
Michael Sellers Cuoco

PhD Student, Bioinformatics and Systems Biology

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Research interests Retrotransposon activity in the developing, aging, and diseased human brain.

Education

University of California, San Diego	La Jolla, California
PhD in Bioinformatics and Systems Biology	In Progress
Advised by Rusty Gage and Eran Mukamel	
Trinity College	Hartford, Connecticut
BS in Molecular and Cellular Biology	May 2016
Minor in Models and Data	

Honors and Awards

NSF Graduate Research Fellowship	2022
<i>National Science Foundation (NSF)</i>	
Spot Award	2017
<i>Broad Institute</i>	
Beta Beta Beta National Biology Honors Society	2014
<i>Trinity College</i>	
NESCAC Winter All-Academic Team	2014
<i>Trinity College</i>	

Research experience

PhD Student	2020 – Present
<i>UC San Diego, Salk Institute</i>	La Jolla, California
Mentors: Rusty Gage and Eran Mukamel	
Research Associate	2016 – 2020
<i>Broad Institute</i>	Cambridge, Massachusetts
Mentors: Aviv Regev, Benjamin Izar, Pratiksha Thakore, Yaara Oren	
Undergraduate Researcher	2014 – 2016
<i>Dana-Farber Cancer Institute</i>	Boston, Massachusetts
Mentors: Matthew Meyerson and Alison Taylor	
Undergraduate Researcher	2013
<i>Trinity College</i>	Hartford, Connecticut
HHMI Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science program. (SEA-PHAGES: seaphages.org)	

Research: Published

- Eraslan, G., Drokhylyansky, E., Anand, S., Fiskin, E., Subramanian, A., Slyper, M., Wang, J., Wittenberghe, N. V., Rouhana, J. M., Waldman, J., Ashenberg, O., Lek, M., Dionne, D., Win, T. S., **Cuoco, M. S.**, Kuksenko, O., Tsankov, A. M., Branton, P. A., Marshall, J. L., Greka, A., Getz, G., Segrè, A. V., Aguet, F., Rozenblatt-Rosen, O., Ardlie, K. G., Regev, A., “Single-nucleus cross-tissue molecular reference maps toward understanding disease gene function.” In: *Science (New York, N.Y.)* 376 (6594 May 14, 2022). DOI: 10.1126/science.abl4290.
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- Li, J., Pinto-Duarte, A., Zander, M., **Cuoco, M. S.**, Lai, C.-Y., Osteen, J., Fang, L., Luo, C., Lucero, J. D., Gomez-Castanon, R., Nery, J. R., Silva-Garcia, I., Pang, Y., Sejnowski, T. J., Powell, S. B., Ecker, J. R., Mukamel, E. A., Behrens, M. M., “Dnmt3a knockout in excitatory neurons impairs postnatal synapse maturation and increases the repressive histone modification H3K27me3.” In: *eLife* 11 (May 24, 2022). DOI: 10.7554/eLife.66909.
- Bi, K., He, M. X., Bakouny, Z., Kanodia, A., Napolitano, S., Wu, J., Grimaldi, G., Braun, D. A., **Cuoco, M. S.**, Mayorga, A., DelloStritto, L., Bouchard, G., Steinharter, J., Tewari, A. K., Vokes, N. I., Shannon, E., Sun, M., Park, J., Chang, S. L., McGregor, B. A., Haq, R., Denize, T., Signoretti, S., Guerriero, J. L., Vigneau, S., Rozenblatt-Rosen, O., Rotem, A., Regev, A., Choueiri, T. K., Allen, E. M. V., “Tumor and immune reprogramming during immunotherapy in advanced renal cell carcinoma.” In: *Cancer cell* 39 (5 Mar. 13, 2021). DOI: 10.1016/j.ccell.2021.02.015.
- Frangieh, C. J., Melms, J. C., Thakore, P. I., Geiger-Schuller, K. R., Ho, P., Luoma, A. M., Cleary, B., Jerby-Arnon, L., Malu, S., **Cuoco, M. S.**, Zhao, M., Ager, C. R., Rogava, M., Hovey, L., Rotem, A., Bernatchez, C., Wucherpfennig, K. W., Johnson, B. E., Rozenblatt-Rosen, O., Schadendorf, D., Regev, A., Izar, B., “Multimodal pooled Perturb-CITE-seq screens in patient models define mechanisms of cancer immune evasion.” In: *Nature genetics* 53 (3 Mar. 2021). DOI: 10.1038/s41588-021-00779-1.
- He, M. X., **Cuoco, M. S.**, Crowdis, J., Bosma-Moody, A., Zhang, Z., Bi, K., Kanodia, A., Su, M.-J., Ku, S.-Y., Garcia, M. M., Sweet, A. R., Rodman, C., DelloStritto, L., Silver, R., Steinharter, J., Shah, P., Izar, B., Walk, N. C., Burke, K. P., Bakouny, Z., Tewari, A. K., Liu, D., Camp, S. Y., Vokes, N. I., Salari, K., Park, J., Vigneau, S., Fong, L., Russo, J. W., Yuan, X., Balk, S. P., Beltran, H., Rozenblatt-Rosen, O., Regev, A., Rotem, A., Taplin, M.-E., Allen, E. M. V., “Transcriptional mediators of treatment resistance in lethal prostate cancer.” In: *Nature medicine* 27 (3 Mar. 2021). DOI: 10.1038/s41591-021-01244-6.
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- Li, A., Herbst, R. H., Canner, D., Schenkel, J. M., Smith, O. C., Kim, J. Y., Hillman, M., Bhutkar, A., **Cuoco, M. S.**, Rappazzo, C. G., Rogers, P., Dang, C., Jerby-Arnon, L., Rozenblatt-Rosen, O., Cong, L., Birnbaum, M., Regev, A., Jacks, T., “IL-33 Signaling Alters Regulatory T Cell Diversity in Support of Tumor Development.” In: *Cell reports* 29 (10 Dec. 2019). DOI: 10.1016/j.celrep.2019.10.120.
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Research: Preprint

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Teaching / Mentorship

Undergraduate mentor	2021 – Present
<i>UCSD Biology Undergraduate and Master’s</i>	La Jolla, California
Bootcamp instructor	Fall 2021, Fall 2022
<i>Bioinformatics and Systems Biology, UCSD</i>	La Jolla, California
Teaching assistant	Spring 2015
<i>Department of Biology, Trinity College</i>	Hartford, Connecticut
BIOL 224: Genetics	
Tutor	2014 – 2016
<i>Department of Biology, Trinity College</i>	Hartford, Connecticut
BIOL 182: Evolution of Life	
BIOL 183: Cellular Basis of Life	
BIOL 224: Genetics	

Service / Outreach

Committee Member	2021 – Present
<i>Advisory Committee on Diversity</i>	La Jolla, California
<i>Salk Institute for Biological Studies</i>	
Director of Onboarding	2021 – Present
Symposium Organizer	2022
<i>Graduate Bioinformatics Council</i>	La Jolla, California
<i>UCSD Bioinformatics and Systems Biology</i>	
Committee Member	2020 – Present
<i>Diversity Equity and Inclusion Committee</i>	La Jolla, California
<i>UCSD Bioinformatics and Systems Biology</i>	
Seminar Organizer	2021
Symposium Organizer	Fall 2021
<i>Diversity and Science Lecture Series</i>	La Jolla, California

UCSD

Volunteer - High Tech High Mesa

Fall 2021

Volunteer - La Jolla High School

Fall 2021

SciChats@Salk Education Outreach

La Jolla, California

Salk Institute for Biological Studies

Profficiencies / Skills

Programming Languages

R, Python, Bash

Data Analysis

Single-cell genomics: Seurat, scanpy, pegasus

Pipeline development: Workflow development language (WDL), Snake-make

Job managers: Cromwell, Sun Grid Engine (SGE), Slurm, PBS-Torque

Cloud computing: Google Cloud Platform (GCP), Terra

Visualization: ggplot, matplotlib

Programmatic Reporting

Notebooks / Slides: Quarto, Rmarkdown, Jupyter Notebooks

Websites: Jekyll, Bookdown, Blogdown, Jupyter Book

Software Development

Git, GitHub, GitHub Actions CI/CD