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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.
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- 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., Wucherpennig, 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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- Drokhlyansky, E., Smillie, C. S., Wittenberghe, N. V., Ericsson, M., Griffin, G. K., Eraslan, G., Dionne, D., **Cuoco, M. S.**, Goder-Reiser, M. N., Sharova, T., Kuksenkov, O., Aguirre, A. J., Boland, G. M., Graham, D., Rozenblatt-Rosen, O., Xavier, R. J., Regev, A., “The Human and Mouse Enteric Nervous System at Single-Cell Resolution.” In: *Cell* 182 (6 Sept. 2020). DOI: 10.1016/j.cell.2020.08.003.
- Izar, B., Tirosh, I., Stover, E. H., Wakiro, I., **Cuoco, M. S.**, Alter, I., Rodman, C., Leeson, R., Su, M.-J., Shah, P., Iwanicki, M., Walker, S. R., Kanodia, A., Melms, J. C., Mei, S., Lin, J.-R., Porter, C. B. M., Slyper, M., Waldman, J., Jerby-Arnon, L., Ashenberg, O., Brinker, T. J., Mills, C., Rogava, M., Vigneau, S., Sorger, P. K., Garraway, L. A., Konstantinopoulos, P. A., Liu, J. F., Matulonis, U., Johnson, B. E., Rozenblatt-Rosen, O., Rotem, A., Regev, A., “A single-cell landscape of high-grade serous ovarian cancer.” In: *Nature medicine* 26 (8 June 24, 2020). DOI: 10.1038/s41591-020-0926-0.
- 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.
- Mao, P., Cohen, O., Kowalski, K. J., Kusiak, J. G., Buendia-Buendia, J. E., **Cuoco, M. S.**, Exman, P., Wander, S. A., Waks, A. G., Nayar, U., Chung, J., Freeman, S., Rozenblatt-Rosen, O., Miller, V. A., Piccioni, F., Root, D. E., Regev, A., Winer, E. P., Lin, N. U., Wagle, N., “Acquired FGFR and FGF Alterations Confer Resistance to Estrogen Receptor (ER) Targeted Therapy in ER+ Metastatic Breast Cancer.” In: *Clinical cancer research* 26 (22 July 30, 2020). DOI: 10.1158/1078-0432.CCR-19-3958.
- 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

Boyle, E. A., Goldberg, G., Schmok, J. C., Burgado, J., Izidro Layng, F., Grunwald, H. A., Balotin, K. M., **Cuoco, M. S.**, Chang, K.-C., Ecklu-Mensah, G., Arakaki, A. K. S., Ahmed, N., Garcia Arceo, X., Jagannatha, P., Pekar, J., Iyer, M., Alliance, D., Yeo, G. W., “Junior scientists spotlight social bonds in seminars for diversity, equity, and inclusion in STEM”. In: *BioRxiv* (2022). DOI: 10.1101/2021.12.05.471284.

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Frangieh, C. J., Melms, J. C., Thakore, P. I., Geiger-Schuller, K. R., Ho, P., Luoma, A. M., Cleary, B. R., Malu, S., **Cuoco, M. S.**, Zhao, M., Rogava, M., Hovey, L., Rotem, A., Bernatchez, C., Wucherpennig, K. W., Johnson, B. E., Rozenblatt-Rosen, O., Schadendorf, D., Regev, A., Izar, B., “Multi-modal pooled Perturb-CITE-Seq screens in patient models define novel mechanisms of cancer immune evasion”. In: *BioRxiv* (2020). DOI: 10.1101/2020.09.01.267211.

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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<br><i>Mukamel Lab, UC San Diego</i>   | La Jolla, California                           |
|                    | <b>Anise Porter</b><br>Undergraduate Student, UC San Diego<br><i>Biology Undergraduate and Master's Mentorship,</i>                                     | Fall 2020 – present<br>La Jolla, California    |
|                    | <b>Jesslyn Goh</b><br>Undergraduate Student, Wellesley College<br><i>Regev Lab, Broad Institute</i>   | Fall 2019 – 2020<br>Cambridge, Massachusetts   |
|                    | <b>Current:</b> Masters Student, Harvard University   | Boston, Massachusetts                          |
| Teaching           | <b>Bootcamp instructor</b><br><i>Bioinformatics and Systems Biology, UCSD</i>   | Fall 2021, Fall 2022<br>La Jolla, California   |
|                    | <b>Teaching assistant</b><br><i>Department of Biology, Trinity College</i><br>BIOL 224: Genetics  | Spring 2015<br>Hartford, Connecticut           |
|                    | <b>Tutor</b><br><i>Department of Biology, Trinity College</i><br>BIOL 182: Evolution of Life<br>BIOL 183: Cellular Basis of Life<br>BIOL 224: Genetics  | 2014 – 2016<br>Hartford, Connecticut           |
| Service / Outreach | <b>Committee Member</b><br><i>Advisory Committee on Diversity</i><br><i>Salk Institute for Biological Studies</i>                                       | 2021 – Present<br>La Jolla, California         |
|                    | <b>Director of Onboarding</b><br><b>Symposium Organizer</b><br><i>Graduate Bioinformatics Council</i><br><i>UCSD Bioinformatics and Systems Biology</i> | 2021 – Present<br>2022<br>La Jolla, California |
|                    | <b>Committee Member</b><br><i>Diversity Equity and Inclusion Committee</i><br><i>UCSD Bioinformatics and Systems Biology</i>                            | 2020 – Present<br>La Jolla, California         |
|                    | <b>Seminar Organizer</b><br><b>Symposium Organizer</b><br><i>Diversity and Science Lecture Series</i><br><i>UCSD</i>                                    | 2021<br>Fall 2021<br>La Jolla, California      |
|                    | <b>Volunteer</b> - High Tech High Mesa  | Fall 2021                                      |

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**Volunteer** - La Jolla High School  
*SciChats@Salk Education Outreach*  
*Salk Institute for Biological Studies*

Fall 2021  
La Jolla, California

Proficiencies / Skills

**Programming Languages**  
R, Python, Bash