Victor A Cazares, PhD

Assistant Professor, Williams College
Psychology Department, Neuroscience Program
Bioinformatics, Genomics, Proteomics (BiGP) Program

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Bibliography

Research Focus

I have research expertise spanning cellular, molecular, and behavioral neuroscience. I have published broadly in these areas, including on the role of specific vesicle-associated proteins in modifying neurotransmission and synaptic plasticity, the role prefrontal cortex and amygdala in cost-based decision making, and the role of genetic backgrounds in mice on modulating fear and other learning phenotypes, among others (see references). Currently, my lab is investigating circuit and molecular mechanisms underlying maladaptive/inflexible behaviors including stress-induced deficits on extinction learning and the attenuation of reward-seeking behaviors. The ultimate goal is to identify mechanisms that underlie the maladaptive symptoms associated with human psychiatric illness (i.e., depression, anxiety, schizophrenia) to stimulate the development of new therapeutic approaches.

Education

2009-2015 **Ph.D. & M.S. in Neuroscience,** University of Michigan, Ann Arbor

2007-2009 **M.A. in Psychology,** California State University, Los Angeles, CA

2005-2007 **B.A. in Psychology,** California State University, Los Angeles, CA

2003-2005 **A.A. in Psychology,** Fullerton Community College, Fullerton, CA

Positions

2020- **Assistant Professor,** Psychology Department, Neuroscience Program, Williams College, Williamstown, MA

2016-2020 **IRACDA Research Fellow,** Molecular & Integrative Physiology, University of Michigan, Ann Arbor, MI

2015-2016 **Postdoctoral Fellow,** Neuroscience Department, New York University, New York, NY

Grants & Fellowships

2022- **Academic Research Enhancement Award** (R15-MH129947, Total funding: $435,109), National Institutes of Mental Health

2021 **Scholarship to Enhance and Empower Diversity,** International Brain Research Organization

2019 **Stern Strategic Translational Research Award ($10,000),** Depression Center, University of Michigan Medical School

2017-2019 **Institutional Research & Academic Career Development Award (K12),** National Institutes, General Medical Sciences

2017-2018 **BRAINS Fellowship,** National Institutes of Neurological Disorders & Stoke

2012-2015 **Ruth L. Kirschstein National Research Service Award (F31),** National Institutes of Neurological Disorders & Stoke

2011-2013 **Neuroscience Scholars Fellowship,** Society for Neuroscience

2011 **Rackham Graduate Student Research Grant ($3,000),** University of Michigan

2011 **Williams Townsend Porter Scholarship,** Marine Biological Laboratory, Woods Hole, MA

2009-11 **Rackham Merit Fellowship,** Rackham Graduate School, University of Michigan

2008 **MBRS-RISE Fellowship,** National Institutes of Health, California State University

2008 **Roffe Scholarship in Psychology ($1,000),** Psychology Department, California State University

Awards

2019 **Outstanding Postdoctoral Fellow Award,** Rackham Graduate School, University of Michigan

2018 **Trainee Professional Development Award,** Society for Neuroscience

2017 **Postdoctoral-Travel Award,** Society Advancing Chicanos and Native Americans in Science (SACNAS)

2017 **Postdoctoral-Travel Award,** BIG Ten Academic Alliance Professorial Advancement Initiative

2012 **Award for Best Poster Presentation,** Annual Meeting, Michigan Society for Neuroscience

2011 **Award for Best Oral Presentation,** School of Medicine Postgraduate Day Symposium, Trinity College, Dublin, Ireland

2009 **Award for Best Oral Presentation in Biological Sciences**, Statewide CSU Research & Scholarship Symposium

Teaching

2020- 2023 **Intro Psychology (PSY 101), Neuroscience (NSCI 201), Experimentation & Statistics (PSY 201), Behavioral Neurogenetics (PSY 312), Neurobiology of Psychedelic Drugs (NSCI 401), Feelings & Emotions (PSY 412)** Psychology Department, Neuroscience Program, BiGP, Williams College

2020 **Completion of Backwards Design Summer Course |** First3 Program, Williams College

2019 **Anatomy and Physiology I (BIO 233) |** Position: Instructor, Biology Department, Henry Ford College

2016-2018 **Intro to Molecular Neurobiology and Neurophysiology (NS 623)**
Neuroscience Graduate Program, University of Michigan

2018 **Certificate of Completion for Postdoctoral Course on College Science Teaching**
Center for Research, Learning and Teaching, University of Michigan

2011 **Graduate Teaching Assistant, Human Physiology (PHYS 201)**
Molecular and Integrative Physiology, University of Michigan

Leadership & Service

2022- **NIH Study Section Panel Member,** Biobehavioral Regulation, Learning and Ethology Study Section, Center for Scientific Review, National Institutes of Health

2020- **Reviewing Editor,** Frontiers in Behavioral Neuroscience

2020- **College and departmental committees,** Faculty/Staff search (2x), Academic Standing, 1960 Scholars Seminar Series Coordinator (3x), Library and special collections, Inclusive Williams Roundtable, Mentoring underrepresented students in STEM

2020-2021 **Journal article reviewer (*ad hoc*),** Neurobiology of Disease (1) | Neurobiology of Learning & Memory (2)

2020 **How to conduct a poster presentation workshop,** 2020 Meeting for the Liberal Arts Network for Development, (LAND)

2018 **Awards judge for poster presentations,** Michigan Society for Neuroscience, Annual Meeting

2018 **Awards judge for poster & graduate student oral presentations,**
Society Advancing Chicano and Native American Students

2016-2017 **Workshop leader for: "Science Career Pathways: From Community College to Graduate School,"**
15 presentations to high-school and community college students at campuses in the Wayne College community district in Detroit, MI.

2013 **BP-ENDURE Program student mentor,** University of Michigan

2013 **Journal article reviewer (*ad hoc*),** Cerebral Cortex (2013); Behavioral Brain Research (2019)

2012 **Rackham Fellow peer mentoring program,** University of Michigan

2012 **Neuroscience Symposium Executive Coordinator,** Annual Neuroscience Symposium, University of Michigan

2011 **Brains Rule Workshop Leader,** K-12 outreach event, University of Michigan

2009 **Committee Member, "Instructionally Related Activities",** California State Los Angeles | The purpose of the committee was to advise the President of the university regarding proposal funding decisions and funding level

Publications

Peer-reviewed Journal Articles

**** Denotes equal contribution, ^ denotes student researcher***

1. **Age-related deficits in neuronal physiology and cognitive function are recapitulated in young mice overexpressing the L-type calcium channel, CaV1.3 (2023).** Moore S, Cazares V, Jimenez S, Murphy GG. *Aging Cell* PMCID: PMC10014069 | DOI: 10.1111/acel.13781
2. **Intentional mentoring: maximizing the impact of underrepresented future scientists in the 21st century (2021)**. *Shuler H, *Cazares V, Marshall A, Garza-Lopez E, Hultman R, Francis TK, Rolle T, Byndloss MX, Starbird CA, Hicsasmaz I, AshShareef S, et al. *Pathogens and Disease*. PMCID: PMC8326955 | DOI 10.1093/femspd/ftab038
3. **Feeding Experimentation Device version 3 (FED3): An open-source device for measuring food intake and operant behavior in rodents (2021).** Matikainen-Ankney BA, et al. *eLife.* PMCID: PMC8075584 | DOI 10.7554/eLife.66173
4. **Deficits across multiple behavioral domains align with susceptibility to stress in 129S1/SvImJ mice (2020).** ^*Rodriguez G, *Moore S, Neff RC, Glass E, Stevenson TK, Stinnett GS, Seasholtz AF, Murphy GG, Cazares VA. *Neurobiology of Stress*. PMCID: PMC7739066 | DOI 10.1016/j.ynstr.2020.100262
5. **Turning strains into strengths for understanding psychiatric disorders (2020).** Moore S, Murphy GG, Cazares VA. *Molecular Psychiatry*. PMCID: PMC7666068 | DOI 10.1038/s41380-020-0772-y
6. **Development of low-cost cardiac and skeletal muscle lab activities to teach physiology concepts and the scientific method (2020).** *Judge J, * Cazares VA, Thompson Z, Skidmore L. *Advances in Physiology Education*. PMCID: PMC7410070 | DOI: 10.1152/advan.00149.2019
7. **Environmental variables that ameliorate extinction learning in the 129S1/SvImJ mouse strain (2019).** Cazares VA, ^Rodriguez G, Parent R, Ouilette L, Glanowska K, Moore S, Murphy GG. *Genes, Brain and Behavior*. PMCID: PMC6718342 | DOI: 10.1111/gbb.12575
8. **The ubiquitin-proteasome system functionally links neuronal tomosyn-1 to dendritic morphology (2017).** Saldate JJ, Shiau J, Cazares VA, Stuenkel EL. *Journal of Biological Chemistry*. PMCID: PMC5818180 | DOI: 10.1074/jbc.M117.815514
9. **Dynamic partitioning of synaptic vesicle pools by the SNARE-binding protein tomosyn (2016).** Cazares VA, Subramani A, Manly A, Stuenkel EL. *Journal of Neuroscience.* PMCID: PMC5148239 | DOI: 10.1523/JNEUROSCI.1297-16.2016

   Also see in Journal of Neuroscience "Journal Club" an article written about this publication: "How do synaptic vesicles "know which pool they belong to?" by Fabrizia Guarnieri
10. **Distinct action of Rab3 and Rab27 GTPases on late stages of exocytosis of insulin (2014).** Cazares VA, Subramani A, Saldate JJ, Hoerauf H, Stuenkel EL. *Traffic.* PMCID: PMC4140954 | DOI: 10.1111/tra.12182
11. **CUL4-DDB1-CDT2 E3 ligase regulates the molecular clock qctivity by promoting ubiquitination-dependent degradation of the mammalian CRY1 (2014).** Tong X, Zhang D, Guha A, Arthurs B, Cazares V, Gupta N, Elias CF, Yin L. *PLoS One.* PMCID: PMC4592254 | DOI: 10.1371/journal.pone.0139725
12. **Pharmacological correction of obesity-induced autophagy arrest using calcium channel blockers (2014).** Park H, Semple I, Jang I, Ro S, Kim M, Cazares V, Stuenkel E, Kim J, Kim JS, Lee JH. *Nature Communications*. PMCID: PMC4157315 | DOI: 10.1038/ncomms5834
13. **Efficient transfection of dissociated mouse chromaffin cells using small-volume electroporation (2014).** Hoerauf WW, Cazares VA, Subramani A, Stuenkel EL. *Cytotechnology*. PMCID: PMC4371572
14. **Basolateral amygdala lesions facilitate reward choices after negative feedback in rats (2013).** Izquierdo A, Darling C, Manos N, Pozos H, Kim C, Ostrander S, Cazares V, Stepp H, Rudebeck P. *Journal of Neuroscience*. PMCID: PMC3606920, | DOI: 10.1523/JNEUROSCI.4942-12.2013
15. **Orbitofrontal cortex and basolateral amygdala lesions result in suboptimal and dissociable reward choices on cue-guided effort in rats (2011).** Ostrander S, Cazares VA, Kim C, Cheung S, Gonzalez I, Izquierdo A. *Behavioral Neuroscience*. PMCID: PMC3111944 | DOI: 10.1037/a0023574

16. **Reversal-specific learning impairments after a binge regimen of methamphetamine in rats: possible involvement of striatal dopamine (2010).** Izquierdo A, Belcher AM, Scott L, Cazares VA, Chen J, O'Dell SJ, Malvaez M, Wu T, Marshall JF. *Neuropsychopharmacology*. PMCID: PMC2795129 | DOI: 10.1038/npp.2009.155

Book Chapters:

17. **Immunohistochemistry and fluorescence Microscopy** (*In press).* Cazares VA, Sandstrom NJ. Introduction to Behavioral Neuroscience. Ed. by Kirby ED, Glenn MJ, Sandstrom NJ, Williams CL. OpenStax.
18. **Neural plasticity of the amygdala (2020).** Cazares VA, Murphy GG. Handbook of Behavioral Neuroscience. Ed. by J.H. Urban, and A. Rosenkranz. Elsevier Publishing. DOI: https://doi.org/10.1016/B978-0-12-815134-1.00005-2.
19. **Molecular controls on regulated neurotransmitter and neurohormone secretion (2020).** Cazares VA, Steunkel EL. Neurosecretion: Secretory Mechanisms. Ed. by J.R. Lemos, and G. Dayanithi. Springer Nature Publishing. DOI: https://doi.org/10.1007/978-3-030-22989-4.

Conference Abstracts & Presentations

Invited Talks

2023 **Turning the exception into the rule in fear learning: Context is crucial** Fer à Moulin Institute, INSERM, Paris France.

2023 **Keynote Address: Context paves the way forward**
Neuroscience Graduate Program Annual Retreat. University of Michigan, Ann Arbor, MI

2021 **Novelty stimulates the formation of a neural engram leading to relapse-resistant fear extinction**
Illinois State University, Normal, IL

2021 **Using strain specific phenotypes to elucidate mechanisms underlying the reduction of persistent fear,**
Jackson Labs, Bar Harbor, ME

2019 **Turning strains into strengths for understanding psychiatric disease,** Bowdoin College, Brunswick, ME

2019 **Turning strains into strengths for understanding psychiatric disease,** Williams College, Williamstown, MA

2018 **Investigating the neural basis of neuropsychiatric diseases by exploiting the genetics of inbred mouse strains,** Hope College, Holland, MI

2018 **Keynote address: From community college research to graduate school and beyond.** Summer Research Opportunities Conference, Henry Ford College, Dearborn, MI

2014 **A novel inhibitory pathway modulates the fraction of release-competent vesicles,** Exocytosis and Endocytosis Subgroup Symposium, Biophysical Society 57th Annual Meeting

2013 **Specific actions of Rab3 and Rab27 on late stages of Ca^{2+}-regulated exocytosis of insulin,** Midwest Islet Club 6th Annual Meeting

2011 **Defining how presynaptic molecular interactions dynamically regulate neurotransmission,** School of Medicine Postgraduate Symposium, Trinity College, Dublin

2009 **Orbitofrontal cortex lesions impair responses to cue predicting shifts in work to reward,** Biomedical Sciences Research Symposium, California State University, Los Angeles

Selected Conference Abstracts

2023 **1. Investigating the neuromodulatory role of dopamine in strengthening fear extinction memories formed in multiple contexts.** ^Gonzalez SE, ^Fukunaga Y, ^ Watts ME, ^Lock EK, ^Schulman EK, Cazares VA, *Pavlovian Society Annual Meeting. Austin, Texas*

2023 **2. Severe stress produces maladaptive cognitive and emotional function via non-associative sensitization.** ^Penna SR, ^Ng Q, ^ Watts ME, ^Zhao A, Cazares VA, *Pavlovian Society Annual Meeting. Austin, Texas.*

2023 **3. Context matters: How changes in context enhance fear learning in mice.** ^Fukunaga YF, ^Gonzalez S, ^ Lock EK, ^Schulman EK, Cazares VA, *Japanese Society for Neurochemistry Annual Meeting. Kobe, Japan.*

2022 **4. No effects of partial reinforcement on fear learning in mice.** ^Jiun SC, ^Fukunaga YF, Cazares VA, *Pavlovian Society Annual Meeting, Milwaukee, Wisconsin.*

2022 **5. Exposure of conditioned stimuli in multiple contexts enhances fear extinction memories.** ^Fukunaga YF, ^Gonzalez S, ^ Lock EK, ^Schulman EK, Cazares VA, *Pavlovian Society Annual Meeting, Milwaukee, Wisconsin.*

2022 **6. Effects of partial reinforcement on fear learning in mice.** ^Fukunaga YF, ^Jiun SC, Cazares VA, *Society for Neuroscience Annual Meeting, San Diego, California.*

2022 **7. Repeated exposure to contextual novelty enhances fear extinction memories.** ^ Lock EK, ^Fukunaga YF, ^Schulman EK, ^Gonzalez S,, Cazares VA, *Society for Neuroscience Annual Meeting, San Diego, California.*

2022 **8. The partial reinforcement extinction effect in fear lerning in mice.** ^Fukunaga YF, ^Jiun SC, Cazares VA, *Japanese Society for Neurochemistry Annual Meeting. Okinawa, Japan.*

2019 **9. Novelty-facilitated extinction ameliorated maladaptive fear learning in the 129S1 mouse strain.** Cazares VA, et al. *Society for Neuroscience. 074.16 / U26*

2019 **10. The role of diminished motivation in extinguishing fear responses to environmental stimuli** Cazares VA, et al. *Molecular & Cellular Cognition Society, Annual Meeting.*

2018 **11. Neural mechanisms underlying impaired extinction learning in a wild-type inbred mouse strain.** Cazares VA, et al. *Society for Neuroscience. 415.09/BBB14*

2017 **12. Distinct neuronal activation in medial-prefrontal cortex between wild-type inbred mouse strains during fear extinction learning.** Cazares VA, et al. *Society for Neuroscience. 605.006/OO33*

2014 **13. A presynaptic activity repressor regulates the fraction of release-competent vesicles.** Cazares VA, et al. *Gordon Conference: Synaptic Transmission.*

2014 **14. A novel inhibitory pathway modulates the fraction of release-competent vesicles.** Cazares VA, et al. *Biophysical Society. 1589/B319*

2013 **15. Tomosyn and CDK5: A protein duet acting in concert to direct release properties of synaptic vesicles.** Cazares VA, et al. *Society for Neuroscience. 424.10/G47*

2013 **16. Tomosyn and CDK5 act in concert to direct release properties of synaptic vesicles and to facilitate homeostatic plasticity.** Cazares VA, et al. *Michigan Chapter Society for Neuroscience, A74.*

2012 **17. Tomosyn orchestrates vesicle pools at hippocampal synapses to tune neurotransmission.** Cazares VA, et al. *Society for Neuroscience. 334.05/D40.*

2010 **18. Rab27A modulates priming of large dense-core vesicles in mouse chromaffin cells.** Cazares VA, et al. *Society for Neuroscience. 241.3/F43.*

2009 **19. Orbitofrontal cortex lesions impair responses to cue-predicted changes in work-to-reward in rats.** Cazares VA, et al. *Society for Neuroscience. 476.3./FF43*