

The Penn Epigenetics Institute
2023 Epigenetics Spatial Transcriptomics Pilot Grant

Deadline: May 2, 2022

The Epigenetics Institute seeks proposals for pilot grants for the evaluation of technologies for spatial transcriptomics. The goal of the program is to catalyze the use of spatial transcriptomics in the Epigenetics community and to help the Epigenetics Institute evaluate technologies with the aim of potentially committing to a commercial solution. The pilot grant itself will fund the generation of a spatial transcriptomics dataset from a company by a fee-for-service model. Analysis will be done by the PI's team with possible help from the Epigenetics Institute. We ask that all awardees make their data available to the Epigenetics Institute, which will then be used as part of a report and internal data repository for others within the Epigenetics Institute to help them evaluate these methods for use in their own work.

Investigator Eligibility

Only Epigenetics Core Faculty, Interest Group Members, and Program Members who are active participants of the Epigenetics Institute, and employed at the University of Pennsylvania or at one of our partner institutions (e.g. CHOP, Wistar) are eligible to apply for the Epigenetics Institute Pilot Project Grant. Active participation refers to attendance at monthly meetings, workshops etc. Proposals can be submitted by individual Principal Investigators or as a collaborative grant between a maximum of two different Principal Investigators.

Funding Limits

The pilot grant will cover the cost of the experiment itself as detailed in the quote, up to \$20K. Approximate amounts are acceptable. The goal is to fund as many experiments as possible; thus, **costs will be a consideration in the review and funding process, as will diversity in the technologies proposed.** If further data generation is required, a plan for the acquisition of that data can be provided as an addendum, but in general, such applications are discouraged.

* Note that AR declares the following conflicts of interest: AR receives royalties for Stellaris RNA FISH from LGC/Biosearch Technologies, and serves on the Scientific Advisory Board for Spatial Genomics.

Submission Guidelines

- **Cover Page:**
 - Title of Project
 - The name of the Epigenetics Pilot Grant you are applying for (At-Large, Epigenetics Spatial Transcriptomics)
 - PI/PI's signature and professional title/s
 - Department Chair Signature and title

- **Research Proposal:** A 1-page proposal (standard NIH formatting, no references), including:
 - The high-level scientific justification for the dataset (i.e., what will we learn, and how it is uniquely well-suited for spatial transcriptomics data).
 - The purpose of the dataset: will the dataset be used in an upcoming paper or grant application? (The former is preferable.)
 - Proposed spatial transcriptomics technology and scientific/technical rationale for choosing that technology over others.

- Proposed analysis of the dataset, including at least one specific question and how it will be quantitatively answered using the analysis method indicated.
- Quote from company
- Any relevant preprints/drafts of relevant papers/grants for which this dataset will be included (if any).

Any spatial transcriptomics platform with a fee-for-service model will be considered. Some platforms include:

- Sequencing (broader transcriptome, lower resolution for now):
 - Visium from 10x. Sequencing from a sample placed on a patterned array of oligonucleotides.
 - NanoString GeoMx platform (not sure of the details of this one).
 - Isoplexis. Rong Fan's startup.
 - Hybridization (target gene panel, from 10s to 1000s, high resolution):
 - Vizgen, imaging/barcoded RNA FISH platform based on Xiaowei Zhuang's MERFISH technology. Probably 100s of genes at a time.
 - Rebus Biosystems, iterative single molecule RNA FISH platform (*see COI below*). Probably 10s of genes at a time.
 - Spatial Genomics, seqFISH-based startup from Long Cai/Kirsten Frieda. They have not yet officially launched, however, we may be able to get fee-for-service (*see COI below*). Claim is up to 1000s of genes at a time (nothing yet available to evaluate). Fee for service is probably around \$5K, but also not entirely clear how that scales with sample size or number of genes.
- **NIH Biosketch:** An NIH format biosketch must be submitted for the **PI and the Co-PI's only**. The Biographical sketch must list's current and pending support.
 - **Application should be submitted online through the online application form and all documents should be uploaded at the end of the online application as one single pdf.**
https://upenn.co1.qualtrics.com/jfe/form/SV_4GfDeJRFp6uUJhQ

Submission Deadline

All proposals are due by **May 2nd, 2022 at 11:59 PM EST** for a project start date of **July 1st, 2022**. **LATE SUBMISSIONS WILL NOT BE ACCEPTED.**

Post-Award Requirements

- Once awarded a grant, awardees should be active in the epigenetics community through seminar presentations and participation in local events of the epigenetics community.
- Awardees must submit a report of the results and also submit the dataset and analyses for the overall comparison report of all platforms. Report should include whether the results will appear in a publication or grant application.
- Awardees must acknowledge the Epigenetics Institute support in all scientific posters, presentations, and publications using the specific language listed below:
"This research was supported by a pilot award from the Epigenetics Institute at the University of Pennsylvania."
- Awardees may be asked to participate in an overall presentation about the Spatial Transcriptomics evaluation within the 2022-2023 Epigenetics Monthly Seminar Series.
- Awardees must present a poster at the Epigenetics Annual Retreat.

For additional information, please contact:

Application Questions ~

Sophia Castro-Anderson

Tel: 215-573-5858

andes@pennmedicine.upenn.edu

Pilot Questions ~

Jenn Phillips-Cremens (jcremins@seas.upenn.edu)

Arjun Raj (arjunraj@seas.upenn.edu)