

# 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, 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/ $\beta$ -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*, 3<sup>rd</sup> Edition, Oxford University Press

## Recent Selected Posters

- 2018 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*" 77<sup>th</sup> Annual Society for Developmental Biology Meeting
- 2018 Tinsley B, Palacios Y, Welch C, and **Mulligan K**. "Developmental Exposure to Bisphenol A Causes Axon Outgrowth Defects in *Drosophila melanogaster*" 77<sup>th</sup> 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*" 77<sup>th</sup> 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
- 2017 Murphy L, Nguyen K, Trafton B, Ghenta K, Kumar A, and **Mulligan K**. "Developing *Drosophila melanogaster* as a Model for the Identification of Environmental Chemicals that Confer Risk to Autism" 58<sup>th</sup> Annual *Drosophila* Research Conference
- 2017 Welch C, Lew A, Hu A, Nguyen D, and **Mulligan K**. "Comparative Analysis of Gut Microbiota in a *Drosophila* Model of Autism" CSUS Student Research Symposium.

## Awards and Fellowships

### *Pedagogy Awards*

- 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*

- 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*

- 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

- 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)