James Hyojae Lee

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EDUCATION

New York University — New York, NY
Master of Science in Bioinformatics and Systems Biology — Sept 2024-May 2025

University of California San Diego — La Jolla, CA
Bachelor of Science in General Biology — Jan 2015-Jul 2021
Bachelor of Science in Political Science – Data Analytics — Jan 2019-Jul 2021

PUBLICATIONS

- Chen, X.*, …, **Lee, H. J.**, et al. Ovarian Tumor FAK Inhibition Releases Omega-3 Fatty Acids Stimulating GATA6 Peritoneal Macrophage CXCL13 Production Enhancing Immunotherapy. *Submitted in 2025*.
- **Lee, H.**, Chen, X., Ozmadenci, D. et al. Liposomal doxorubicin, but not platinum-taxane, supports MHC-II expression and immune maturation in the ovarian cancer tumor microenvironment. *Cancers 2025.*
- Erdem, S.*, **Lee, H. J.***, Suryanarayanan, J.*, et al. Inhibition of SUMOylation Induces Adaptive Anti-Tumor Immunity Against Pancreatic Cancer through Multiple Effects on the Tumor Microenvironment. *Molecular Cancer Therapeutics 2024*.
- Li, K.*, Courelli, A.*, **Lee, H. J.,** et al. SUMO Inhibition Plus CD40 Agonism Increases Anti-Tumor Immunogenicity Through Interferon Mediated Macrophage Activation. *bioRxiv 2024*.
- Courelli, A., Li, K., **Lee, J.**, et al. Abstract B043: Synergy of Subasumstat and anti-CD40 improves survival by augmenting tumor macrophage infiltration. *Cancer Research 2024*
- Weitz, J.*, Hurtado de Mendoza, T.*, …, **Lee, J.**, et al. An Ex Vivo Organotypic Culture Platform for Functional Interrogation of Human Appendiceal Cancer Reveals a Prominent and Heterogenous Immunological Landscape. *Clinical Cancer Research 2022*.

*Co-first authorship

RESEARCH EXPERIENCE

New York Genome Center — New York, NY
Research Assistant - Sanjana Lab — June 2025 – Present
Master's Student - Sanjana Lab — Aug 2024 – June 2025

- Design and execute genome-wide screens in human primary NK cells to identify novel genetic regulators
- Lead in vivo Cas13 CRISPR screens in mouse models to investigate genetic regulators of metabolic-associated steatotic liver disease (MASLD)
- Established single-cell CRISPR analysis pipeline to identify genetic regulators in autism spectrum disorder

Scale Biosciences (Now part of 10x Genomics) San Diego, CA

Research Associate Jan 2023 – Jul 2024

- Co-developed QuantumScale single-cell RNA assay using combinatorial indexing, including assay development and bioinformatics pipeline optimization
- Co-developed TotalSeq PhenoCyte single-cell protein assay in collaboration with Biolegend
- Independently designed and implemented bioinformatics pipelines for internal scRNA-seq data analysis, enabling assay optimization

UC San Diego, Moores Cancer Center La Jolla, CA

Research Associate - Stupack Lab Jan 2023 – Oct 2023

- Conducted scRNA-seq analysis of high-grade serous ovarian cancer, delivering key insights into platinum-based chemotherapy resistance

Research Associate - Chen Lab Aug 2021 – Nov 2022

Undergraduate Research Assistant - Chen Lab Feb 2020 – Jul 2021

- Investigated tumor microenvironment changes in pancreatic ductal adenocarcinoma, uncovering significant changes in tumor-infiltrating lymphocytes and macrophage polarization upon SUMOylation inhibition
- Evaluated the immunomodulatory effects of SUMOylation inhibition in CAR-T

PRESENTATIONS

- Croteau, J., Zhang, F., Zorzetto-Fernandes, A. L., Gong, H., **Lee, J.**, Magallon, R., Taylor, K., Steemers, F., James, B. Ultra-high parameter, instrument-free, protein profiling by sequencing using TotalSeq™ -A antibodies at scale. Poster at the AGBT General Meeting, Orlando, FL 2024. [Poster]
- **Lee, H. J.** Orthotopic mouse PDAC model and scRNA-seq to strategize potential combination therapies. UC San Diego Department of Surgery Symposium, San Diego, CA, 2022. [Talk]

SKILLS

- **Computational Biology**: Python, R, Bash, scRNA-seq analysis (Scanpy/Seurat), CRISPR screen analysis (SCEPTRE/PertPy), SQL, BioConductor, Machine Learning (scikit-learn, PyTorch, TensorFlow), AWS, HPC, Git, BLAST
- **Molecular Biology**: Single-cell RNA-seq, Bulk RNA-seq, NGS Library Preparation, CRISPR Screens
- **Cell Biology:** Flow Cytometry, Fluorescence Microscopy, Mammalian Cell Culture, Viral Transduction
- **In vivo**: Xenograft model, retro-orbital/tail-vein/intraperitoneal/subcutaneous injection, colony management