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# 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

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

- Subramanian, A., Vernon, K. A., Zhou, Y., Marshall, J. L., Alimova, M., Arevalo, C., Zhang, F., Slyper, M., Waldman, J., Montesinos, M. S., Dionne, D., Nguyen, L. T., **Cuoco, M. S.**, Dubinsky, D., Purnell, J., Keller, K., Sturner, S. H., Grinkevich, E., Ghoshal, A., Kotek, A., Trivioli, G., Richoz, N., Humphrey, M. B., Darby, I. G., Miller, S. J., Xu, Y., Weins, A., Chloe-Villani, A., Chang, S. L., Kretzler, M., Rosenblatt-Rosen, O., Shaw, J. L., Zimmerman, K. A., Clatworthy, M. R., Regev, A., Greka, A., “Protective role for kidney TREM2high macrophages in obesity- and diabetes-induced kidney injury.” In: *Cell reports* 43 (6 May 23, 2024). DOI: 10.1016/j.celrep.2024.114253.
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- 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.
- Shih, J., Sarmashghi, S., Zhakula-Kostadinova, N., Zhang, S., Georgis, Y., Hoyt, S. H., **Cuoco, M. S.**, Gao, G. F., Spurr, L. F., Berger, A. C., Ha, G., Rendo, V., Shen, H., Meyerson, M., Cherniack, A. D., Taylor, A. M., Beroukhi, R., “Cancer aneuploidies are shaped primarily by effects on tumour fitness.” In: *Nature* 619 (7971 June 29, 2023). DOI: 10.1038/s41586-023-06266-3.
- Eraslan, G., Drokhyansky, 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.**, Kuksenkov, 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.ab14290.
- Hwang, W. L., Jagadeesh, K. A., Guo, J. A., Hoffman, H. I., Yadollahpour, P., Reeves, J. W., Mohan, R., Drokhyansky, E., Wittenberghe, N. V., Ashenberg, O., Farhi, S. L., Schapiro, D., Divakar, P., Miller, E., Zollinger, D. R., Eng, G., Schenkel, J. M., Su, J., Shiau, C., Yu, P., Freed-Pastor, W. A., Abbondanza, D., Mehta, A., Gould, J., Lambden, C., Porter, C. B. M., Tsankov, A., Dionne, D., Waldman, J., **Cuoco, M. S.**, Nguyen, L., Delorey, T., Phillips, D., Barth, J. L., Kem, M., Rodrigues, C., Ciprini, D., Roldan, J., Zelga, P., Jorgji, V., Chen, J. H., Ely, Z., Zhao, D., Fuhrman, K., Fropf, R., Beechem, J. M., Loeffler, J. S., Ryan, D. P., Weekes, C. D., Ferrone, C. R., Qadan, M., Aryee, M. J., Jain, R. K., Neuberg, D. S., Wo, J. Y., Hong, T. S., Xavier, R., Aguirre, A. J., Rozenblatt-Rosen, O., Mino-Kenudson, M., Castillo, C. F.-D., Liss,

- A. S., Ting, D. T., Jacks, T., Regev, A., “Single-nucleus and spatial transcriptome profiling of pancreatic cancer identifies multicellular dynamics associated with neoadjuvant treatment.” In: *Nature genetics* 54 (8 July 29, 2022). DOI: 10.1038/s41588-022-01134-8.
- 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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- Raundhal, M., Ghosh, S., Myers, S. A., **Cuoco, M. S.**, Singer, M., Carr, S. A., Waikar, S. S., Bonventre, J. V., Ritz, J., Stone, R. M., Steensma, D. P., Regev, A., Glimcher, L. H., “Blockade of IL-22 signaling reverses erythroid dysfunction in stress-induced anemias.” In: *Nature immunology* 22 (4 Mar. 24, 2021). DOI: 10.1038/s41590-021-00895-4.
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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., Kuksenko, 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.
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## Research: Preprint

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## Mentorship

|   |                          |
|---|--------------------------|
| <b>Joelle Faybishenko</b>   | Fall 2022 – present      |
| Undergraduate Student, UC San Diego<br><i>Gage Lab, Salk Institute for Biological Studies</i> | La Jolla, California     |
| <b>Evan Lee</b>   | Fall 2022 – present      |
| Undergraduate Student, UC San Diego<br><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>   | Fall 2020 – present      |
| Undergraduate Student, UC San Diego<br><i>Biology Undergraduate and Master’s Mentorship,</i>  | La Jolla, California     |
| <b>Jesslyn Goh</b>  | Fall 2019 – 2020         |
| Undergraduate Student, Wellesley College<br><i>Regev Lab, Broad Institute</i>                 | Cambridge, Massachusetts |
| <b>Current:</b> Masters Student, Harvard University   | Boston, Massachusetts    |

## Teaching

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

## Service / Outreach

|  |                      |
|--|----------------------|
| <b>Committee Member</b>                | 2021 – Present       |
| <i>Advisory Committee on Diversity</i> | La Jolla, California |

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*Salk Institute for Biological Studies*

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| <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>                                 |                      |

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|--|----------------------|
| <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 |
| <i>Salk Institute for Biological Studies</i> |                      |

Proficiencies / Skills

**Programming Languages**

R, Python, Bash