Cameron S. Movassaghi

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Education

Post-doc	Cedars-Sinai Medical Center Department of Computational Biomedicine	Jul. 2024 - Present
Ph.D.	University of California, Los Angeles (UCLA) Analytical Chemistry	Aug. 2019 - Jun. 2024
B.S.	University of North Carolina (UNC) at Chapel Hill Chemistry; Entrepreneurship minor	Aug. 2012 - May 2016

Research Experience

Post-doctoral Scientist | Prof. JG Meyer | Cedars-Sinai | Los Angeles, CA Jul. 2024 – present

- Single cell proteomics for skeletal muscle aging
- Automated, high-throughput proteomics for drug screening
- Sample preparation method development and liquid handling automation
- Pharmacokinetics for chemotherapeutics
- Cell culture, laboratory automation, liquid chromatography-mass spectrometry, discovery proteomics, bioinformatics

Graduate Researcher | Prof. AM Andrews | Dept. of Chemistry | UCLA Jul. 2019 – Jun. 2024

- Created a Bayesian optimization approach to discover new electrochemical sensing parameters.
- Built an open-source, interactive software for voltammetry data acquisition and data-processing.
- Designed *in vitro* and *in vivo* experiments to validate new biosensing protocols and data analysis techniques. Published one of the first studies to detect brain serotonin and dopamine simultaneously in behaving mice across physiological timescales using electrochemistry and machine learning.
- Directly involved in securing training and research grants totaling over $700k in funding.

Research Fellow | Centers for Disease Control and Prevention (CDC) | Atlanta, GA Jun. 2016 – May 2019

- Implemented, optimized, and validated liquid chromatography-mass spectrometry (UPLC-MS/MS) methods for metabolomics studies of health biomarkers (>17,000 samples/year).
- Developed a solid-phase extraction method and improved chromatographic separation to increase urinalysis sensitivity of >20 metabolites simultaneously in <5 min.
- Published a novel data processing protocol to decrease detection limits of halogenated metabolites up to 3x.

Undergraduate Researcher | Prof. MT Crimmins | Dept. of Chemistry | UNC Aug. 2015 – May 2016

- Worked towards the total synthesis of (3Z)-isoprelaurefucin using enantioselective reactions.
- Performed structural elucidation of small molecules using UV, NMR, and FTIR instruments.

Research Intern | HyperBranch Medical Tech., Inc. | Durham, NC Summer 2014 & 15

- Independently studied extraction and stability of derivatized polyethylene glycol polymers. Designed a green and efficient solvent system. Manufactured medical devices in a GMP/clean-room environment.

Honors & Awards

UCLA Norma Stoddart Prize	2025
UCLA Dissertation Year Fellowship	2023
Ford Foundation Dissertation Fellowship, Honorable Mention	2023
Society for Electroanalytical Chemistry (SEAC) Rising Star Award	2022
National Science Foundation (NSF) Graduate Research Fellowship	2020
UCLA University Fellowship	2019
CDC Division of Laboratory Sciences ORISE Award for Research	2018
UNC Graduate with Distinction	2016
UNC HEELprint Achievement Award	2016

PUBLICATIONS

1. **Movassaghi CS** *et al.* Large-scale single skeletal muscle fiber proteomics reveals age-dependent and senescence-related proteins. *In preparation.*
2. **Movassaghi CS**, Andrews AM. Machine learning applications to quantify neurochemicals in the brain using fast voltammetry: a critical review. *Submitted.*
3. Baird S *et al.* Bayesian optimization hackathon for chemistry and materials. *ChemRxiv* (2025)
4. **Movassaghi CS,** Meyer JG. Antibiotics rewire core metabolic and ribosomal programs in mammalian cells. *bioRxiv* (2025)
5. **Movassaghi CS,** Sun J, Jiang Y, Turner N, Chang V, Chung N, Chen RJ, Browne EN, Lin C, Schweppe DK, Malaker SN, Meyer JG. Recent advances in mass spectrometry-based bottom-up proteomics. *Analytical Chemistry* (2025). doi.org/10.1021/acs.analchem.4c06750
6. **Movassaghi CS**, Perrotta KA, Curry M, Nashner A, Nguyen K, Wesely M, Alcañiz M, Liu C, Meyer AS, Andrews AM. Machine-learning-guided design of electroanalytical pulse waveforms. *Digital Discovery* (2025) | GitHub
7. **Movassaghi CS**, Iyer R, Curry M, Wesely M, Alcañiz M, Andrews AM. SeroWare: An open-source, end-to-end software suite for voltammetric acquisition and analysis of neurotransmitters. *ACS Chemical Neuroscience* (2025). doi.org/10.1021/acschemneuro.4c00799 | GitHub
8. **Movassaghi CS**, Alcañiz M, Kishida KT, McCarty G, Sombers LA, Wassum KM, Andrews AM. Maximizing electrochemical information: a perspective on background-inclusive fast voltammetry. *Analytical Chemistry.* doi.org/10.1021/acs.analchem.3c04938
9. **Movassaghi CS,** Andrews AM. Call me Serotonin. *Nature Chemistry (*2024*).* doi.org/10.1038/s41557-024-01488-y
10. **Movassaghi CS**, Perrotta KA, Yang H, Iyer R, Cheng X, Dagher M, Alcañiz M, Andrews AM. Simultaneous serotonin and dopamine monitoring across timescales by rapid pulse voltammetry with partial least squares regression. *Analytical and Bioanalytical Chemistry* (2021). doi.org/10.1007/s00216-021-03665-1 | GitHub
11. **Movassaghi CS**, McCarthy DP, Bhandari D, Blount BC, De Jesús VR. Multiple ion transition summation of isotopologues for improved mass spectrometric detection of *N*-acetyl-*S*-(1,2-dichlorovinyl)-**L**-cysteine. *Journal of the American Society for Mass Spectrometry* (2019). doi.org/10.1007/s13361-019-02169-8
12. Bhandari D, McCarthy DP, Biren C, **Movassaghi CS,** De Jesús VR, Blount BC. Development of a UPLC-ESI-MS/MS Method for the measurement of urinary metabolites of selected VOCs: Benzene, cyanide, furfural, furfuryl alcohol, 5-hydroxymethylfurfural, and *N*-methyl-2-pyrrolidone. *Journal of Chromatography B* (2019) doi.org/10.1016/j.jchromb.2019.121746

TEACHING, LEADERSHIP & VOLUNTEERING

Cedars Sinai Single Cell Symposium volunteer 2025

Nanoscience Instructor & outreach volunteer, *California NanoSystems Institute, UCLA* 2020 –2024

- Nanovation mentor (2022-2024), Applications of Nanoscience instructor (2023), Biotoxicity workshop lead (2023)

Moderator, *UCLA Undergraduate Journal Club* 2021

Advisory board, *Institute for Quantitative & Computational Biosciences (QCB), UCLA* 2021 – 22

Teaching Assistant, Organic Chemistry, *UCLA* 2019 – 20

SELECTED PRESENTATIONS

Oral Presentations

- *Seaborg Symposium (UCLA).* Norma Stoddart Prize acceptance lecture. Of mind and muscle: adventures In bioanalytical chemistry. **2025**.
- *Monitoring Molecules in Neuroscience (Chapel Hill, NC).* Active learning for voltammetry waveform design. **2024**.

- *ACS National Meeting (New Orleans)*. Expanding the target toolkit for wearable sensors. **2024**
- *Acceleration Consortium Bayesian Optimization Hackathon for Chemistry and Materials* (*virtual*). **2024**.
  - Top Ten awardee: https://ac-bo-hackathon.github.io/
- *Hatos Center for Neuropharmacology (UCLA)*. Machine learning approaches to neurochemical voltammetry. **2023**
- *Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Pittcon; virtual).* Bayesian optimization for adaptive experimental design of electrochemical waveforms **2022.**
- *SEAC Student Meeting (virtual).* Dimensionality reduction for voltammetric data in Python **2021.**
- *ACS National Meeting (New Orleans).* Improvements to a UPLC-MS/MS method for simultaneous determination and quantification of 28 urinary biomarkers of volatile organic compound exposure. **2018**. Also presented at*: Division of Laboratory Sciences Summer Symposium (invited; Atlanta, GA)* **2018**.

Poster Presentations

1. **Movassaghi CS**, Perrotta KA, Curry M, Nashner A, Nguyen K, Wesely M, Alcañiz M, Liu C, Meyer AS, Andrews AM. Machine-learning-guided design of pulse voltammetry waveforms. *Monitoring Molecules in Neuroscience* (Chapel Hill, NC) **2024**
2. **Movassaghi CS**, Iyer R, Curry M, Wesely M, Alcañiz M, Andrews AM. SeroWare: towards an open-source ecosystem for fast voltammetry. *Monitoring Molecules in Neuroscience* (Chapel Hill, NC) **2024**
3. **Movassaghi CS**, Perrotta KA, Yang H, Iyer R, Cheng X, Dagher M, Alcañiz M, Andrews AM. Simultaneous serotonin and dopamine monitoring across timescales by rapid pulse voltammetry with partial least squares regression *Monitoring Molecules in Neuroscience* (Lyon, France) **2022**.
   - Also presented at: *32nd Annual Brain Research Institute (BRI) Poster Day* (UCLA) **2021**.
4. **Movassaghi CS**, Perrotta KA, Andrews AM. Machine learning applications for multiplexed neurotransmitter detection; *Frontiers in Machine Learning for the Physical Sciences* (UC Irvine) **2020**.
5. **Movassaghi CS**, McCarthy DP, Bhandari D, De Jesús VR, Blount BC. Signal summing for improved mass spectrometric detection of high abundance isotopologues (*PittCon* co-author) **2018**.