

Oscar Alexander Mendez

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Education

University of Arizona

Ph.D. Candidate, Graduate Interdisciplinary Program (GIDP) in Neuroscience

Present

University of California, Irvine

Bachelor of Science, Biological Science

2012

Research Experience

University of Arizona

Tucson, AZ

Graduate Student

2014-Present

I am currently investigating regions of the brain that have interacted with the parasite *Toxoplasma gondii* in the laboratory of Dr. Anita Koshy. I aided in developing a MATLAB based semi-automated mapping program to quantify regions of interaction by *Toxoplasma* and identified the cortex and striatum as regions of interaction. I am now determining if *Toxoplasma* targets a specific neuron subtype and if injection of *Toxoplasma* effector proteins is sufficient to alter the electrophysiology of medium spiny neurons via whole cell patch clamping.

University of California, Irvine

Irvine, CA

Staff Research Associate

2012-2014

Technician under NIH funded U-Award in Dr. Aileen Anderson's laboratory investigating the potential therapeutic transplant window for cervical spinal cord injury (SCI) at 9dpi and 60dpi using hCNS-SC transplanted into immunodeficient mice. Technician on a long-term safety/toxicology study of human derived stem cells in unilateral cervical SCI immunodeficient rats. Responsible for animal survival surgery, care, behavior, and histology.

Undergraduate Researcher

2009-2012

Minority Science Programs

As a Bridges, MBRS, and MARC student conducted independent research evaluating the effects of complement proteins on neurite outgrowth *in vitro* in Dr. Aileen Anderson's laboratory. Specifically investigated the inhibitory growth effects of complement C3 cleavage products on neurite outgrowth *in vitro*. Developed an *in vitro* turning assay to investigate MAG induced growth repulsion on neurites and elimination of repulsion phenotype by complement C1q.

Universidad Nacional Autonoma de Mexico (UNAM)

Queretaro, Mexico

Undergraduate Researcher

2010

Minority Health and Health Disparities International Research Training (MHIRT)

During a summer research program focused on the usage of MRI techniques such as diffusion tensor imaging (DTI) to measure tissue degradation post mortem in Dr. Fernando Barrios' laboratory.

Publications

Mendez, O. A., Potter, C. J., Valdez, M., Bello, T., Trouard, T. P., & Koshy, A. A. (2018). Semi-automated quantification and neuroanatomical mapping of heterogeneous cell populations. *Journal of neuroscience methods*, 305, 98-104.

Mendez, O. A., & Koshy, A. A. (2017). *Toxoplasma gondii*: Entry, association, and physiological influence on the central nervous system. *PLoS Pathogens*, 13(7), e1006351.

Peterson, S. L., Nguyen, H. X., **Mendez, O. A.**, & Anderson, A. J. (2017). Complement Protein C3 Suppresses Axon Growth and Promotes Neuron Loss. *Scientific Reports*, 7(1), 12904.

Peterson, S. L., Nguyen, H. X., **Mendez, O. A.**, & Anderson, A. J. (2015). Complement protein C1q modulates neurite outgrowth in vitro and spinal cord axon regeneration in vivo. *Journal of Neuroscience*, 35(10), 4332-4349.

Oral Presentations

Toxoplasma gondii preferentially interacts with neurons in the cortex and basal ganglia. Neuroscience GDP Data Blitz. Tucson, AZ, 2018.

Toxoplasma gondii preferentially interacts in specific regions of the brain. Southern California Eukaryotic Pathogen Symposium. Riverside, CA, 2017.

Toxoplasma gondii interacts in specific regions of the brain. Joint Biology Research Retreat. Tucson, AZ, 2017.

Poster Abstracts

OA Mendez, CJ Potter, Anita A. Koshy. *Toxoplasma gondii* preferential interactions in the central nervous system. American Society for Neurochemistry, 2018.

OA Mendez, CJ Potter, T Bello, M Valdez, EG Fernandez, TP Trouard, AA Koshy. *Toxoplasma gondii* preferentially interacts with cortical and striatal neurons. 14th International Congress on Toxoplasmosis & *Toxoplasma gondii* Biology, 2017.

CJ Potter, **OA Mendez**, T Bello, M Valdez, EG Fernandez, TP Trouard, AA Koshy. Semi-automated quantification of *Toxoplasma*-CNS host cell interactions. *Society for Neuroscience*, 2016.

OA Mendez, SL Peterson, HX Nguyen, AJ Anderson. Complement Protein C3 Modulates Neurite Outgrowth of Primary Neurons. *American Association for the Advancement of Science*, 2012.

OA Mendez, SL Peterson, HX Nguyen, AJ Anderson. The Effect of Complement Protein C3 on Neurite Outgrowth of Primary Neurons. *Annual Biomedical Research Conference for Minority Students*, 2011

L Concha, **O Mendez**, F Barrios-Alvarez. Longitudinal changes of diffusion tensor imaging in acute stages of post-mortem animal brain tissue decomposition. *International Society for Magnetic Resonance in Medicine*, 2011

OA Mendez. Complement Protein C3 Decreases Neurite Outgrowth of Primary Neurons In Vitro. Honors undergraduate research presentation, *Excellence In Research*, University of California-Irvine. 2011

OA Mendez, L. Concha, F.A. Barrios. Analysis of Brain Tissue Decomposition By Means of Magnetic Resonance Diffusion Tensor Imaging. *American Association for the Advancement of Science*, 2011

Awards and Honors

Neuroscience GIDP Travel award	2018
Arizona Healthcare Executives Scholarship	2018
Neuroscience GIDP Service Award	2018
SACNAS Travel Award	2017
Galileo Circle Scholarship	2016, 2017
Initiative for Maximizing Student Diversity (IMSD) Graduate Fellowship	2014-2015
Minority Access to Research Careers (MARC) Fellowship	2010-2012
Excellence In Research, University of California-Irvine	2011
Southern California Edison Scholarship	2009-2011
Minority Health and Health Disparities International Research Training (MHIRT)	2010
Minority Biomedical Research Support Program (MBRS) Fellowship	2010
Cal Grant A, Academic Competitiveness Award	2009-2010
Deans Honor List University of California, Irvine	2009
Bridges to Baccalaureate Research Grant	2009

Outreach

Graduate Student Mentor to MARC students	Ongoing
Arizona Science, Engineering, and Math Scholars (ASEMS) Mentor Program Mentor students from under-represented backgrounds by providing research advice, support, and encourage students to remain in STEM fields.	2015-2018
Tucson Festival of Books, Science City Volunteer	2015, 2016, 2017
Undergraduate Biology Research Program (UBRP) Summer Small Group Leader Mentor undergraduate students during their first summer research experience. Run individual sessions with 10 students to discuss how to write an abstract, create a scientific poster and communicating science to a broad audience.	2016
Mentor at Imagine your STEM Future A STEM mentoring program for girls at Desert View High School, Tucson, AZ	2016

Southern Arizona Arts & Cultural Alliance (SAACA) 2014-2016
Volunteered during social events set up by SAACA, duties included set up for community events and interacting with various individuals from the Tucson area.

Teaching Experience

University of Arizona

Teaching Assistant 2017
TA for introductory Neuroscience course.

University of California, Irvine

CAMP-MESA Peer Tutor, Organic Chemistry 2009
As part of the California Alliance for Minority Participation (CAMP) program at UC Irvine, I had the opportunity to mentor and tutor other students in organic chemistry.

Professional Memberships

Society for Advancement of Chicanos and Native Americans in Science (SACNAS) 2017-2018
Sigma Xi Scientific Research Society 2011

Service

Reviewer, Journal of Neuroscience Methods 2018
Neuroscience GIDP student representative 2018
Neuroscience Graduate Program seminar speaker selection committee 2015-2017
NSCS Spring Retreat Graduate School Discussion Panel 2017
ABRCMS Poster Judge 2017, 2018
ASEMS-T Graduate school Panel 2016, 2017
SACNAS Travel Award Reviewer 2016
MARC Program graduate school mock interviews 2015-2017