

Matthew G. Jones, PhD

NCI Early-Career K99/R00 Postdoctoral Fellow

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Education

2017–2022 **Ph.D., Bioinformatics, University of California, San Francisco**

Thesis Title: *Following tumor progression step-by-step with CRISPR/Cas9-based single-cell lineage tracing technologies and improved computational methods*

Research Advisors: Jonathan Weissman and Nir Yosef

Thesis Committee Members: Hani Goodarzi and Matthew Spitzer

2013–2017 **B.A., Computer Science, University of California, Berkeley**

Research Advisors: Rasmus Nielsen, Russ Corbett-Detig, & Nir Yosef

Academic Appointments

2022– **Stanford University**, NCI Early-Career K99/R00 Postdoctoral Fellow
Hosted by Howard Chang

2017–2022 **University of California, San Francisco**, Graduate Student Researcher
Advised by Jonathan Weissman and Nir Yosef

2020 **Weizmann Institute, Rehovot Israel**, Visiting Researcher Fellow
Hosted by Ido Amit

Publications

Preprints

- (1) Zhu K*, **Jones MG***, Luebeck J, Bu X, Yi H, Hung KL, Wong ITL, Zhang S, Mischel PS, Chang HY, Bafna V. [CoRAL accurately resolves extrachromosomal DNA genome structures with long-read sequencing](#). *BioRxiv* (Accepted to *RECOMB* 2024). 2024
- (2) Rose JC, Wong ITL, Daniel B, **Jones MG**, Hung KL, Curtis EJ, Mischel PS, Chang HY. [Disparate pathways for extrachromosomal DNA biogenesis and genomic DNA repair](#). *BioRxiv*. 2023
- (3) Hung K*, **Jones MG***, Wong I*, Curtis EJ*, ..., Mischel PS, Chang HY. [Coordinated inheritance of extrachromosomal DNA species in human cancer cells](#). *BioRxiv*. 2023

*** denotes equal contribution**

Journal Articles

- (1) Sinha S, ..., **Jones MG**, ...Ruppin E. [PERCEPTION predicts patient response and resistance to treatment using single-cell transcriptomics of their tumors](#). *Nature Cancer*. 2022
- (2) Weng C, Yu F, Yang D, Poeschla M, Liggett LA, **Jones MG**, ..., Weissman JS, Sankaran VG. [Deciphering cell states and genealogies of human hematopoiesis](#). *Nature*. 2023
- (3) Heumos L*, Schaar A*, ..., **Best Practice Writing Team**, Theis F. [New best practices for single cell analysis across modalities](#). *Nature Reviews Genetics*. 2023
- (4) **Jones MG***, Yang D, Weissman JS. [New Tools for Lineage Tracing in Cancer In vivo](#). *Annual Reviews Cancer Biology (In press)*. 2023
- (5) Yang D*, **Jones MG***, ..., Yosef N, Jacks T, Weissman JS. [Lineage tracing reveals the phylogenomics, plasticity, and paths of tumor evolution](#). *Cell*. 2022
- (6) **Jones MG***, Rosen Y*, Yosef N. [Interactive, integrated analysis of single-cell transcriptomic and phylogenetic data with PhyloVision](#). *Cell Reports Methods*. 2022.
- (7) Gong W*, Granados A*, Hu J*, **Jones MG***, Raz O*, Salvador-Martinez I*, Zhang H*, ..., Meyer P. [Benchmarked approaches for cell lineage reconstructions of in vitro dividing cells and in silico models of Caenorhabditis elegans and Mus musculus developmental trees](#). *Cell Systems*. 2021.
- (8) Quinn JJQ*, **Jones MG***, Okimoto RA, Nanjo S, Chan MM, Yosef N, Bivona TG, Weissman JS. [Single-cell lineages reveal the rates, routes, and drivers of metastasis in cancer xenografts](#). *Science*. 2021
- (9) **Jones MG***, Khodaverdian A*, Quinn JJ*, Chan MM, Hussmann JA, Wang R, Xu C, Weissman JS, Yosef N. [Inference of Single Cell Phylogenies from Lineage Tracing Data with Cassiopeia](#). *Genome Biology*. 2020
- (10) Newberry RW, ..., **Jones MG**, ..., DeGrado WF, Kampmann M. [Robust Sequence Determinants of \$\alpha\$ -Synuclein Toxicity in Yeast Implicate Membrane Binding](#). *ACS Chem. Biol.*. 2020
- (11) DeTomaso D*, **Jones MG***, Subramaniam M, Ashuach T, Ye JC, Yosef N. [Functional Interpretation of Single-Cell Similarity Maps](#). *Nature Communications*. 2019
- (12) Chan MM*, Smith ZD*, Grosswendt S, Kretzmer H, Norman T, Adamson B, Jost M, Quinn JJ, Yang D, **Jones MG**, Khodaverdian A, Yosef N, Meissner A, Weissman JS. [Molecular recording of mammalian embryogenesis](#). *Nature*. 2019
- (13) Corbett-Detig, R. and **Jones, M.** [SELAM: Simulation of Epistasis and Local adaptation during Admixture with Mate choice](#). *Bioinformatics*. 2016

*** denotes equal contribution**

Refereed Workshop Papers

- (1) Ouardini K, Lopez R, **Jones MG**, Prillo S, Zhang R, Jordan MI, Yosef N. [Reconstructing un-observed cellular states from paired single-cell lineage tracing and transcriptomics data](#). ICML Workshop in Computational Biology. 2021.

*** denotes equal contribution**

Book Chapters

- (1) **Jones MG***, Piran Z*. [Lineage tracing](#). *Multimodal single-cell analysis*. 2022

Teaching

2020	CS176: Algorithms for Computational Biology (TA)	University of California, Berkeley
2020	BP205B: Dynamical Systems Modeling (TA)	University of California, San Francisco
2019	BP205B: Dynamical Systems Modeling (TA)	University of California, San Francisco
2018	CS176: Algorithms for Computational Biology (TA)	University of California, Berkeley

Funding, Awards & Honors

2024-2028	NCI Pathway to Independence Award for Early-Stage Postdoctoral Researchers (K99/R00)
2019-2022	UCSF Discovery Fellowship
2020	Allen Institute Cell Lineage Reconstruction DREAM Challenge Best Performer
2019	Quantitative Biology Consortium Retreat Best Poster
2018	Quantitative Biology Consortium Retreat Best Poster

Presentations

Invited Talks

2024	Stanford Medicine EpiBio, seminar
2023	Stanford Medicine EpiBio, seminar
2023	Cell Circuits and Epigenomics @ Broad Institute, seminar
2023	Department of Molecular and Cellular Biology @ UC Berkeley, seminar
2022	Stanford Biostatistics Workshop, seminar
2022	UCSF Single Cell Interest Group, seminar
2022	Cell Circuits and Epigenomics @ Broad Institute, seminar
2021	Greenleaf Lab @ Stanford, group meeting
2021	Cellular & Tissue Genomics @ Genentech, seminar
2021	Wysocka Lab @ Stanford, group meeting
2021	Chang Lab @ Stanford, group meeting
2021	Weinberg Lab @ MIT, journal club
2021	Royer Group @ Biohub & Wagner Group @ UCSF, group meeting
2021	AI/ML @ Genentech, seminar
2021	NIH Single Cell Users Group, seminar
2021	Yale Center for Biomedical Data Science, seminar
2020	UC Berkeley Computational Biology Skills Seminar, seminar
2019	UC Berkeley Computational Biology Skills Seminar, seminar

Contributed Talks

- 2024 Oxford Nanopore Technologies London Calling 2024, CoRAL team presentation
- 2024 RECOMB 2024, CoRAL team presentation
- 2023 eDyNAmiC Cancer Grand Challenge Annual Symposium, seminar
- 2021 NIH Centers of Excellence in Genomic Science (CEGS) Annual Meeting
- 2021 Society for Molecular Biology and Evolution (SMBE) Annual Meeting
- 2021 The Cancer Target Discovery and Development Alliance NIH Site Visit
- 2021 CZI Biohub Seed Networks Computational Biology Meeting
- 2020 Hindsight 2020 - The Allen Institute Developmental Recording Symposium
- 2020 CZI Seed Network 2020 Annual Meeting
- 2020 Center for Genomic Editing and Recording (CGER) Retreat
- 2019 UC Berkeley Computational and Genomic Biology Retreat
- 2019 Quantitative Biology Consortium Retreat

Posters

- 2024 Oxford Nanopore Technologies London Calling 2024
- 2023 Mechanisms and Models of Cancer
- 2023 UCLA Computational Genomics Summer Institute (CGSI)
- 2019 Quantitative Biology Consortium Retreat
- 2019 Chan-Zuckerberg Biohub Confab
- 2019 Next Generation Genomics
- 2018 Quantitative Biology Consortium Retreat

Industry Experience

- 2022- Vevo Therapeutics, single-cell advisor and consultant
- 2020 Google Health Genomics, research intern
- 2016 United States Medical Affairs @ Genentech, intern

Professional Activities & Service

2023	Volunteer lecturer for Stanford Future Advances of Science and Technology (FAST) high school mentorship program
2022-2023	Volunteer lecturer at Berkeley High School, IB & AP Biology
2020-2021	UC Berkeley Computational Biology Skills Seminar, coordinator
2019	UC Berkeley Computational Biology Skills Seminar, volunteer module leader
2018-2019	Northern California Computational Biology Student Symposium, coordinator
2019	UCSF Integrative Program in Quantitative Biology (IPQB) Bootcamp, coordinator
2018	UCSF Integrative Program in Quantitative Biology (IPQB) Bootcamp, Bioinformatics Module Leader

Software

CoRAL	Tool for reconstructing focal amplifications using long-read sequencing data.
Cassiopeia	Analysis tools for single-cell lineage tracing data.
VISION	Functional annotation of scRNA-seq data.
SELAM	Simulation framework for large-scale population admixture.

References

Available on request.