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# Michael Sellers Cuoco

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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  
Thesis Committee:  
• Fred H. Gage, PhD (Chair)  
• Eran A. Mukamel, PhD (Co-Chair)  
• Graham McVicker, PhD  
• Melissa Gymrek, PhD  
• Nicholas Schork, PhD

**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  
*National Science Foundation (NSF)*  
Spot Award    2017  
*Broad Institute*  
Beta Beta Beta National Biology Honors Society    2014  
*Trinity College*  
NESCAC Winter All-Academic Team    2014  
*Trinity College*

## Research experience

**PhD Student**    2020 – Present  
*Gage Lab, Salk Institute for Biological Studies*    La Jolla, California  
*Mukamel Lab, UC San Diego*    La Jolla, California  
Mentors: Fred H. Gage and Eran A. Mukamel

**Research Associate**    2016 – 2020  
*Regev Lab, Broad Institute*    Cambridge, Massachusetts  
Mentors: Aviv Regev, Benjamin Izar, Pratiksha Thakore, Yaara Oren

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**Undergraduate Researcher**

2014 – 2016

*Meyerson Lab, Dana-Farber Cancer Institute*

Boston, Massachusetts

Mentors: Matthew Meyerson and Alison Taylor

**Undergraduate Researcher**

2013

*Trinity College*

Hartford, Connecticut

HHMI Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science program. (SEA-PHAGES: seaphages.org)

**Research: Published**

- Otto, J. E., Ursu, O., Wu, A. P., Winter, E. B., **Cuoco, M. S.**, Ma, S., Qian, K., Michel, B. C., Buenrostro, J. D., Berger, B., Regev, A., Kadoch, C., “Structural and functional properties of mSWI/SNF chromatin remodeling complexes revealed through single-cell perturbation screens.” In: *Molecular cell* 83 (8 Apr. 2023). DOI: 10.1016/j.molcel.2023.03.013.
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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.
- Jerby-Arnon, L., Neftel, C., Shore, M. E., Weisman, H. R., Mathewson, N. D., McBride, M. J., Haas, B., Izar, B., Volorio, A., Boulay, G., Cironi, L., Richman, A. R., Broye, L. C., Gorski, J. M., Luo, C. C., Mylvaganam, R., Nguyen, L., Mei, S., Melms, J. C., Georgescu, C., Cohen, O., Buendia-Buendia, J. E., Segerstolpe, A., Sud, M., **Cuoco, M. S.**, Labes, D., Gritsch, S., Zollinger, D. R., Ortogero, N., Beechem, J. M., Nielsen, G. P., Chebib, I., Nguyen-Ngoc, T., Montemurro, M., Cote, G. M., Choy, E., Letovanec, I., Cherix, S., Wagle, N., Sorger, P. K., Haynes, A. B., Mullen, J. T., Stamenkovic, I., Rivera, M. N., Kadoch, C., Wucherpennig, K. W., Rozenblatt-Rosen, O., Suvà, M. L., Riggi, N., Regev, A., “Opposing immune and genetic mechanisms shape oncogenic programs in synovial sarcoma.” In: *Nature medicine* 27 (2 Jan. 27, 2021). DOI: 10.1038/s41591-020-01212-6.
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- Kinker, G. S., Greenwald, A. C., Tal, R., Orlova, Z., **Cuoco, M. S.**, McFarland, J. M., Warren, A., Rodman, C., Roth, J. A., Bender, S. A., Kumar, B., Rocco, J. W., Fernandes, P. A. C. M., Mader, C. C., Keren-Shaul, H., Plotnikov, A., Barr, H., Tsherniak, A., Rozenblatt-Rosen, O., Krizhanovsky, V., Puram, S. V., Regev, A., Tirosh, I., “Pan-cancer single-cell RNA-seq identifies recurring programs of cellular heterogeneity.” In: *Nature genetics* 52 (11 Nov. 2020). DOI: 10.1038/s41588-020-00726-6.
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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.
- Jerby-Arnon, L., Shah, P., **Cuoco, M. S.**, Rodman, C., Su, M.-J., Melms, J. C., Leeson, R., Kanodia, A., Mei, S., Lin, J.-R., Wang, S., Rabasha, B., Liu, D., Zhang, G., Margolais, C., Ashenberg, O., Ott, P. A., Buchbinder, E. I., Haq, R., Hodi, F. S., Boland, G. M., Sullivan, R. J., Frederick, D. T., Miao, B., Moll, T., Flaherty, K. T., Herlyn, M., Jenkins, R. W., Thummalapalli, R., Kowalczyk, M. S., Cañadas, I., Schilling, B., Cartwright, A. N. R., Luoma, A. M., Malu, S., Hwu, P., Bernatchez, C., Forget, M.-A., Barbie, D. A., Shalek, A. K., Tirosh, I., Sorger, P. K., Wucherpfennig, K., Allen, E. M. V., Schadendorf, D., Johnson, B. E., Rotem, A., Rozenblatt-Rosen, O., Garraway, L. A., Yoon, C. H., Izar, B., Regev, A., “A Cancer Cell Program Promotes T Cell Exclusion and Resistance to Checkpoint Blockade.” In: *Cell* 175 (4 Nov. 2018). DOI: 10.1016/j.cell.2018.09.006.
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## Research: Preprint

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## Mentorship

<b>Joelle Faybishenko</b>	Fall 2022 – present
Undergraduate Student, UC San Diego	
<i>Gage Lab, Salk Institute for Biological Studies</i>	La Jolla, California
<b>Evan Lee</b>	Fall 2022 – present
Undergraduate Student, UC San Diego	
<i>Biology Undergraduate and Master's Mentorship,</i>	La Jolla, California
<b>Rohini Gadde</b>	Fall 2021 – present
Undergraduate Student, UC San Diego	
<i>Mukamel Lab, UC San Diego</i>	La Jolla, California

Teaching	<b>Anise Porter</b>	Fall 2020 – present
	Undergraduate Student, UC San Diego	
	<i>Biology Undergraduate and Master's Mentorship,</i>	La Jolla, California
	<b>Jesslyn Goh</b>	Fall 2019 – 2020
	Undergraduate Student, Wellesley College	
	<i>Regev Lab, Broad Institute</i>	Cambridge, Massachusetts
	<b>Current:</b> Masters Student, Harvard University	Boston, Massachusetts
	<b>Bootcamp instructor</b>	Fall 2021, Fall 2022
	<i>Bioinformatics and Systems Biology, UCSD</i>	La Jolla, California
	<b>Teaching assistant</b>	Spring 2015
Service / Outreach	<i>Department of Biology, Trinity College</i>	Hartford, Connecticut
	BIOL 224: Genetics	
	<b>Tutor</b>	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	
	<b>Committee Member</b>	2021 – Present
	<i>Advisory Committee on Diversity</i>	La Jolla, California
	<i>Salk Institute for Biological Studies</i>	
	<b>Director of Onboarding</b>	2021 – Present
	<b>Symposium Organizer</b>	2022
	<i>Graduate Bioinformatics Council</i>	La Jolla, California
	<i>UCSD Bioinformatics and Systems Biology</i>	
	<b>Committee Member</b>	2020 – Present
	<i>Diversity Equity and Inclusion Committee</i>	La Jolla, California
	<i>UCSD Bioinformatics and Systems Biology</i>	
	<b>Seminar Organizer</b>	2021
	<b>Symposium Organizer</b>	Fall 2021
	<i>Diversity and Science Lecture Series</i>	La Jolla, California
	<i>UCSD</i>	
	<b>Volunteer</b> - High Tech High Mesa	Fall 2021
	<b>Volunteer</b> - La Jolla High School	Fall 2021
	<i>SciChats@Salk Education Outreach</i>	La Jolla, California

Proficiencies / Skills

**Programming Languages**

R, Python, Bash