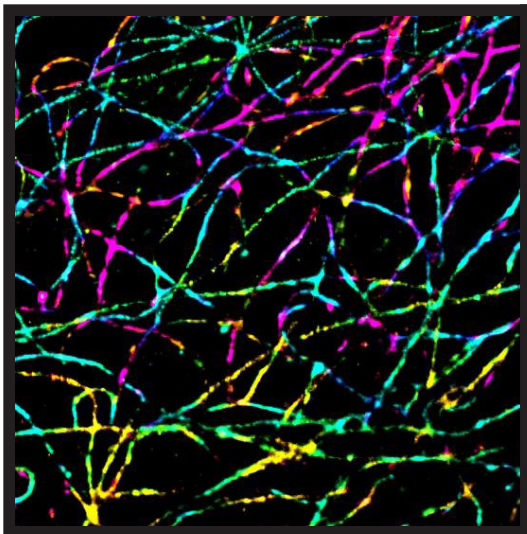
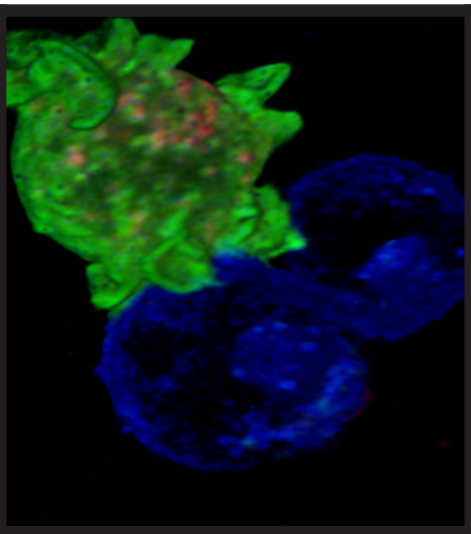
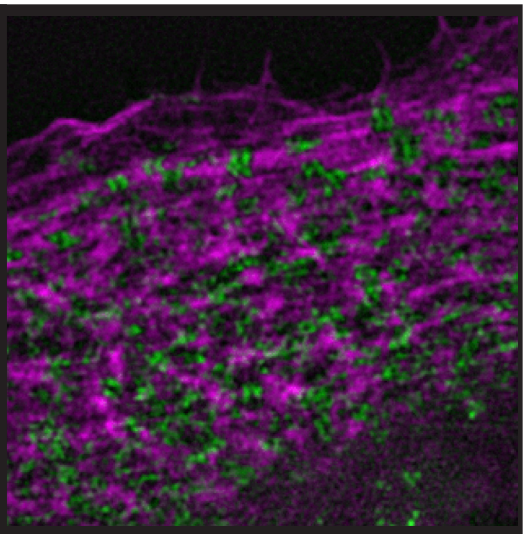
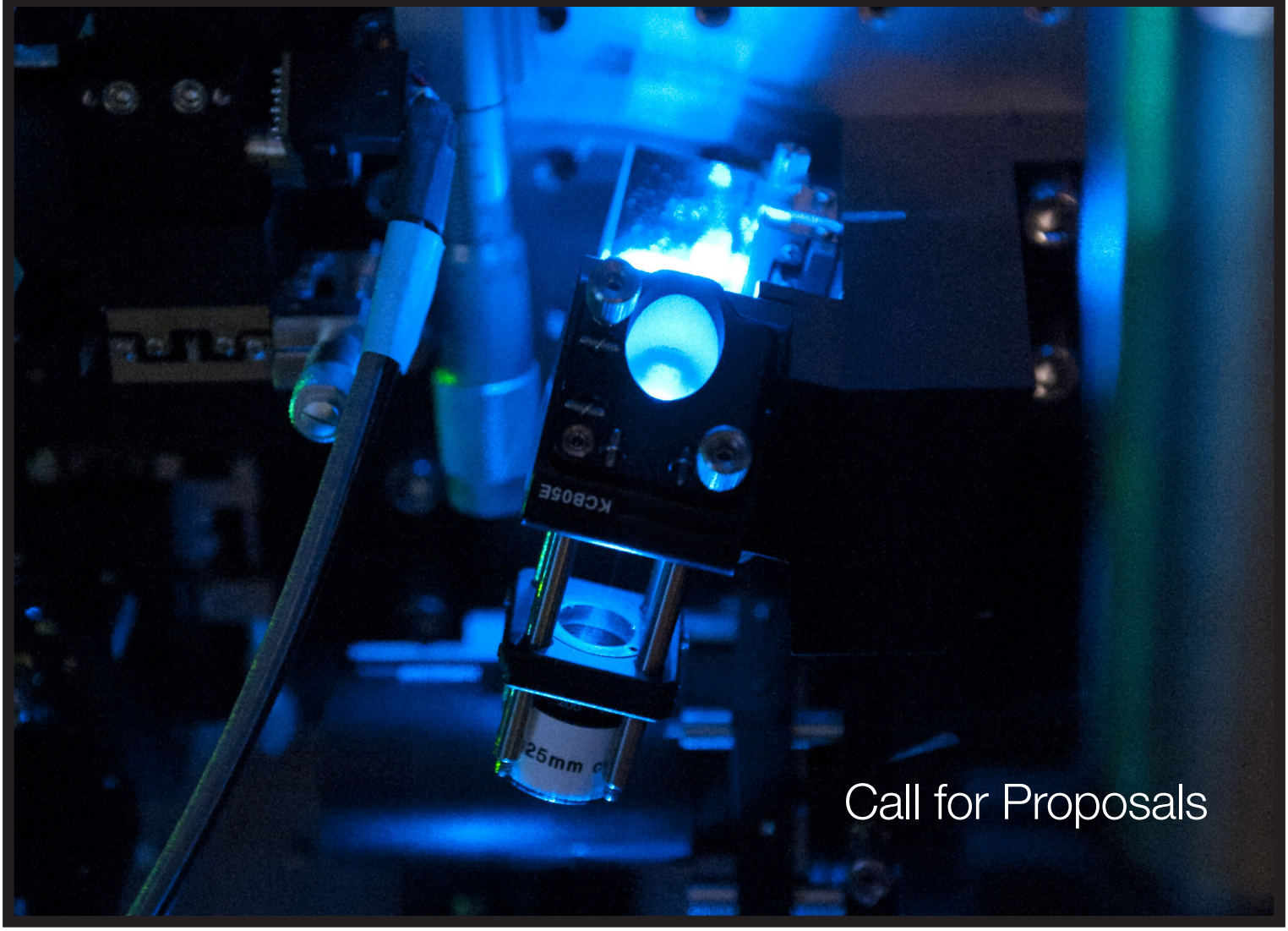






THE ADVANCED IMAGING CENTER
AT JANELIA RESEARCH CAMPUS



Call for Proposals

hhmi | janelia

GORDON AND BETTY MOORE FOUNDATION

janelia.org/AIC

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 January 15, 2018.

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 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 scope 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.

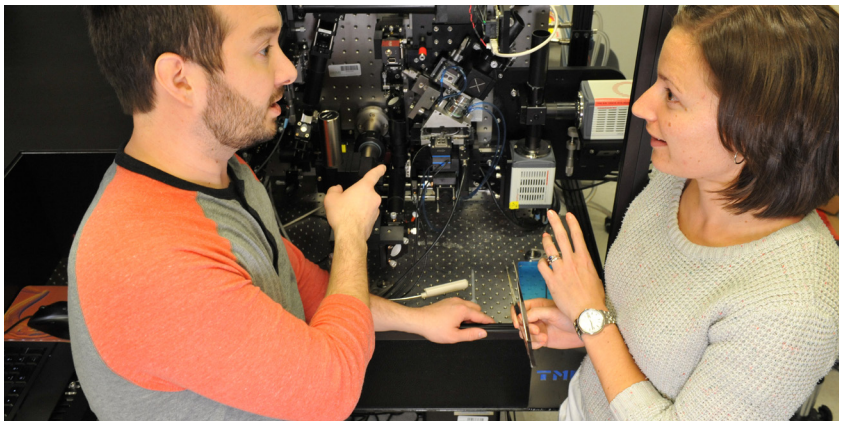
This program is open to investigators at non-profit institutions. HHMI affiliation is not required.

Submit a Proposal

janelia.org/aic/call-proposals

Application Deadline

January 15, 2018
23:59 (11:59 p.m.) U.S. Eastern Time



Lattice light sheet 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 and 3 figures), which should include:
  - **Abstract:** Briefly summarize the main project goals and significance, the instrument(s) to be used, as well as the biological system and fluorophores that will be employed.
  - **Specific Aims:** Define the major hypotheses to be tested and a brief outline of the experimental approach.
  - **Preliminary Data:** Showcase previous imaging data that (1) demonstrate the feasibility of the proposed project, such as fluorophore photostability, signal-to-noise or signal-to-background, probe labeling specificity, labeling strategy, and transfection efficiency, and (2) illustrate the limitations of current imaging technology. The AIC team can provide in-depth technical advice.
  - **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.
  - **Data Quantification Strategy:** Outline how the data will be analyzed and/or quantified to yield biologically relevant information. Explain how the relevant data quantification helps support your anticipated measurable outcome. Contact the AIC for advice.
  - **Measureable Outcome(s):** To assist us in understanding the immediate impact of your proposed work, describe the final deliverable that answers the “so what?” question after successful data collection and analysis. 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 personnel from their respective lab head(s).** See personnel section below.
- **Signed Visitor Agreement Letter:** Includes environmental health and safety training for each visitor.

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 technical appropriateness and feasibility. The panel will determine whether: (1) the experimental design suits the capabilities of the AIC instruments; (2) the need for the AIC instrument is technically justified; and (3) the specimens can be safely handled by Janelia's capacity (we can only receive and handle up to BSL2 samples). The second tier is a peer review of applications against established criteria for determining scientific merit. The panel includes representatives from Janelia Research Campus and the Gordon and Betty Moore Foundation, 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 proposal 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?

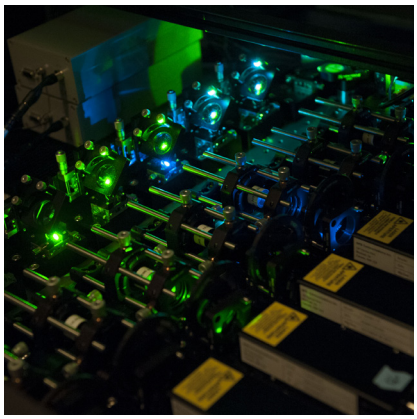
Personnel

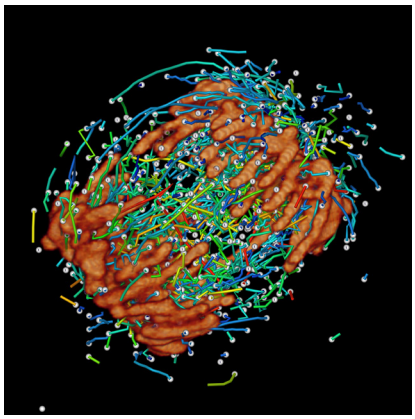
It is strongly encouraged that the lab head be present for a portion of the visit. All other visiting personnel must have a specified role in the experiment(s) and a letter from their lab head describing their ability to accomplish that role. The panel will evaluate how the designated visitor will help 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

The AIC currently houses four advanced optical microscopes:

Interferometric photoactivated localization microscope (iPALM)

Scientists can use iPALM to pinpoint fluorescent labels in their images 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.

Aberration-corrected multifocus microscope (acMFM)

Using this technology, researchers can simultaneously image multiple focal planes in two colors to track, in 3D, rapid biological events happening inside live cells.

Lattice light sheet microscope

This microscope 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.

Live cell multicolor structured illumination microscope (SIM)

Through interference patterns generated by diffracted light beams illuminating fine biological structures, the SIM system is capable of delivering lateral resolution of 100 nanometers at up to 30 Hz in TIRF mode or 120/350 µm lateral/axial resolution at up to 2 µm-per-second speed in 3D mode, making it compatible with live-cell imaging applications.

Contact

janelia.org/AIC

aic@janelia.hhmi.org

@aicjanelia