

Jason Aoto Curriculum Vitae

Molecular and Cellular Physiology
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Education

Post-Doctoral Training Postdoctoral Fellow in the laboratory of Dr. Thomas Südhof, <i>Dept. of Molecular and Cellular Physiology</i> <i>Stanford University, Stanford, CA</i>	2009-present
Doctor of Philosophy, Molecular and Cell Biology <i>University of California, Berkeley</i> <i>Dissertation: "Molecular Mechanisms Underlying Excitatory Shaft-Synapse Formation and Homeostatic Synaptic Scaling"</i>	2004-2009
Bachelor of Science, Biochemistry <i>University of California, Los Angeles</i>	1998-2002

Grants and Training

Grants National Institute of Mental Health Pathway to Independence Award (K99/R00) (1K99MH103531) <i>Title: Synaptic Dissection of Cell Adhesion Molecule Function within Subicular Circuits</i>	2014-present
American Heart Association Western States Postdoctoral Fellowship (11POST7360078) <i>Title: The Synaptic Characterization of Neurexin-3 in basal transmission and synaptic plasticity</i>	2011-2013
Training Teaching Workshop for Post- Doctoral Scholars	2014
UC Davis Bioinformatics Core Workshop	2013

Research Experience

Post-Doctoral Scholar , Advisor: Thomas Südhof, M.D. <i>Molecular and Cellular Physiology, Stanford University, Stanford, CA</i> Collaborator: Robert C. Malenka, M.D., Ph.D. Research Focus: 1. Synaptic interrogation of Neurexin-3 gene function and alternative splicing function in hippocampal cultures and acute slices. 2. Characterization of Neurexin-2 alternative splicing. 3. Data mining of CNV and GWAS studies of Autism Spectrum Disorders. Assembled candidate cell-adhesion molecules to study. Designed shRNA to over 150 targets.	2009-present
Pre-Doctoral Training , Advisor: Lu Chen <i>Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA</i> Committee Members: John Ngai, Ph.D., Shaowen Bao, Ph.D., Kunxin Luo, Ph.D. Research Focus: 1. Investigating the molecular function of the transsynaptic cell-	2004-2009

adhesion molecule, ephrinB3, and its role in selective synapse formation. 2. Elucidating the post-mitotic function of all-trans retinoic acid to regulate dendritically localized mRNA translation during activity-dependent homeostatic plasticity using molecular approaches to identify the receptor and delineate the domains necessary and sufficient to promote dendritic translation.

Staff Research Associate II, PI: Christopher C.W. Hughes 2002-2004
Molecular Biology and Biochemistry, University of California, Irvine, Irvine, CA
 Research Focus: Development of an *in vitro* model of angiogenesis to study how VEGFR2 and NOTCH function during lumen formation.

Undergraduate Researcher, PI: Robert W. Simons 1999-2002
Microbiology and Immunology, University of California, Los Angeles, Los Angeles, CA
 Research Focus: Investigation of the molecular components of the 'cold-shock' RNA degradosome in *E. coli*.

Presentations and Abstracts

Oral

2010 Stanford Institute for Neuro-Innovation and Translational Neuroscience - "Neuroligins, Neurexins and ASDs" and guest panelist discussing modern approaches to studying ASDs.

2013 First Annual Molecular Psychiatry Meeting – "Neurexin-3 alternative splicing: insights into synaptic function"

2015 International Winter Neuroscience Conference

Poster

2006 Society for Neuroscience Poster Presentation

2006 Berkeley MCB Retreat Poster Presentation

2007 Society for Neuroscience Poster Presentation

2008 Keystone Symposium on Translational Regulatory Mechanisms

2008 Berkeley MCB Retreat Poster Presentation

2010 Annual Howard Hughes Medical Institute Investigator Meeting

2014 Society for Neuroscience Poster Presentation

Teaching and Mentoring Experience

Teaching

Teaching Assistant, Introduction to Neurobiology Lecture (MCB160) 2007

University of California, Berkeley

Led examination reviews for the class of over 100 students.

Teaching evaluation: 6.51/7.00 (AVERAGE: 5.74; scale: 0-7)

Teaching Assistant, Introduction to Neurobiology Laboratory (MCB 160L) 2006

University of California, Berkeley

Led three laboratory sections of over 30 students per section.

Teaching evaluation: 6.41/7.00 (AVERAGE: 5.77; scale: 0-7)

Mentoring

Ms. Meera Rachamalla 2015-present

High school intern, Stanford University

Ms. Silvana Maria Ciurea-Ilicus 2013-2015

Undergraduate, Stanford University

Ms. Catherine Si 2008-2009

Undergraduate, University of California, Berkeley

Ms. Pamela Ting 2004-2008

Undergraduate, University of California, Berkeley
 Current position: Graduate student at UCLA

Publications

Peer-reviewed publications:

Pak CH*, Danko T*, **Aoto J**, Anderson GR, Maxeiner S, Wernig M, Südhof TC. Human Neuropsychiatric Disease Modeling using Conditional Deletion Reveals Synaptic Transmission Defects Caused by Heterozygous Mutations in NRXN1. (2015) *Cell Stem Cell*. 17(3):316-328. PMID: 26279266

* Co-first author

Anderson GR, **Aoto J**, Tabuchi K, Földy C, Covy J, Yee AX, Wu D, Chen L, Malenka RC, Südhof TC. (2015) Presynaptic β -Neurexins Control Excitatory Synaptic Strength and Regulate Synaptic Endocannabinoid Signaling. *Cell*. 162(3): 593-606. PMID: 26213384

Aoto J.[#], Földy C, Ciurea-Ilicus SM, Tabuchi K, Südhof TC. (2015) Distinct Circuit-Dependent Essential Functions of Neurexin-3 in Regulating Presynaptic Release or Postsynaptic AMPA-Receptor Stability. *Nature Neuroscience*. 18(7): 997-1007. PMID: 26030848

[#]Corresponding Author

Chanda S, **Aoto J**, Lee SJ, Wernig M, Südhof TC. Pathogenic Mechanism of an Autism-Associated Neuroligin Mutation Affects AMPA-Receptor Trafficking. *Molecular Psychiatry*. PMID: 25778475

Aoto J., Martinelli, DC, Tabuchi H, Malenka RC, Südhof TC. (2013) Presynaptic neurexin-3 alternative splicing trans-synaptically controls postsynaptic AMPA receptor trafficking. *Cell*, 154: 75-88. PMID: 23827676

Anderson GR, Galfin T, Xu W, **Aoto J**, Malenka RC, Südhof TC. (2012) Candidate autism gene screen identifies critical role for cell-adhesion molecule CASPR2 in dendritic arborization and spine development. *PNAS*, 109: 18120-18125. PMID: 23074245

Sarti F, Schroeder J, **Aoto J**, Chen L. Conditional RAR α knockout mice reveal acute requirement for retinoic acid and RAR α in homeostatic plasticity. (2012) *Front Mol Neurosci*. PMID: 22419906

Aoto J^{*}, Nam, CI^{*}, Poon MM^{*}, Ting P, and Chen L. (2008) Synaptic scaling by all-trans retinoic acid in homeostatic synaptic plasticity. *Neuron*, 60: 308-220. PMID: 18957222

*Equal Contribution

Maghsoodi B, Poon MM, Nam CI, **Aoto J**, Ting P, and Chen L. (2008) Retinoic acid regulates RAR α -mediated control of translation in dendritic RNA granules during homeostatic synaptic plasticity. *Proc Natl Acad Sci U S A*, 105: 16015-20. PMID: 18840692

Aoto J, Ting P, Maghsoodi B, Xu N, Henkemeyer M, and Chen L. (2007) Postsynaptic ephrinB3 promotes shaft glutamatergic synapse formation. *J. Neurosci*, 27: 7508-19. PMID: 17626212

Sainson RC, **Aoto J**, Nakatsu MN, Holderfield M, Conn E, Koller E, and Hughes CC. (2005) Cell-autonomous notch signaling regulates endothelial cell branching and proliferation during vascular angiogenesis. *FASEB J*, 19: 1027-9. PMID: 15774577

Nakatsu MN, Sainson RC, Perez-del-Pulgar S, **Aoto JN**, Aitkenhead M, Tayler KL, Carpenter PM, and Hughes CC. (2003) VEGF(121) and VEGF(165) regulate blood vessel diameter through vascular endothelial growth factor receptor 2 in an in vitro angiogenesis model. *Lab Invest*, 83: 1873-85. PMID: 14691306

Nakatsu MN, Sainson RC, **Aoto JN**, Taylor KL, Aitkenhead M, Perez-del-Pulgar S, Carpenter PM, and Hughes CC. (2003) Angiogenic sprouting and capillary lumen formation modeled by human umbilical vein endothelial cells (HUVEC) in fibrin gels: the role of fibroblasts and Angiopoietin-1. *Microvasc Res*, 66: 102-12. PMID: 12935768

Review:

Aoto J, Chen L. (2007) Bidirectional ephrin/Eph signaling in synaptic functions. *Brain Res*, 1184:72-80.
PMID: 1766489