

Andrew K. Moran

Postdoctoral Fellow

University of Colorado, Anschutz Medical Campus

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Education

2013-2020: Ph.D., Neuroscience, University of Utah

Dissertation Title: *“Optical Analysis of Odor-Driven Glutamate Dynamics in Circuits of the Mammalian Olfactory Bulb”*

2012: B.A., Psychology, Minor: Neuroscience, University of California, Riverside

2009: A.S., Natural Sciences, Riverside Community College

2009: A.A., IGETC, Riverside Community College

Independent Research Funding

2020-2022: NIH NIDCD University of Colorado, Anschutz Medical Campus Otolaryngology T32 Recipient

2015-2018: NIH R01-13S1 NIDCD Diversity Supplemental for Predoctoral Fellows Recipient

2013-2015: NIH NINDS University of Utah Neuroscience T32 Recipient

Honors and Awards

2016, 2019: AChemS (Association for Chemoreception Sciences) Conference Diversity Travel Award

2013: University of California, Los Angeles Psychology Undergraduate Researcher Conference (PURC) Presenter Award

Spring 2009: Alpha Gamma Sigma Ed Walsh Community Service Scholarship

Fall 2006: Alvord Educators Association Scholarship for Academic Excellence

Conference Presentations

Moran A.K., Eiting T.P., Wachowiak, M “Diverse dynamics of glutamatergic input from sensory neurons underlie heterogeneous responses of olfactory bulb outputs in vivo” International Symposium on Taste and Smell (ISOT) Conference Presentation, Online, 2020

Moran A.K., Eiting T.P., Wachowiak, M “Diversity in glutamatergic input dynamics drives heterogeneous response patterns in olfactory bulb mitral and tufted cells in vivo” AChemS Annual Conference Presentation, Bonita Springs, FL 2019

Moran A.K., Wachowiak, M “In vivo optical dissection of glutamatergic signaling underlying odor responses of olfactory bulb output neurons” Society for Neuroscience General Conference Presentation, Washington, DC 2017

Richards. J.R, **Moran, A.K.**, Kummer B., Wachowiak, M “Using pharmacogenetic tools to manipulate odor perception in mice” SACNAS General Conference Presentation, Salt Lake City, UT October 2017

Tsosie J., **Moran, A.K.**, Wachowiak, M “Measuring Conditioned Odor Preference Behavior in a Mouse Model of Nicotine Administration” SACNAS General Conference Presentation October 2016

Moran, A.K., Gonzalez, L, Huffman, K.J “Development of Callosal Connections in CD-1 Mice” UCLA Psychology Undergraduate Research Conference Presentation May 2013

Publications/Preprints/Manuscripts

Moran, A.K., Eiting, T.P., Wachowiak, M. Dynamics of Glutamatergic Drive Underlie Diverse Responses of Olfactory Bulb Outputs In Vivo. eNeuro 8, doi:10.1523/ENEURO.0110-21.2021 (2021).

Moran, A.K., Eiting, T.P., Wachowiak, M. Circuit Contributions to Sensory-Driven Glutamatergic Drive of Olfactory Bulb Mitral and Tufted Cells During Odorant Inhalation. Front Neural Circuits, 2021 Oct 27;15:779056. doi: 10.3389/fncir.2021.779056. eCollection 2021.

Moran, A.K., Person, A., Restrepo, D., Underlying cerebellar contributions to olfactocentric orofacial behaviors, in preparation

Mentoring

2017: Jaime Richards: Visiting NARI (Native American Research Internship) Intern at University of Utah; taught conducting of odor discrimination behavioral experiments in mice, animal handling, chemogenetic utilization, circuit building, data analysis and research presentation techniques

2016: Jakob Tsosie: Visiting NARI Intern at University of Utah; taught conducting of odor preference behavior tasks in mice, animal handling, data analysis, and research presentation techniques

2015: Mia Wipfel, University of Utah Undergraduate; taught LabView coding, animal handling, microscopy and histological techniques for olfactory experiments in mice

2013-14: Jackson Ball, Wachowiak Lab Technician; taught mouse colony maintenance, histology, microscopy and surgical techniques for use in olfactory experiments in mice

2011-2013: Liliana Gonzalez, UC Riverside Undergraduate; taught histology and microscopy techniques, and data analysis methods

Research Experience

2013-present: Graduate Student Researcher, Dr. Matt Wachowiak, University of Utah: Dissecting glutamatergic microcircuitry underlying glomerular processing of odors across the olfactory bulb *in vivo*

2009-2013: Postbaccalaureate Research Assistant for Dr. Kelly Huffman, UC Riverside: Development of interneocortical connections in prenatally ethanol-exposed, CD1 mice

2011-2012: Research Assistant for Dr. Aaron Seitz, UC Riverside: Mapping perceptual learning through multitask and distraction behavior using EEG

Research Skills and Expertise

Histological Sectioning and Processing (Brain Areas: Olfactory bulb, Cerebellum & Cortex)

Single- and Two-Photon Functional Microscopy *in vivo* (GCaMP, iGluSnFR (orig. and SF), jRGECO1a, simultaneous dual indicator imaging)

Awake and Anesthetized Imaging (Brain Areas: Olfactory bulb, Cerebellum)

Pharmacology (In vivo)

Chemogenetics (hM4DGi)

Optogenetics (ChR2.H134R, CheTA)

Viral Injection (Olfactory bulb & Piriform Cortex)

Electrophysiology (Extracellular, *in vivo*)

Programming Languages for Data Processing/Organization: MATLAB (proficient), Labview (proficient), MySQL (functional), Python (semi-functional),

Behavior (Odor-preference task, Two-choice odor discrimination task, Suok anxiety task, Elevated-plus maze)

Teaching Experience

Teaching Assistant, University of Utah

Neuroscience 6050: Systems Neuroscience. Assisted in grading, teaching, and mentoring students studying neural circuits and organization of brain systems (1 semester)

Guest Lecturer, University of Utah

Neuroscience 6050: Systems Neuroscience. Taught a lecture on chemosensory systems (olfaction and gustation) from a circuitry and perceptual coding viewpoint (1 lecture)

Psychology 3700: Drugs and Behavior. Taught a lecture on nicotine and its effect on the brain from receptor to systems level concepts as well as neuroanatomy (1 lecture)

Societies, Memberships, and Roles

2019-2021: AChemS Social Media Committee, Member

2017-2018: University of Utah, Snowbird Symposium; Chair, *"Of Mind and Math: Big Data Analysis and Computational Approaches in Neuroscience"*

2017-present: Society for Neuroscience (SfN); Member
2016-2017: University of Utah, Snowbird Symposium; Chair, *"The Role of Epigenetics in Neuroscience"*
2015-2016: University of Utah, Snowbird Symposium; Member
2015-2016: University of Utah Neurobiology and Anatomy Seminar Series Co-Coordinator
2014-present: AChemS Member
2014-2015: University of Utah Interdepartmental Neuroscience Program (INP) Recruitment Committee Co-Coordinator
2013-present: American Association for the Advancement of Science (AAAS) Member
2013-present: Society for the Advancement of Chicano and Native Americans in Science (SACNAS) Member (University of Utah Chapter)
2013-present: University of Utah INP Fundraising Committee, Social/Retreat, and Seminar Series Committee Member
2012-2013: UCR Neuroscience Journal Club Coordinator
2010-2012: Psi Chi (National Honor Society in Psychology) Member
2007-2009: Alpha Gamma Sigma (California Community College Scholastic Honor Society) Member

Outreach

2016-2017: SLC Brain Bee: University of Utah Co-Coordinator, coordinated demonstration stations for graduate students to teach youth about neuroscience prior to Brain Bee competition.
2013-2015: "SACNAS Talks": University of Utah Chapter Coordinator; assisted in coordination of science speakers to present talks about their personal journey through science
2013-present: Brain Awareness Week: University of Utah Volunteer; taught elementary, junior high, and high school students about neuroscience through hands-on demonstrations
2011-2013: Brain Awareness Day: University of California, Riverside; demonstrated the vestibular system function and anatomy to underprivileged youth through hands on direction
2006-2009: Teaching Outreach: Riverside Community College; offered mentoring advice and information for Latino students interested in teaching at a collegiate level during educators appreciation week

References

Dr. Dale Matthew Wachowiak (PhD Supervisor)
USTAR Professor
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University of Utah
Salt Lake City, UT 84112 USA
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Dr. Abigail Person (Mentor)
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Dr. Shrinivasan (Cheenu) Raghuraman (Research Colleague)
Research Assistant Professor (Olivera Lab)
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