

KIMBERLY MULLIGAN, PhD

Assistant Professor of Biological Sciences

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Education

PhD **Stanford University**, Stanford, CA
2008 Developmental Biology

BS **University of California at San Diego**, La Jolla, CA
1999 Biochemistry and Cell Biology

Positions & Training

Jan 2015 - current **Assistant Professor of Biological Sciences:** California State University, Sacramento
Courses: BIO227 Developmental Biology & Regenerative Medicine, BIO 220 Introduction to Scientific Inquiry, BIO 294A Seminar in Molecular and Cellular Biology, BIO121 Molecular Cell Biology, BIO2 (Laboratory) Introduction to Cells, Molecules and Genes

2014 **Adjunct Professor of Biological Sciences:** California State University, Sacramento
Courses: BIO186A Cell and Molecular Biology Seminar, BIO 100 Introduction to Scientific Analysis, BIO 1 (Laboratory) Biodiversity, Evolution and Ecology

2011 - 2012 **Postdoctoral Research:** University of California at San Francisco
Department of Psychiatry, Center for Molecular Neurodevelopment
Project: Functional analysis of Dixdc1, a candidate risk gene for neuropsychiatric illness, in mammalian embryonic neurodevelopment
Advisor: Benjamin Cheyette, M.D., PhD

2008 - 2011 **Postdoctoral Research:** Stanford University
Department of Developmental Biology
Project: CIRM-funded initiative to optimize the expression and purification of Wnt proteins to mediate analysis of liposome-based stem cell studies. Advisor: Roel Nusse, PhD

2001 - 2008 **Doctoral Research:** Department of Developmental Biology, Stanford University

Dissertation: Molecular characterization of Swim, a novel Wnt binding protein that promotes long-range signaling by maintaining Wingless solubility during *Drosophila* development. Advisor: Roel Nusse, PhD

Peer-Reviewed Publications

- 2017 **Mulligan K** and Cheyette B (2017) "Neurodevelopmental Perspectives on Wnt Signaling in Psychiatry" Review. *Mol Neuropsych*, Jan 13. (2) 219-246
- 2016 Martin PM, Stanley RE, Ross AP, Freitas AE, Moyer CE, Brumback AC, lafrati J, Stapornwongkul KS, Dominguez S, Kivimae S, **Mulligan K**, Pirooznia M, McCombie WR, Potash JB, Zandi PP, Purcell SM, Sanders SJ, Zuo Y, Sohal VS, Cheyette BNR (2017) "DIXDC1 contributes to psychiatric susceptibility by regulating dendritic spine and glutamatergic synapse density via GSK3 and Wnt/ β -catenin signaling" *Mol Psych*, Oct 18. doi: 10.1038
- 2014 Dhamdhare GR, Fang MY, Jiang J, Lee K, Cheng D, Olveda RC, Liu, B, **Mulligan K**, Carlson J, Ranson R, Weis W, Helms J. (2014) Drugging a Stem Cell Compartment Using Wnt3a Protein as a Therapeutic. *PLoS ONE* 9(1): e83650. <https://doi.org/10.1371/journal.pone.0083650>
- 2012 **Mulligan K** and Cheyette B (2012) "Wnt signaling in vertebrate neural development and function" Review. *J NeuroImmune Pharmacol*. Dec; 7(4) 774-87
- 2012 **Mulligan K**, Fuerer C, Ching W, Willert K, Fish M, Nusse R (2012) "Secreted-Wingless interacting molecule (Swim) promotes long-range signaling by maintaining Wingless solubility" *Proc Natl Acad Sci USA*. Jan10;109 (2):370-7
- 2008 Nusse R, Fuerer C, Ching W, **Harnish K***, Logan C, Zeng A, ten Berge D, Kalani Y. (2008) "Wnt signaling and stem cell control" *Cold Spring Harb Symp Quant Biol*. Nov (73) 59-66. Review
- 2007 **Harnish K***, Willert K, Nusse R (2007) "Analysis of *Drosophila* Lipocalin, a putative Wnt carrier protein" Wnt Meeting
Presentation type: Platform
- 2004 Johnson ML, **Harnish K***, Nusse R, Van Hul W (2004) "LRP5 and Wnt signaling: a union made for bone." *J Bone Mineral Research*. Nov;19(11):1749-57. Review

* Kimberly Harnish is my maiden name

Book Chapter

2016 **Mulligan K** and Cheyette B (2016) "Introduction to Wnt signaling" *Inborn Errors of Development*, 3rd Edition, Oxford University Press

Recent Selected Posters

2019 Welch C, Ardon-Castro A, Hu A, Lew A, Murphy L, Nguyen D, and **Mulligan K**. "The Autism-Associated Chromatin Modifier, *kismet/Chromodomain Helicase DNA Binding Protein 8*, Affects Axon Guidance and Behavioral Phenotypes in *Drosophila melanogaster*" West Coast Regional Society for Developmental Biology Meeting

2019 Murphy L, Hindi Z, Ghenta K, Nguyen D, and **Mulligan K**. "Exposure to the Environmental Neurotoxicant Polychlorinated Biphenyl-95 Phenocopies a Common Autism Risk Gene in *Drosophila melanogaster*" West Coast Regional Society for Developmental Biology Meeting

2019 Tinsley B, Nguyen U, Casiquin J, Ceballos A, Danziger K, Palacios Y, Sen Y, Welch C, and **Mulligan K**. "Developmental Exposure to Bisphenol-A Causes Behavioral and Axon Outgrowth Defects in *Drosophila melanogaster*" 32nd CSUPERB Annual Biotechnology Symposium

2018 Tinsley B, Palacios Y, Welch C, and **Mulligan K**. "Developmental Exposure to Bisphenol A Causes Axon Outgrowth Defects in *Drosophila melanogaster*" 77th Annual Society for Developmental Biology Meeting

2018 Welch C, Ardon-Castro A, Hu A, Lew A, Murphy L, Nguyen D, and **Mulligan K**. "The Autism-Associated Chromatin Modifier, *kismet/Chromodomain Helicase DNA Binding Protein 8*, Affects Axon Guidance and Behavioral Phenotypes in *Drosophila melanogaster*" 77th Annual Society for Developmental Biology Meeting

2018 Nguyen D, Lew A, Hu A, Murphy L, Welch C, Crawford R, and **Mulligan K**. "The Autism-Associated Chromatin Modifier, Chromodomain Helicase DNA Binding Protein 8, Affects Axon Guidance and Behavioral Phenotypes in *Drosophila*" CSUPERB Annual Biotechnology Symposium

2018 Hindi Z, Murphy L, Ghenta K, Nguyen D, and Mulligan K **Mulligan K**. "Exposure to the Environmental Neurotoxicant Polychlorinated Biphenyl-95 Phenocopies a Common Autism Risk Gene in *Drosophila melanogaster*" CSUPERB Annual Biotechnology Symposium

Awards and Fellowships

Teaching/Pedagogy Awards

2018 – 2019	Outstanding Teaching Award (CSUS, College of Natural Sciences and Mathematics)
2018 – 2019	Pedagogy Enhancement Award (3 unit release time; CSUS, Center for Teaching and Learning)
2017 – 2018	Pedagogy Enhancement Award (3 unit release time; CSUS, Center for Teaching and Learning)
2016 – 2017	Promising Practices Course Redesign with Technology Award (3 unit release time; CSU Chancellor's Office)

Mentorship Awards

2019 - 2019	SEE Outstanding Faculty Mentor Award (CSUS, Science Educational Equity Program Award)
2018 – 2019	Instructionally Related Activities Award (\$7,000; CSUS, Associated Students Incorporated Award)
2017 – 2018	Instructionally Related Activities Award (\$5,759; CSUS, Associated Students Incorporated Award)
2017 – 2018	Exceptional Assigned Time Committee Award (3 unit release time; CSUS, Faculty Senate Subcommittee Award)

Research Awards

2019 – 2022	NIH SCORE (SC2) Pilot Award (\$300,000; NIH Award)
2019 – 2020	Sac State Retirees Faculty Development Award (\$500; CSUS Award)
2019- 2020	Research and Creative Activities Award (\$7,500; CSUS Award)
2018 – 2019	Research and Creative Activities Award (\$7,500; CSUS Award)
2018 – 2019	Goethe Research Award (\$2,500; CSUS Award)
2018	Faculty Research Incentive Grant (\$2,500; CSUS Award)
2017 – 2018	CSUPERB New Investigator Research Award (\$15,000; CSU-wide award)
2017 – 2018	Research and Creative Activities Award (\$7,500; CSUS Award)
2017 – 2018	Goethe Research Award (\$2,500; CSUS Award)
2016 – 2017	CSUPERB New Investigator Research Award (\$15,000; CSU-wide award)
2015 – 2016	Provost's Research Incentive Funds Award (\$5,000; CSUS Award)
2011 – 2012	Judith M. Ford T32 NIH Fellowship (UCSF postdoctoral training grant)
2002 – 2005	Stanford Graduate Fellowship (Stanford Doctoral Training Grant)

Selected Seminars

2019	<i>Using Drosophila melanogaster to identify chemicals that confer risk of neurodevelopmental disorders.</i> West Coast Regional Society for Developmental Biology Conference
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- 2019 *Using Drosophila melanogaster to identify chemicals that confer risk of neurodevelopmental disorders.* CSUPERB 31st Annual Biotechnology Symposium.
- 2018 *Using the Common Fruit Fly to Study Autism.* Sacramento Area Science Project—Science in the River City (an educational partnership between University of California, Davis and Sacramento State University)
- 2017 *Developing Drosophila melanogaster as a Tool to Identify Factors that Confer Risk of Autism.* San Francisco State University Seminar Series.
- 2017 *Using Online Learning Modules to Institute Elements of a Flipped Classroom.* CSUS Biological Sciences Department Seminar.

Professional Learning Communities

- 2018 - current Equity & Scholarship of Teaching and Learning: Demonstrating Success at Closing the Equity Gap (CSUS, Center for Teaching and Learning)
- 2018 - current STEM Education Research Collaborative
- 2016 - 2017 Innovations for STEM Success (CSUS, Center for Teaching and Learning)
- 2015 - 2016 Course Redesign with Technology (CSU Chancellor's Office)

Faculty Scholarship Communities

- 2018 - current The Collaborative Organization for Research Productivity and Sustainability (CSUS)
- 2018 - current Translational Health-Related Research: Connecting Basic Science to Clinical Practice (CSUS)
- 2017 - 2018 The Collaborative Organization for Research Productivity and Sustainability (CSUS)

Professional Societies

- 2017 - current Faculty for Undergraduate Neuroscience (FUN)
- 2016 - current Society for Developmental Biology (SDB)
- 2016 - current American Society for Cell Biology (ASCB)
- 2016 - current Genetics Society of America (GSA)