

Katherine L. Thompson-Peer

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FACULTY APPOINTMENTS

Assistant Professor April 2019 - present
Department of Developmental and Cell Biology
University of California, Irvine
Fellow, UCI Center for the Neurobiology of Learning & Memory
Fellow, Reeve-Irvine Regeneration Center

EDUCATION

University of California, San Francisco & the Howard Hughes Medical Institute Sept 2012 – March 2019
Postdoctoral fellow in the Dept of Physiology and the Dept of Biochemistry & Biophysics.
Advisor: Dr. Yuh-Nung Jan, PhD.

Harvard Medical School Sept 2005 – May 2012
Ph.D. in Cell and Developmental Biology, Biological and Biomedical Sciences graduate program.
Advisor: Dr. Joshua M Kaplan, PhD.

University of Pennsylvania Sept 1999 – May 2003
B.A. in Biology, concentration in Molecular Biology.
Advisor: Dr. Ted Abel, PhD.

FELLOWSHIPS & GRANTS

K99/R00 NIH Pathway to Independence Award, NINDS (Nat Inst of Neurological Disorders and Stroke) 2016 – 2022

NIH F32 National Research Service Award Postdoctoral Training Fellowship, NINDS 2013 – 2016

President's Postdoctoral Research Fellowship, University of California Office of the President 2013 – 2015

Graduate Research Fellowship, Albert J Ryan Foundation 2009 – 2012

Graduate Research Fellowship, National Science Foundation 2005 – 2008

Mentees' Fellowships

G Jean & A Bari, UCI Undergraduate Research Opportunities Program funding Winter 2020

C Nguyen, UCI Undergraduate Research Opportunities Program funding Winter 2020

RESEARCH EXPERIENCE & TRAINING

University of California, San Francisco & the Howard Hughes Medical Institute Sept 2012 – Mar 2019
Dept of Physiology, Dept of Biochemistry & Biophysics, UCSF Weill Institute for Neurosciences
Postdoctoral Fellow Advisor: Dr. Yuh-Nung Jan, PhD.
I examined the response of the nervous system to trauma, focusing on the ability of dendrites to regenerate following damage. Using a 2-photon laser to selectively injure dendrites in intact *Drosophila* larvae and adults, our work has established a foundation for studying dendrite regeneration, a grossly understudied but essential component of neural repair. We have found that while many aspects of dendrite biology are faithfully recreated after injury, crucial features of dendrite architecture and function are different in neurons after injury.
Awarded an NIH F32 NRSA fellowship; a UC President's Postdoctoral fellowship; the 2015 UCSF Chancellor's Award for the Advancement of Women; and a K99/R00 NIH Pathway to Independence award.
Resulted in 6 publications (one from an independent collaboration).

Massachusetts General Hospital, Dept of Molecular Biology Dec 2006 – May 2012
Harvard Medical School, Dept of Neurobiology, Dept of Genetics
Graduate Student Advisor: Dr. Joshua Kaplan, PhD.
Dissertation: "Transcriptional regulation of synapse remodeling in *C. elegans*."

Studied the development of the nervous system, focusing on synapse formation and elimination, using *C. elegans* as a model system (quantitative microscopy and behavioral analysis, *C. elegans* genetics, gene expression microarrays, RNAi screening, quantitative RT-PCR, and other assays).

Awarded an Albert J Ryan Foundation fellowship; and an NSF Graduate Research fellowship.

Resulted in 3 publications.

Johns Hopkins University School of Medicine, Dept of Neuroscience
Howard Hughes Medical Institute

June 2003 – June 2005

Senior Research Associate

Advisor: Dr. Alex Kolodkin, PhD.

Examined the role of the Semaphorin family of axon guidance cues in neural development.

Resulted in 2 publications.

University of Pennsylvania, Dept of Biology

Sept 2002 – May 2003

Undergraduate Researcher

Advisor: Dr. Ted Abel, PhD.

Senior Thesis: “Alteration in Protein Kinase A (PKA)-containing Signaling Complexes in Transgenic Mice Expressing an A-Kinase Anchoring Inhibitor”.

Awarded the Neysa Cristol Adams Prize for Research & Academics by the Biology Department. Graduated Magna Cum Laude, with Distinction in Biology. Elected to Phi Beta Kappa.

Wistar Institute

June 2001 – June 2002

Undergraduate Researcher

Advisor: Dr. Harold Riethman, PhD.

Bioinformatics study into the NCBI UniGene algorithm.

HONORS & AWARDS

<i>Named as 1 of 8 “Rising Stars in Neuroscience” in the US, The Scientist Magazine</i>	Nov 2019
<i>Best Poster Award, Bay Area Molecular Neuroscience Meeting</i>	July 2018
<i>Best Poster Award, 17th International Symposium on Neural Regeneration</i>	Nov 2017
<i>Young Scientist Series Competition Winner, iBiology, the Albert and Mary Lasker Foundation, and the Alan Alda Center for Communicative Science</i>	Apr 2017
<i>Fritz Seil Award for best presentation, 16th International Symposium on Neural Regeneration</i>	Dec 2015
<i>UCSF Chancellor’s Award for the Advancement of Women</i>	Oct 2015
<i>Best Poster Award, UCSF Neurobiology Retreat</i>	Sept 2013
<i>Best Neurobiology Poster Award, 18th International C. elegans Meeting</i>	June 2011
<i>Distinction in Teaching Award, Derek Bok Teaching Center & Harvard College</i>	Jan 2009
<i>Neysa Cristol Adams Prize for Research & Academics, University of Pennsylvania Dept of Biology</i>	May 2003
<i>Graduated with Distinction in Biology, elected to Phi Beta Kappa, University of Pennsylvania</i>	May 2003

PEER-REVIEWED PUBLICATIONS

Thompson-Peer KL. (2020). Casein Kinase 1δ Triggers Giant Ankyrin Expression. *Developmental Cell*. 2020 Jan 6; 52(1):4-5. doi: 10.1016/j.devcel.2019.12.012. PMID: 31951555. Invited preview for “Casein Kinase 1δ Stabilizes Mature Axons by Inhibiting Transcription Termination of Ankyrin”, same issue.

Yadav S, Younger SH, Zhang L, **Thompson-Peer KL**, Li T, Jan LY, Jan YN. (2019). Glial ensheathment of the somatodendritic compartment regulates sensory neuron structure and activity. *PNAS*. 2019 Feb 25. pii: 201814456. doi: 10.1073/pnas.1814456116. PMID: 30804200.

Song Y, Li D, Farrelly O, Miles L, Li F, Kim SE, Lo TY, Wang F, Li T, **Thompson-Peer KL**, Gong J, Murthy SE, Coste B, Yakubovich N, Patapoutian A, Xiang Y, Rompolas P, Jan LY, Jan YN. (2019). The mechanosensitive ion channel Piezo inhibits axon regeneration. *Neuron*. 2019 Feb 15. pii: S0896-6273(19)30077-7. doi: 10.1016/j.neuron.2019.01.050. PMID: 30819546.

DeVault L, Li T, Izabel S, **Thompson-Peer KL**, Jan LY, Jan YN. (2018). Dendrite regeneration of adult *Drosophila* sensory neurons diminishes with aging and is inhibited by epidermal-derived matrix metalloproteinase 2. *Genes & Development*. 2018 Mar 1;32(5-6):402-414. doi: 10.1101/gad.308270.117. PMID: 29563183.

Pym E, Sasidharan N, **Thompson-Peer KL**, Simon DJ, Anselmo A, Sadreyev R, Hall Q, Nurrish S, and Kaplan JM. (2017). Shank is a dose-dependent regulator of Cav1 calcium current and CREB target expression. *eLife*. 2017 May 6;6. pii: e18931. doi: 10.7554/eLife.18931. PMID: 28477407.

Lin C, Yao E, Zhang K, Jiang, X, Croll S, **Thompson-Peer KL**, and Chuang PT. (2017). YAP is essential for mechanical force production and epithelial cell proliferation during lung branching morphogenesis. *eLife*. 2017 Mar 21;6. pii: e21130. doi: 10.7554/eLife.21130. PMID: 28323616. (an independent collaboration)

Thompson-Peer KL, DeVault L, Li T, Jan LY, and Jan YN. (2016). *In vivo* dendrite regeneration after injury is different from dendrite development. *Genes & Development*. 2016 Aug 1; 30(15): 1776-89. doi: 10.1101/gad.282848.116. PMID: 27542831. ****Cover article****

Rumpf S, Bagley JA, **Thompson-Peer KL**, Zhu S, Gorczyca D, Beckstead RB, Jan LY, and Jan YN. (2014). *Drosophila* Valosin-Containing Protein is required for dendrite pruning through a regulatory role in mRNA metabolism. *PNAS*. 2014 May 20;111(20):7331-6. doi:10.1073/pnas.1406898111. PMID: 24799714.

Thompson-Peer KL, Bai J, Hu Z, Kaplan JM. (2012). HBL-1 patterns synaptic remodeling in *C. elegans*. *Neuron*. 2012 Feb 9; 73(3):453-65. doi: 10.1016/j.neuron.2011.11.025. PMID: 22325199.

Simon DJ, Madison JM, Conery AL, **Thompson-Peer KL**, Soskis M, Ruvkun GB, Kaplan JM, Kim JK. (2008). The microRNA miR-1 regulates a MEF-2-dependent retrograde signal at neuromuscular junctions. *Cell*. 2008 May 30; 133(5):903-15. doi: 10.1016/j.cell.2008.04.035. PMID:18510933.

Huang Z, Yazdani U, **Thompson-Peer KL**, Kolodkin AL, Terman JR. (2007). Crk-associated substrate (Cas) signaling protein functions with integrins to specify axon guidance during development. *Development*. 2007 Jun; 134(12):2337-47. doi: 10.1242/dev.004242. PMID:17537798.

Kantor DB, Chivatakarn O, **Peer KL**, Oster SF, Inatani M, Hansen MJ, Flanagan JG, Yamaguchi Y, Sretavan DW, Giger RJ, Kolodkin AL. (2004). Semaphorin 5A is a bifunctional axon guidance cue regulated by heparan and chondroitin sulfate proteoglycans. *Neuron*. 2004 Dec 16; 44(6):961-75. doi: 10.1016/j.neuron.2004.12.002. PMID:15603739.

INVITED SEMINARS

UCLA . Integrative Center for Neural Repair Seminar	Feb 2020
Saddleback College . Science Lecture Series Seminar	Feb 2020
iBiology's iBioSeminars . Young Scientist Series "Neurons with a buzz cut: Neuronal Regeneration after Dendrite Injury" http://bit.ly/2ipfE87	June 2017
University of California, Davis . Friday Cell Biology Seminar "Monitoring dendrite regeneration after neuronal injury <i>in vivo</i> ."	Nov 2016

PRESENTATIONS AT ACADEMIC CONFERENCES

Oral Presentations (invited or selected based on an abstract)

Southern California Drosophila Conference, Irvine, CA	Sept 2019
International Young Scientists Workshop on Neural Development & Stem Cells. Kyoto, Japan <i>One of ten international scientists invited to Japan to give a talk.</i>	Mar 2018
17 th International Symposium on Neural Regeneration. Asilomar, CA <i>Invited to give a talk in the New Investigators session. Also presented a poster. Awarded a travel grant. Received an award for my poster presentation.</i>	Nov 2017
Gordon Research Seminar on Dendrites: Molecules, Structure, and Function. Lucca (Barga), Italy <i>Selected to give a talk. Also presented a poster at the GRC. Awarded a travel grant.</i>	Mar 2017
2016 American Society for Cell Biology (ASCB) Annual Meeting. San Francisco, CA <i>Selected to give a talk in the Development, Regeneration and Wound Healing session. Also presented a poster.</i>	Dec 2016
Gordon Research Seminar on the Cell Biology of the Neuron. Waterville Valley, NH <i>Selected to give a talk. Also presented a poster at the GRC. Awarded a travel grant.</i>	June 2016
16 th International Symposium on Neural Regeneration. Asilomar, CA <i>Selected to give a talk. Also presented a poster. Awarded a travel grant. Received the Fritz Seil Award for best presentation by a student or postdoc.</i>	Dec 2015

UC Office of the President's Postdoctoral Fellows Conference. Lake Arrowhead, CA	April 2014
Cold Spring Harbor Conference on Axon Guidance, Synaptic Plasticity, & Regeneration. CSHL, NY <i>Selected to give a talk in the Synapse to Circuit session.</i>	Sept 2010
17 th International <i>C. elegans</i> Meeting. Los Angeles, CA <i>Selected to give a talk in the Neuronal Development session.</i>	June 2009
Albert J. Ryan Foundation Fellows Conference. Holderness, NH	May 2009

Poster Presentations

18 th International Symposium on Neural Regeneration. Asilomar, CA	Jan 2020
Bay Area Molecular Neuroscience Meeting. Berkeley, CA <i>Awarded the best poster prize in the postdoc category.</i>	July 2018
Gordon Research Conference on Dendrites: Molecules, Structure, & Function. Ventura, CA	Mar 2015
HHMI Investigators Meeting. Janelia Farm, VA	Nov 2014
18 th International <i>C. elegans</i> Meeting. Los Angeles, CA <i>Awarded First Prize in the poster contest for the Neurobiology division.</i>	June 2011

Mentees' Presentations

4 th RIKEN Center for Computational Science R-CCS Youth Workshop. Kobe, Japan. Nguyen C, Thompson-Peer KL. Poster. <i>Mentee earned 1 of 5 travel fellowships covering all costs.</i>	Feb 2020
EMBO meeting on the Molecular and Cellular Basis of Regeneration and Tissue Repair. Salerno, Italy. DeVault L, Thompson-Peer KL, Jan LY, Jan YN. Mini talk and poster. <i>Mentee won a poster award.</i>	Sept 2016

INTERNAL PRESENTATIONS

Conte Center at UCI 7 th Annual Symposium. Poster (<i>won 1 of 3 Best Poster awards</i>), Irvine, CA	Feb 2020
UC Irvine Progress in Neuroscience Series, Dept of Anatomy & Neurobiology. Seminar, Irvine, CA	Oct 2019
UC Irvine Department of Developmental & Cell Biology Retreat. Seminar, Irvine, CA	Sept 2019
UCSF Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research Work-in-Progress Series	Nov 2017
UCSF Neuroscience Postdoc Research-in-Progress Seminar Series. Seminar, San Francisco, CA	Oct 2016
UCSF Postdoc Research Symposium. Poster, San Francisco, CA	June 2016
UCSF Mission Bay Research-in-Progress Series. Seminar, San Francisco, CA	Feb 2016
UCSF Neurobiology Program Retreat. Poster (<i>won Best Poster award</i>), Asilomar, CA	Sept 2013
MGH Molecular Biology Department Research-in-Progress Series. Seminar, Boston, MA	Nov 2011
HMS Neurobiology Department Retreat. Poster, Cambridge, MA	May 2011
HMS Neurobiology Department Research-in-Progress Series. Seminar, Boston, MA	May 2011
MGH Molecular Biology Department Research-in-Progress Series. Seminar, Boston, MA	Oct 2009
HMS Biological & Biomedical Sciences Graduate Program Recruitment. Invited Seminar, Boston, MA	Mar 2009
HMS Biological & Biomedical Sciences Graduate Program Retreat. Invited Seminar, Provincetown, MA	Sept 2008
HMS Genetics Department Retreat. Poster, Providence, RI	May 2008
MGH Molecular Biology Department Research-in-Progress Series. Seminar, Boston, MA	Feb 2008

Mentees' Presentations

Ichikawa K. UCSF Summer Undergraduate Research Training Program Symposium. Seminar.	Aug 2016
Ortega J. UCSF Neuroscience Graduate Student Rotation Symposium. Poster.	April 2013

TEACHING & MENTORING**Thompson-Peer Lab**

<i>Rotation Student Mentor:</i>	P. Hwu, D. Suder, J. Pina	Fall 2019 – Winter 2020
<i>Undergraduate Student Mentor:</i>	C. Nguyen, G. Jean, A. Bari	Summer 2019 – present

Guest Lectures

<i>Foundations of Neuroscience</i> (NEURBIO 202A), UC Irvine	Oct 2019
For first year graduate students in the Interdepartmental Neuroscience Program	
<i>Developmental and Cell Biology Journal Club</i> (DEVBIO 206A), UC Irvine	Nov 2019

For senior graduate students in the Developmental and Cell Biology Department's Graduate Program

Formal Training in Mentoring and in Teaching Science

UCSF's <i>Scientific Leadership & Management Skills</i> course	May 2016
UCSF's <i>Science Teaching Effectiveness Program for Upcoming Professors</i> course	April 2016
American Society for Cell Biology (ASCB) and SEPAL (the Science Education Partnership and Assessment Laboratory)'s <i>Bay Area Workshop on Scientific Teaching</i>	March 2016

Jan lab, University of California San Francisco

<i>Grant Application Advisor:</i>	S. Mayoral (J Chan Lab): NINDS K22 funded for 5 years.	Spring 2017
<i>Graduate Student Mentor:</i>	L. DeVault	Spring 2013 – Spring 2019
<i>Undergraduate Student Mentor:</i>	K. Ichikawa	Summer 2016
<i>Technician Supervisor:</i>	M. Beyder	Summer 2014 – Summer 2015
<i>Rotation Student Mentor:</i>	B. Yang, J. Ortega	Spring 2014, Spring 2013

Designed experiments with rotation students and junior trainees in the lab. Taught basic lab techniques, including fly genetics, confocal and 2-photon microscopy. Carried out experiments and data analysis with rotation students and technicians. Coached mentees through preparation for internal and external presentations. Close collaborator and mentor to a graduate student in the Jan lab. Mentored a postdoc in a successful K22 career transition grant application.

Kaplan lab, Massachusetts General Hospital

<i>Rotation Student Mentor:</i>	M. Bloom, P. Wang, M. Thanawala	Winter 2011, Fall 2009, Spring 2009
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Designed research programs for three rotation students. Taught basic lab techniques, including worm genetics, RNAi screening, and microscopy. Carried out experiments and data analysis with rotation students, and advised on presentation of results to the lab.

Harvard College

<i>Teaching Fellow, "Molecular Genetics of Neural Development and Behavior"</i>	Fall 2008
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Lectures by Prof. Sam Kunes, Dept of Molecular and Cellular Biology
A lecture and discussion course on the development of the nervous system for junior and senior undergraduates on neural differentiation and cell identity, cell birth and death, axon guidance and synaptic specificity, and behavioral genetics. I ran the weekly primary literature discussion, taught experimental design, developed the students' scientific writing abilities, developed quiz and exam materials, graded all materials, and conducted all review sessions.
Received the Distinction in Teaching Award from the Derek Bok Teaching Center and the Harvard College Dean of Undergraduate Education.

Science Club for Girls, a Science Outreach Program

<i>Scientist-Mentor and Group Leader, 2nd grade class</i>	Fall 2006
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Led a group of 2nd grade girls in weekly science experiments to encourage enthusiasm for STEM in girls from under-privileged communities.

LEADERSHIP, ADVOCACY, & SERVICE

2020 – present	Ad hoc reviewer , <i>eLife</i>
2019 – present	Member , UCI Interdepartmental Neuroscience Graduate Program Executive Committee & Admissions committee
2019 – present	Member , UCI Department of Dev & Cell Biology Advancement and Promotions Committee
2016 – 2017	Chair , UCSF "Women & Science Policy" seminar series. A collaboration with the UCSF Office of Science Policy & Strategy. Supported by the UCSF trainee organizations Women in Life Sciences and the Science Policy Group. Events on: Pursuing Gender Equity at UCSF (Sept 2016), Women in Science Policy (Dec 2016), and National Science Policy with Mary Maxon (Feb 2017). Featured in UCSF's <i>Synapse</i> 14 March 2017.
2016 – 2017	Leadership committee member , UCSF Science Policy Group.
2015 – 2018	Founder & Chair , UCSF weekly Neuroscience coffee chats. A collaboration with the UCSF Neuroscience formal seminar series. Supported by the Kavli Institute for Fundamental Neuroscience.
2015 – 2017	Postdoc representative , UCSF Chancellor's Council.

- 2015 **Award recipient**, the UCSF Chancellor's Award for the Advancement of Women.
- 2014 – 2016 **Co-Founder & Co-Chair**, P-value*, a grassroots UCSF postdoc think tank.
TED-style talks: within UCSF (March 2015), alongside NIGMS director (May 2015).
Piloted & spun off programs: for postdoc career exploration (2015-2016, 2016-2017) and for industry site visits (2015-present). Contributed opinion pieces on academia & training (2015-2016, including *Science* perspective, see non-research publications below).
Featured in *Nature* 24 Feb 2016; *Science* 6 Mar 2015; UCSF *Synapse* 18 Mar 2015.
- 2014 – 2017 **Committee member**, Tip Sheets subcommittee of the UCSF Committee on the Status of Women
Developed materials to ensure that UCSF is inclusive for women. Presented and distributed to groups and departments across the university. <https://diversity.ucsf.edu/resources/gender-inclusiveness>
Featured in UCSF's *EVCP Expresso* 1 Mar 2016 and other UCSF communications.
The subcommittee was awarded the UCSF Chancellor's Award for the Advancement of Women in 2016 (though I had already received this award in 2015 as an individual).
- 2014 – 2016 **Postdoc representative**, UCSF Chancellor's Committee on the Status of Women.
- 2014 – 2018 **Founder & Co-Chair**, UCSF Postdoc Women's Peer Problem-Solving Groups.
A monthly meeting of postdoc women to support our professional development at UCSF.
Spun off other chapters for postdoc women at other campuses and for graduate student women.
Featured in the UCSF newspaper *Synapse* 5 Mar 2015; ASCB column (see below) Oct 2017.
- 2013 – 2017 **Leadership committee member & mentoring Co-Chair**, Women in Life Sciences (WiLS).
Initiated, developed, and directed (or co-directed) events on: the Impostor Syndrome with Valerie Young (June 2014), a panel discussion on Parenting & Science (Nov 2014), Speed Mentoring for Postdoc women (Jan 2015), trainee lunch with a visiting scientist Mala Murthy (Jan 2015), Women in Academic Science with Sue Rosser (Feb 2015), Women's history month with Women in Biology (March 2015), Title IX and Babies in academic science with Mary Ann Mason (March 2017), and others. Assisted and supported numerous other events and programs.
- 2012 – 2019 **Ad hoc reviewer** with YN Jan, *Genes & Development*, *Nature Communications*, *Journal of Neuroscience*, *Neuron*.

Non-Research Publications

- Thompson-Peer KL.** (2018). Health tips for research groups: Get lab members multiple mentors. *Nature*. 17 May 2018; 557(7705)302-304. doi: 10.1038/d41586-018-05146-5 PMID: 29769687
- White K & **Thompson-Peer KL.** (2017). Peer Mentoring—Colleagues as a Resource for Your Career Development. *ASCB (American Society for Cell Biology) Newsletter*. Women in Cell Biology Column. 1 Oct 2017; 40(7)24-26.
- Thompson-Peer KL.** (2015). Postdocs Reimagined. *Science*. 03 Jul 2015; 349(6243)24-27. doi:10.1126/science.349.6243.24

Invited Presentations

- UCSF K99/R00 Workshop.** May 24, 2018
Moderator & panelist discussing strategies for the K99/R00 fellowship.
- Nature conference** on the “scientific, ethical, social and psychological health of research groups.” Oct 23, 2017
Invited by Sir Philip Campbell, *Nature* editor-in-chief, to be 1 of 11 invited speakers, alongside the director of the NSF, the deputy director of the NIH, the Executive Vice Chancellor and Provost of UC Berkeley, and department chairs. <http://bit.ly/2yR5C9T> Berkeley, CA. Resulted in *Nature special issue* on how to grow healthy labs: vol 557 (7705), 17 May 2018 (see invited opinion piece in that issue). Highlighted in UCSF's *EVCP Expresso*, July 2018.
- UCSF Postdoc Symposium.** June 17, 2016
Panelist discussing the future of postdoctoral training, as the co-chair of P-value*. San Francisco, CA.

PROFESSIONAL MEMBERSHIPS

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| 2017 – present | Society for Neuroscience |
| 2012 – present | American Society for Cell Biology |
| 2007 – present | Genetics Society of America |