**Stanford Postdoctoral Research Fellow: Spatial Functional Mapping of Complex Tissues**

**Location**: Prof. Sindy Tang, Stanford University
**Duration**: 1–2 years
**Start Date**: ASAP with flexibility

The Tang Lab at Stanford University is seeking a highly motivated postdoctoral scholar to lead a new project focused on spatially resolved functional phenotyping of complex tissues, including tumor organoids, multicellular assembloids, and ex vivo tissue explants. This work centers on a custom microdissection platform (https://www.nature.com/articles/s41378-024-00756-8) that enables spatially registered functional assays, directly measuring drug response, regrowth potential, and immune or microenvironmental interactions across intact tissues. This position is ideal for a postdoc excited about building new experimental systems from the ground up, working at the interface of bioengineering and biology, and collaborating closely with engineers.

**Project overview**
Current spatial biology approaches largely infer biological behavior from static molecular markers. In this project, we aim to directly measure functional phenotypes, such as therapy resistance and immune interaction, while preserving spatial context.
The work will involve a range of tissue models, including:
- Large tumor spheroids and organoid analyzed via spatial micro-pixeling
- Organoid fusion and assembloid strategies to generate larger, heterogeneous systems
- Ex vivo tissue explants or biopsies (e.g., gut, spleen, tumor-adjacent tissues), when available
- Replication across many tissues or organoids to statistically define spatial functional patterns

Using the µDicer platform, spatially indexed microtissues will be generated and assayed in parallel, enabling direct comparison between functional outcomes and spatial molecular states.

**Key responsibilities**
- Establish and optimize organoid, spheroid, assembloid, and/or tissue explant culture systems
- Design and execute spatially indexed functional assays, including:
  - drug response and regrowth assays
  - live/dead viability measurements
  - microscopy-based and time-lapse imaging
- Quantify and analyze spatial functional heterogeneity within and across tissues
- Collaborate closely with µDicer engineers to adapt hardware and workflows for biological applications
- Integrate functional readouts with spatial molecular profiling, such as spatial transcriptomics, multiplexed immunofluorescence or CODEX (experience is a plus, not required)
- Lead data analysis, figure generation, and manuscript preparation

**Desired background**
We are looking for candidates with strong hands-on experience in one or more of the following areas:
- Organoid, spheroid, or 3D tissue culture systems
- Tumor biology, immunology, regeneration, or developmental biology
- Ex vivo tissue handling or complex co-culture systems
- Quantitative microscopy and image-based analysis

Experience with spatial transcriptomics, CODEX, multiplexed imaging, or computational image analysis is highly desirable but not required.

The ideal candidate is:
- Comfortable with open-ended, iterative experimental work
- Motivated to develop new biological platforms, not just apply existing tools
- Able to collaborate effectively across disciplines with engineers and computational scientists
- Interested in owning a project with clear scientific impact and growth potential

## Training and career development

This position offers:

- Substantial scientific ownership of a platform-level research project
- Experience developing a first-in-class framework for spatial functional biology
- Close mentorship in experimental design, publication strategy, and grant writing
- An opportunity to build expertise and visibility in a research direction that can naturally support future independent research programs in academia or industry

## About the lab

The Tang Lab develops micro- and nanoscale tools to interrogate biological systems, with current efforts spanning spatial biology, immune function, and translational diagnostics. The lab culture emphasizes interdisciplinary collaboration, technical rigor, and independence.

## Application

For questions or applications (see below), please feel free to reach out to Prof. Sindy Tang (sindy@stanford.edu).

Application: please email in a single PDF including:

- CV with publication list
- A 1/2 to 1-page summary of research accomplishment, why you are interested in this project, and your expected contributions
- Contact information of 3 references
- Links to 3 representative papers