

ZACHARY LEWIS

Senior Scientist

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- Broadly-trained experimental scientist with deep expertise across analytic, molecular, and genomic approaches.
- Product owner and team leader, responsible for developing and launching new spatial proteomic assays.
- Strategic thinker with demonstrated success managing large cross-functional teams.
- Adept data scientist experienced with pipeline creation, workflow reproducibility, and computational biology.
- Skilled leader who nurtures cohesive groups ranging from small classrooms to international multi-laboratory teams.
- Accomplished communicator with high proficiency in visualizing data and translating complex scientific concepts for diverse audiences.

EDUCATION

- 2016 **Harvard University** | PhD in Organismic and Evolutionary Biology
➤ Dissertation : Causes and Consequences of Lung Loss in Salamanders
- 2007 **Reed College** | BA in Biology

RESEARCH EXPERIENCE

- December 2022 Present** | **Senior Scientist | Research Proteomics, NANOSTRING TECHNOLOGIES, Seattle, WA**
- Developed and launched the CosMx custom protein barcoding service assay product.
 - Playing a key leadership role in a multidisciplinary team developing a same-slide high-plex RNA and protein multi-omic assay for the CosMx Spatial Molecular Imager.
 - Created a 120-plex immuno-oncology subcellular spatial proteomics assay and associated analytic methods.
 - Led collaborations with academic partners using high-plex spatial proteomic assays for immuno-oncology and neuroscience applications.
- Management | Immuno-oncology | Leadership | Data analysis | Assay development | Product development
- August 2020 December 2022** | **Scientist 2 | Research Proteomics, NANOSTRING TECHNOLOGIES, Seattle, WA**
- Invented, developed and commercialized the CosMx spatial proteomics assay.
 - Invented and commercialized a method to enable advanced cell segmentation and field of view selection for CosMx protein and RNA assays.
 - Led a R&D team as a technical lead and Product Owner (Agile framework) for the CosMx spatial imaging system.
 - Developed software and workflows for on- and off-instrument data processing and analysis.
- Collaboration | Assay development | Spatial genomics | High-plex | Product launch | Project management
- August 2017 July 2020** | **Postdoctoral Associate | Ecology and Evolutionary Biology, YALE UNIVERSITY, New Haven, CT**
- Led genome sequencing and assembly projects for four marine invertebrate species using several complementary technological approaches.
 - Developed protocols for photographic and biochemical characterization of ultraviolet radiation-protective molecules in a marine invertebrate.
 - Forged collaborations with international teams of researchers and technical specialists to generate gold-standard genome assemblies.
 - Managed a team of students and boat pilots during international fieldwork to collect genomic material.
- Teamwork | Visualization | High performance computing | Reproducibility | Sequencing | HPLC-MS/MS
- August 2016 August 2017** | **Postdoctoral Associate | Ecology and Evolutionary Biology, BROWN UNIVERSITY, Providence, RI**
- Developed a technology for spatial transcriptomics of histological tissue sections.
 - Initiated gene expression analyses in a non-model plant species to determine the mechanism of C4-CAM photosynthesis. Gathered key data for a successful NSF grant proposal.
 - Designed a low cost, high resolution 3D imaging system to reconstruct organismal morphology that has been deployed at other universities.
- Assay development | Instrumentation | Spatial transcriptomics | Genomics

- August 2009
July 2016 | **PhD Student | Organismic and Evolutionary Biology, HARVARD UNIVERSITY, Cambridge, MA**
- > Established a research program focused on why certain salamanders fail to develop lungs, and how they perform gas exchange without lungs.
 - > Discovered a new pulmonary surfactant protein that may have therapeutic applications.
 - > Integrated diverse approaches in embryology, molecular biology, genomics and anatomy to determine the mechanism by which lungs fail to develop in certain salamanders.
- Genomics | Gene expression | Embryology | Histology | Micro-computed tomography | Fieldwork
- February 2008
August 2009 | **Research Technician II, OREGON HEALTH AND SCIENCES UNIVERSITY, Portland, OR**
- > Developed techniques for single cell lineage tracing in the zebrafish peripheral nervous system.
 - > Facilitated a multi-laboratory forward mutagenesis screen for neural defects in zebrafish.
- Confocal microscopy | Molecular biology | Forward genetics | Immunohistochemistry
- June 2007
September 2007 | **Betty Liu Post-Baccalaureate Fellow, REED COLLEGE, Portland, OR**
- > Utilized histological and molecular techniques to describe the process of sexual differentiation in threespine stickleback fish.
 - > Developed molecular resources for *in situ* hybridization in threespine stickleback fish.
- Histology | Molecular biology | Cloning

LEADERSHIP EXPERIENCE

- February 2021
Present | **Product Owner | CosMx Spatial Proteomics Assays, NANOSTRING TECHNOLOGIES, Seattle, WA**
- > Led a large scrum team (>20) developing the first spatial proteomic assay for the CosMx Spatial Molecular Imager. The cross functional team spanned departments including R&D, Marketing, Product Development, Process Development, Engineering and Quality Engineering.
 - > Ran weekly standup meetings and report out meetings to senior leadership.
 - > Collaborated with Marketing, Project Management and the C-suite to plan product road maps.
 - > Managed three direct reports to develop assays and analysis technology.
 - > Incorporated lessons from formal management training and iterative feedback to develop as a manager and mentor.
- August 2019
Present | **Lecturer | Ecology and Evolutionary Biology, YALE UNIVERSITY, New Haven, CT**
- > Designed and implemented a new undergraduate lecture-based course in comparative physiology.
 - > Ran a large laboratory class in comparative anatomy.
 - > Successfully transitioned a laboratory class from in-person to remote during the COVID-19 pandemic.
 - > Integrated best practices for active and inclusive course design to foster a cohesive classroom community.
 - > Incorporated input from daily formative assessment to guide teaching and gauge comprehension.
 - > Managed teaching fellows and support staff so that the team could help students meet learning goals.
- August 2009
July 2016 | **Teaching Fellow, HARVARD UNIVERSITY, Cambridge, MA**
- > Designed new laboratories and activities for diverse courses such as herpetology, genetics, introductory biology and developmental biology.
 - > Received a university-wide Certificate of Distinction in Teaching Award for a Herpetology course.
 - > Implemented active learning approaches to improve student engagement and foster deep learning.

SKILLS

Project Management	SAFe Agile, Azure DevOps, Product ownership
Programming	R, LaTeX, Unix, Python, Docker, git, HTML
Imaging	Spatial proteomics, image analysis, highly-multiplexed imaging, spatial transcriptomics, confocal, micro-CT, episcopic block face imaging, 3-D reconstruction
Bench	Embryology, RNA and DNA <i>in situ</i> hybridization, immunohistochemistry, transcriptomics, automation, HPLC-MS/MS, microsurgery, histology, field biology
High Performance Computing	Genome assembly, genome annotation, pipeline development, reproducible workflows, transcriptomics
Sequencing	Library preparation, Illumina, PacBio, High molecular weight DNA
Visualization	R, Illustrator, Adobe CC, ImageJ, Keynote, PowerPoint