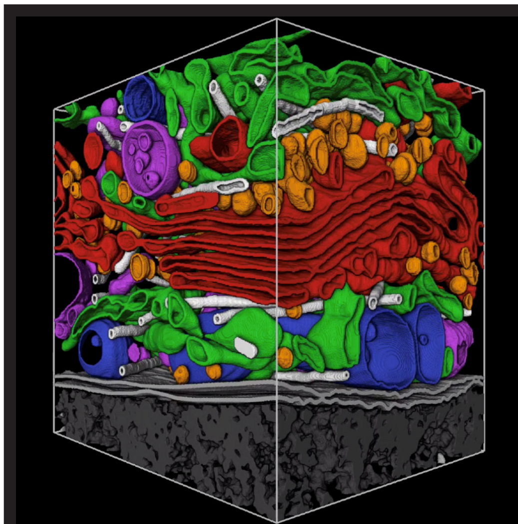
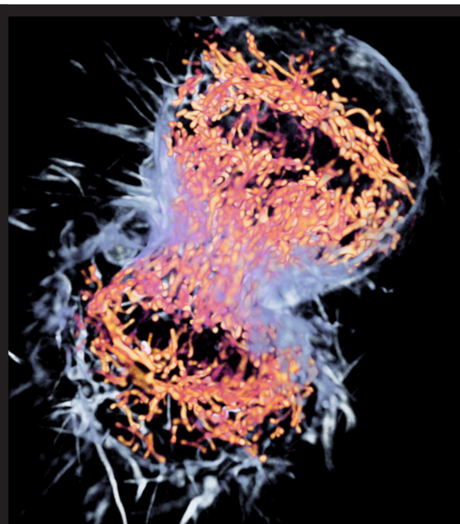
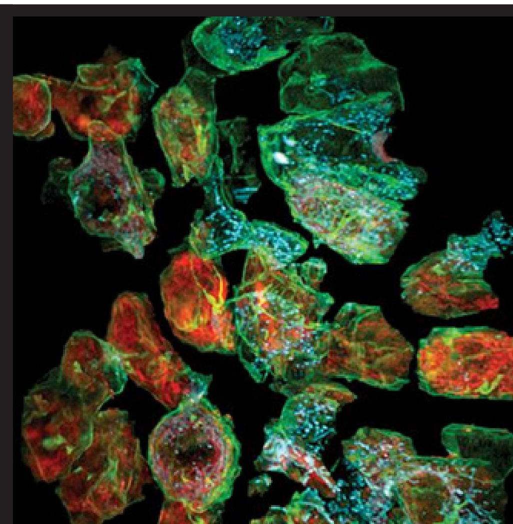
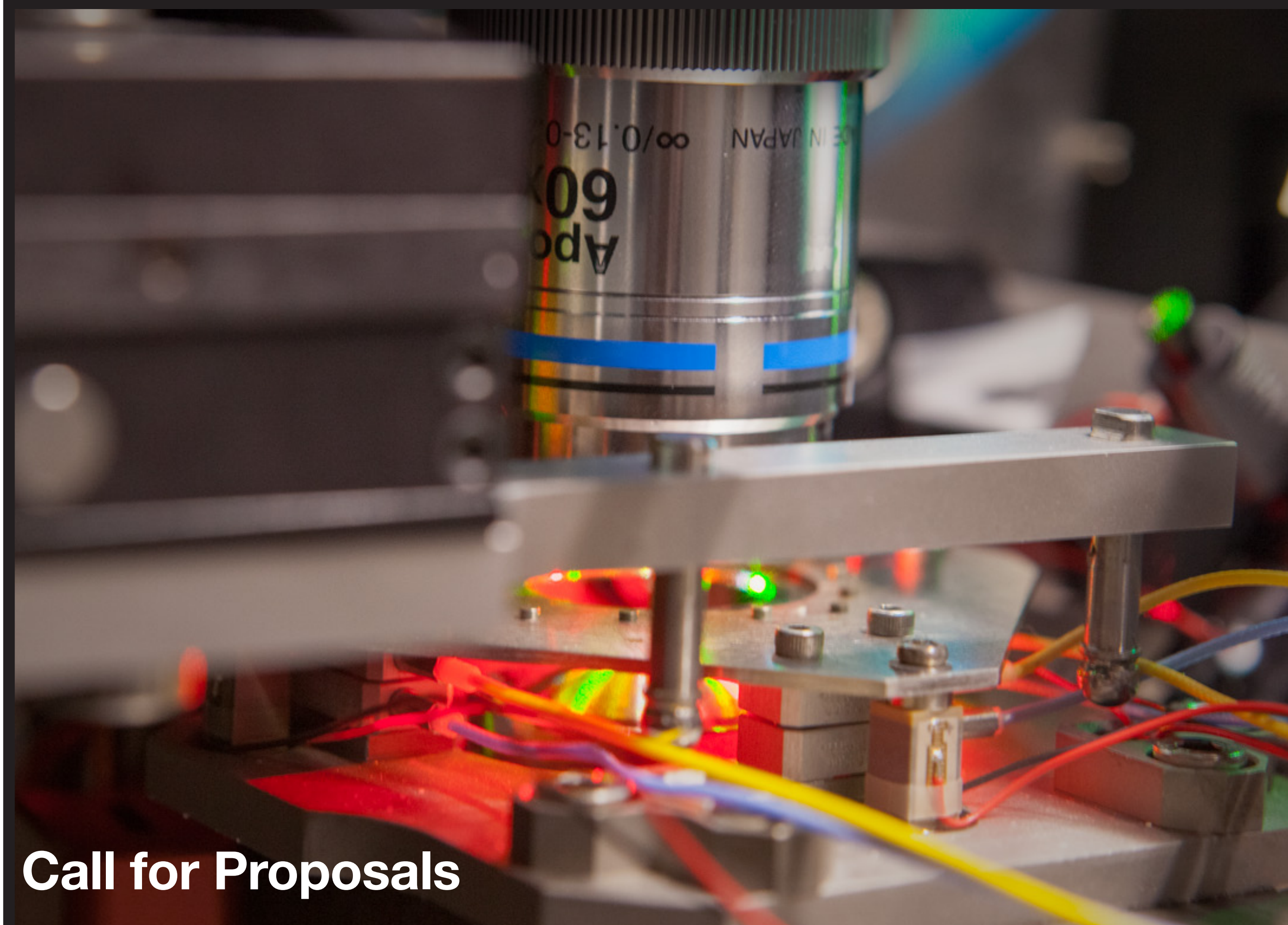




THE ADVANCED IMAGING CENTER
AT JANELIA RESEARCH CAMPUS



Call for Proposals

hhmi | janelia

aicjanelia.org

Call for Proposals

THE ADVANCED IMAGING CENTER AT JANELIA RESEARCH CAMPUS

We are now accepting proposals from scientists who are interested in conducting experiments at the Advanced Imaging Center (AIC).

Submit a proposal by **June 16, 2025**

17:00 (5:00 PM) US Eastern Time / 21:00 (9:00 PM) GMT

Our Mission

The AIC makes cutting-edge, pre-commercial microscopes available to visiting scientists at no cost, maximizing the impact of the latest developments in emerging microscopy technologies.

Program

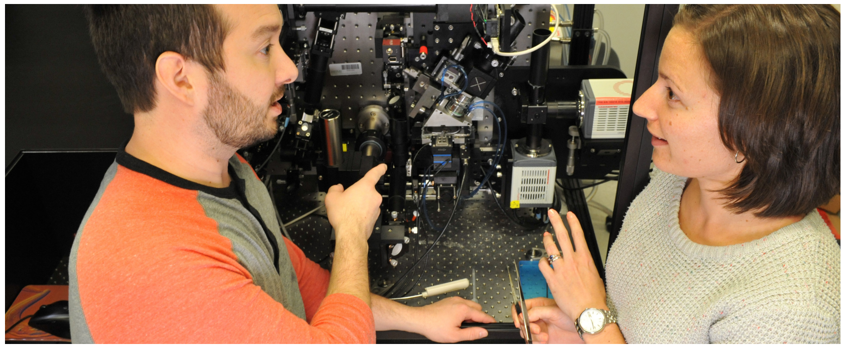
We encourage applications from scientists worldwide who are addressing significant scientific questions that require measurements of cellular/molecular behavior at spatial and/or temporal resolutions that would only be possible through access to the AIC.

Upon approval, visiting scientists spend 2-3 weeks at Janelia conducting experiments on their chosen microscope(s) with the support of the AIC team. Janelia covers the costs of lodging for the visiting scientists, technical support, and microscope time. Basic experimental reagents (e.g. tissue culture plates, pipettes, coverslips) will be provided. Other experimental reagent costs may be covered at the discretion of the AIC.

This program is open to investigators at non-profit institutions. HHMI affiliation is not required.

Contact

Apply: aicjanelia.org/apply
Email: aic@janelia.hhmi.org
Bluesky: @aicjanelia.bsky.social



Lattice light sheet microscope training for AIC visitor, Kate Butler, from the Walter and Eliza Hall Institute

Instructions

Prior to proposal submission, applicants are strongly encouraged to contact the AIC (aic@janelia.hhmi.org) for technical consultation.

All proposals must adhere to the following format:

- **Scientific Narrative:** Limited to 1,000 words, 3 figures, and should include the following sections:
  - **Abstract**: Briefly summarize the biological system, main project goals, the instrument(s) to be used, and overall scientific significance.
  - **Specific Aims**: Define the hypothesis to be tested or goal(s) to be accomplished.
  - **Preliminary Data**: Include representative previous imaging data that (1) demonstrate the feasibility of the proposed project, such as photostability, signal-to-noise or signal-to-background level, labeling strategy, including specificity and/or transfection efficiency, and (2) illustrate the limitations of current imaging technology. For live imaging projects, please provide preliminary time-lapse data.
  - **Justification for Using AIC Instrument(s)**: Explain why commercially-available microscopes are insufficient to address your Specific Aims.
  - **Experimental Design**: Provide a detailed plan for addressing the proposed Specific Aims. Explain the biological system(s) and labeling strategies to be employed. Specify the expected imaging duration, speed, depth, and resolution. Summarize your planned experiments in a table in order of priority.
  - **Data Quantification Strategy**: Explain what quantitative biological information will be extracted from your imaging data, and how the proposed quantification helps support your specific aim(s).
  - **Expected Outcome(s)**: To assist us in understanding the immediate impact of your proposed work, describe how the anticipated data will be used. Potential impacts could include generation of a novel hypothesis, preliminary data for a grant application, critical data to enhance or complete a manuscript in preparation, or other.
  - **List of Cited References**
- **Biosketches** of all personnel that will visit the AIC
- **Letter of recommendation** for all non-lab head applicants from their respective lab head(s). See personnel section below.

Janelia's unusual research culture values collaboration and vibrant intellectual life, which is reflected in our history, our philosophy, and our campus.

Proposal Review

All applications are evaluated using a two-tier review process. The first tier is a pre-screening process by the AIC team to determine if (1) the experimental design matches the capabilities of the AIC instruments; (2) the need for the AIC instrument is technically justified; and (3) specimens can be safely handled at Janelia.

The second tier is a peer review of applications against established criteria for determining scientific merit. The panel includes representatives from Janelia Research Campus, as well as invited extramural imaging experts.

Review Criteria

- Does the proposed project have the potential to yield novel and significant information?
- Does answering the experimental question require the use of the AIC instruments, or can it be addressed with commercially available imaging technologies?
- Is the experimental plan well-designed and sufficiently focused to be completed efficiently within a reasonable amount of time?
- Are the visiting scientists' background, productivity, and expertise appropriate to accomplish the proposed work with the assistance of the AIC scientists?

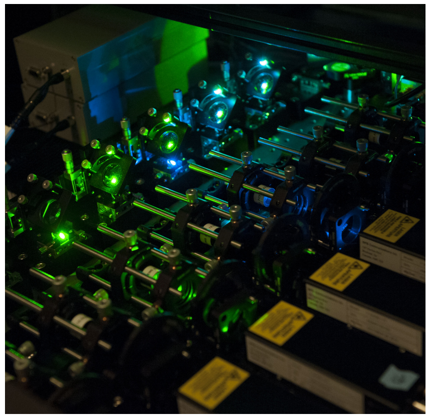
Personnel

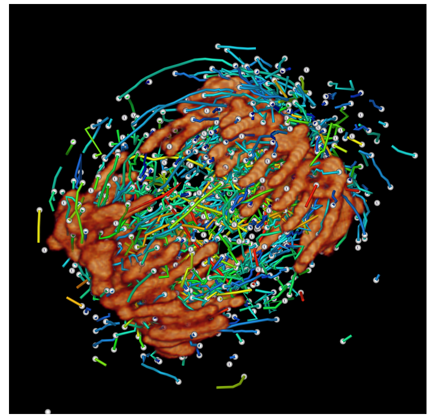
Lab heads are strongly encouraged to be present for a portion of the visit. All other visiting personnel must have a specified role in the experiment(s). Non-lab heads (including students) may act as the main proposal applicants. However, a letter is required from their lab head describing their ability to accomplish that role. The panel will evaluate how the designated visitors will help in accomplishing the goals of the proposal with the full assistance of AIC scientists. If the lab head cannot be present, it would be imperative that the visiting personnel have sufficient experience working independently.

Budget

Janelia will provide on-site housing at no charge. The applicant should confirm that they are able to support travel and food costs for the personnel who will visit the Janelia campus to perform the experiment(s).

Near right:
Pre-commerical microscope developed at Janelia
Far right:
High speed tracking of microtubule dynamics during cell division using the lattice light sheet microscope.





Our Microscopes

Interferometric Photoactivation and Localization Microscope (iPALM)

iPALM pinpoints fluorescent labels to within 10–20 nanometers—about ten times the size of an average protein—in all three dimensions. iPALM has been used to reveal how biomolecules organize themselves into the structures and signaling complexes that drive cellular functions in fixed samples.

Focused Ion Beam Scanning Electron Microscope (FIB-SEM)

FIB-SEM can give exquisite ultrastructural detail, with up to 4nm isotropic resolution over whole cell volumes and beyond. Commercially available systems suffer from practical limitations that result in only a few microns of the sample volume being imaged without errors. The enhanced FIB-SEM at the AIC is specifically engineered to overcome these limitations, making it an unparalleled three-dimensional EM technique. FIB-SEM can also be combined with our Cryo-Structured Illumination Micorscope for Correlative Light-Electron Microscopy (CLEM) studies.

Lattice Light Sheet Microscope (LLSM)

This LLSM uses a thin sheet of patterned light to peer inside living cells and small organisms, revealing the three-dimensional shapes of cellular landmarks in unprecedented detail. The microscope images at high speed and under gentle illumination so researchers can create dazzling movies that make biological processes, such as cell division, come alive.

Simultaneous Multiview Light Sheet Microscope (SiMView)

SimView enables quantitative systems-level imaigng of fast dynamic events in large living specimens, enabling researchers to understand the development/function of complex biological systems. It delivers exceptionally high volumetric imaging speeds and large field of view while minimizing photobleaching and phototoxic effects. Its spatiotemporal resolution eliminates motion blur artifacts due to specimen movement, while providing high performance and accuracy for precise quantification and tracking of biological specimens.

Multimodal Optical Scope with Adaptive Imaging Correction (MOSAIC)

By using a 2P laser spot (a “guide star”) that is focused in the imaging volume, wavefront sensing allows for quantification of the aberration the light experiences. This aberration can then be corrected by a deformable mirror (emission correction) or adjusting the shape of the incoming light with a spatial light modulator (excitation correction). Images stay in focus, even in thicker and more complex samples. This instrument integrates many imaging modes on the same instrument, with adaptive imaging correction for all modalities.