

# Linda Wilbrecht

Department of Psychology  
Helen Wills Neuroscience Institute  
University of California, Berkeley  
2121 Berkeley Way West  
Berkeley, CA 94720-1650

Phone: +1 (510) 600-3560  
Email: [linda@berkeley.edu](mailto:linda@berkeley.edu)  
Web: <https://wilbrecht.org>  
Pubmed: [Wilbrecht L](#)  
ORCID: [0000-0003-3492-8141](#)

## Education

- 2007–2008 Postdoctoral Fellow, University of California, San Francisco  
Advisor: Michael Merzenich, Ph.D., UCSF
- 2003–2006 Postdoctoral Fellow, Cold Spring Harbor Laboratory, NY  
Advisor: Karel Svoboda, Ph.D., HHMI/Cold Spring Harbor, NY
- 1997–2003 Ph.D. The Rockefeller University, NY  
Advisor: Fernando Nottebohm, Ph.D., Lab of Animal Behavior
- 1995–1997 B.A., with honours, University of Oxford, UK  
Experimental Psychology and Philosophy
- 1993–1994 Visiting student, University of Oxford, St. Catherine's College, UK  
Studied social sciences with Drs. Avner Ofer and Paul Weindling
- 1990–1995 B.A. *summa cum laude*, University of Minnesota, Twin Cities  
Department of Cultural Studies and Comparative Literature

## Appointments

- 2015–present Associate Professor, Department of Psychology  
Helen Wills Neuroscience Institute, UC Berkeley
- 2013–2015 Assistant Professor, Department of Psychology  
Helen Wills Neuroscience Institute, UC Berkeley
- 2008–2013 Assistant Professor in Residence, Department of Neurology  
UC San Francisco  
Principal Investigator, Ernest Gallo Clinic and Research Center, Emeryville, CA

## Honors and awards

- 2019–2020 Miller Professor, UC Berkeley Miller Institute
- 2011 Presidential Early Career Award for Scientists and Engineers (PECASE)
- 2010 National Academy of Sciences Kavli Frontiers of Science Fellow
- 2009 NIMH Biobehavioral Research Awards for Innovative New Scientists (BRAINS) Award
- 2005 Ruth L. Kirschstein National Research Service Award, NICHD
- 1997 National Science Foundation Graduate Research Fellowship
- 1996 Wellcome Summer Studentship
- 1995 Phi Beta Kappa

## Keywords and areas of Interest

Adolescence, science of learning, decision making, experience-dependent plasticity, puberty, sensitive periods, addiction, synapse structural plasticity, prefrontal cortex, basal ganglia, neuromodulation, reward, feeding, dispersal, motivation

## Professional activities

### Professional organizations

- 2016–present Founding member Scientific Leadership Team, Center for the Developing Adolescent <http://developingadolescent.berkeley.edu> (soon to be hosted by New Venture Fund)
- 2014–present Member, Flux Society and Society for Behavioral Neuroendocrinology
- 1997–present Member, Society for Neuroscience
- 2017–2019 Conference organizing committee member, Flux Congress; Berlin 2018, New York 2019; San Francisco 2020
- 2017–2019 Co-Chair with Bret Doiron Cosyne Conference (Computational and Systems Neuroscience) Denver 2018, Lisbon 2019 <http://www.cosyne.org>
- 1998–2007 Member, New York Academy of Science

## Service to professional publications (selected list)

- 2019–present Associate Editor: Developmental Cognitive Neuroscience, Elsevier.
- 2018–present NBDT Editorial Board: Neurons, Behavior, Data Analysis and Theory, <https://nbdtscholasticahq.com/editorial-board>
- Nature, ad hoc reviewer
- Nature Neuroscience, ad hoc reviewer
- Proceedings of the National Academy of Science, ad hoc reviewer
- Current Biology, ad hoc reviewer
- Neuron, ad hoc reviewer
- Nature Communications, ad hoc reviewer
- Journal of Neuroscience, ad hoc reviewer
- Cell Reports, ad hoc reviewer
- European Journal of Neuroscience, ad hoc reviewer
- Annals of Neurology, ad hoc reviewer
- Molecular Psychiatry, ad hoc reviewer
- Behavioral Neuroscience, ad hoc reviewer
- Synapse, ad hoc reviewer
- Developmental Cognitive Neuroscience, ad hoc reviewer
- Hormones and Behavior, ad hoc reviewer

## Invited presentations

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|-------|---|---------|
| 02-19 | Oxford University, Student invited speaker  | Speaker |
| 02-19 | Sainsbury Wellcome Center, London. Seminar series speaker.  | Speaker |
| 10-18 | Duke University, Neuroscience seminar series  |         |
| 10-18 | CPPC, Conference on Computational Properties of the Prefrontal Cortex, Invited speaker. Host: Thilo Womelsdorf.                                     | Speaker |
| 09-18 | Flux Congress, Berlin Germany, Host: M. Ullman  | Speaker |
| 06-18 | LXXXIII Cold Spring Harbor Symposium on Quantitative Biology, Brains and Behavior: Order and Disorder in the Nervous System<br>Host: Bruce Stillman | Speaker |
| 06-18 | Harvard University, Neurobiology Seminar series, Host: Bernardo Sabatini  | Speaker |

04-18	Genvea, Switzerland, Dominique Mueller memorial, Host: Christian Luscher	Speaker
01-18	UC San Diego, Psychology Dept. seminar series, Host: C. Gremel	Speaker
11-17	Stanford University, Neurosciences Seminar Series, Host: Robert Malenka	Speaker
11-17	Harvard University, Center for Brain Science Seminar Series, Host: Leah Somerville	Speaker
10-17	Princeton University, Psychology Colloquium, Host: Illana Witten	Speaker
05-17	UC Davis, Neurobiology Seminar Series, Host: Tim Hanks	Speaker
05-17	UCLA Neural Microcircuits Training Grant Annual Symposium, Host: Dean Buonomano	Speaker
04-17	Michigan State, Psychology and Neurobiology Seminar Series, Host: Cheryl Sisk	Speaker
02-17	Learning & the Brain Conference on "The Science of Learning: Power of Engagement, Exploration, Parents and Peers, a conference for educators held at the Fairmont Hotel San Francisco, CA	Speaker
11-16	Behavioral Neuroscience Symposium, Host: Gladstone Institute, San Francisco, CA.	Speaker
11-16	Cornell University, Neurobiology and Behavior seminar. Ithaca, NY Host: Melissa Warden	Speaker
10-16	Emory University, Atlanta GA Frontiers In Neuroscience Series, Host: Shannon Gourley	Speaker
08-16	UCSF Memory and Aging Center Grand Rounds Host: Bruce Miller	Speaker
06-16	Society for Behavioral Neuroendocrinology Annual Meeting	Speaker
06-16	Invited Speaker in Presidential Symposium, Asilomar, CA	
04-16	Misconceptions of the Mind Conference (Momicon 2016), Berkeley, CA, Organizers: Tania Lombrozo and June Gruber	Speaker
01-16	Washington State University, Host: Ilia Karatsoreos	Speaker
12-15	UC Riverside, Neuroscience Dept. Host Martin Riccomagno	Speaker
11-15	UC Davis Department of Psychology, Host Brian Trainor	Speaker
10-15	Speaker, Society for Neuroscience, Minisymposium: Selection and Consolidation of Neuronal Circuits: Lessons from Learning and Development Chicago, Illinois	Speaker
09-15	Invited Lecture, Society for Research in Child Development (SRCD) Prosocial Development Meeting, Leiden, The Netherlands	Speaker
05-15	Yale University Neurobiology Seminar Series May 2015 Invited speaker Host: Mike Higley	Speaker

12-14	Johns Hopkins University Neuroscience Seminar Series, Dec. 18th, 2014 Invited speaker	Speaker
10-14	Canadian Institute for Advanced Research (CIFAR) Optogenetics meeting, Montreal, Canada October 29th, 2014 Invited speaker	Speaker
09-14	Flux Congress on Developmental Cognitive Neuroscience, Invited Speaker and Panelist Los Angeles CA Sept. 11-13th, 2014	Speaker
08-14	SciFoo Meeting Mountainview, CA Host: O'Reilly Media, Google, Nature.	Presenter
02-14	COSYNE meeting, Invited speaker (*honor declined due to maternity leave)	
01-14	Advanced Imaging Methods (AIM) Conference, Jan 29th 2014 Berkeley, CA Invited speaker Host: Holly Aaron	Speaker
11-13	University of British Columbia, Vancouver Canada Dept. of Cellular and Physiological Sciences Seminar Series Nov, 1st, 2013 Invited speaker Host: Shernaz Bamji	Speaker
11-13	Molecular Psychiatry Inaugural Meeting, San Francisco, CA Nov. 8th, 2013 Invited speaker	Speaker
10-13	University of California, Irvine Epilepsy Center Seminar Series Oct 29, 2013 Invited speaker Host: Ivan Soltesz	Speaker
07-13	Sackler Institute for Developmental Psychobiology Summer Institute, July 25, 2013 Invited speaker	Speaker, Instructor
07-13	Sloan Swartz Computational Neuroscience Meeting, Brandeis University, July 26th, 2013 Invited speaker	Speaker
06-13	Genes, Circuits, Behavior Meeting, Host: Cell Press. Toronto, Canada June 2nd, 2013 Invited speaker	Speaker
01-13	Sackler Institute for Developmental Psychobiology Winter Meeting, Turks and Caicos January 7, 2013	Speaker
01-13	Winter Conference on Brain Research, Breckenridge Colorado January 27, 2013 Symposium speaker	Speaker
11-12	University of Oregon, Eugene OR Neuroscience Seminar series, Nov. 15th 2012 Invited speaker	Speaker
11-12	Conference on Intrinsic Motivation, Institute of Human Development, UC Berkeley November 30, 2012	Panelist
10-12	University of California, San Diego Neuroscience Seminar Series Invited Speaker Oct. 30th, 2012	Speaker
07-12	University of Leiden, Institute of Psychology, Host: Eveline Crone, July 27, 2012	Speaker
06-12	Molecular and Cellular Neurobiology Gordon Conference, Hong Kong; Invited Speaker; June 2012	Speaker

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11-11	Cold Spring Harbor Laboratory Neuroscience Seminar Series, November 28, 2011 Invited speaker Host: Josh Huang	Speaker
12-10	Adolescent Brain Development Web Conference, NIDA, Dec 16th, 2010	Speaker
03-10	NIMH BRAINS Award Ceremony, Washington D.C. March 26th, 2010	Speaker
09-09	McDonnell Collaborative Network on the Neurobiology of the Von Economo Neurons and Related Circuits, San Francisco, CA, September 3rd, 2009 Host: William Seeley	Speaker
05-09	Society of Biological Psychiatry Annual Meeting; Vancouver, Canada, May 15th, 2009 Symposium speaker	Speaker
10-06	The Rockefeller University, New York, NY, October 2006 Host: Fernando Nottebohm	Speaker
12-02	Conference on the Behavioral Biology of Birdsong at the Center for Gene Structure and Function, Hunter College, NY, NY Invited speaker	Speaker

### **Continuing education courses attended**

2008	Ion Channel Physiology, Cold Spring Harbor Lab, NY 3 weeks
2005	Advanced Techniques in Molecular Neuroscience, Cold Spring Harbor Lab, NY 3 weeks
2001	Biology of Developmental Disabilities, Cold Spring Harbor Lab, NY 4 days
1999	Rapid Electrochemical Measurements in Biological Systems, Marine Biological Lab, Woods Hole, MA. 1 week
1998	Neurobiology, Marine Biological Laboratory, Woods Hole, MA. 8 weeks

## Government and other professional service

Ad hoc referee for:

NIH CSR Neurogenesis and Cell Fate (NCF) study section

NSF grant programs

NIH NIDA Cutting edge basic research (CEBRA) program (2 cycles)

Netherlands Organization for Scientific Research, ALW Open Program

Bank of America Jeffress Trust

NIAAA special emphasis panel

Israel Science Foundation

DFG German Research Foundation

Neurobiology of Motivated Behavior Feb 2018 (NIH CSR Study section)

## University and public service

### University service

2017-present Member, Letters and Science Executive Committee

2015-present Behavioral and Systems Neuroscience Area Head, Dept. of Psychology

2014-present Member, UC Intercampus Consortium on the Developmental Science of Adolescence (joint effort with UCLA, Davis, UCSC and Irvine organized by Prof. A.Fuglini; Funded by UC President for 6 years.

2014-present Scientific board member and leadership team for Center on the Developing Adolescent (CoDA) Director: Ron Dahl, Institute of Human Development UC Berkeley [www.developingadolescent.org](http://www.developingadolescent.org)

2019-2020 Member, Psychology Department Lectureship committee.

2018-2019 Chair, Psychology Department, Climate and Equity Committee

2016-2018 Member, Psychology Department, Climate and Equity Committee

2016-2017 Incoming students faculty mentor, Helen Wills Graduate Program

2016-2017 Outside member, Faculty Search Committee, Department of Molecular and Cellular Biology

2015-2016 Member, Behavioral Neuroscience Faculty Search Committee (Department of Psychology)

2014-15 Member of UC Berkeley Psychology Department Futures Committee

2014-2016 Member of UC Berkeley Letters & Sciences SURF selection committee

- 2014-2016 Member of UC Helen Wills Neuroscience Institute Graduate Program Admissions Committee
- 2013-2014 Member of UC Berkeley Psychology Dept. Lectureship Committee
- 2012-2014 Member UC Berkeley and Childrens Hospital Oakland Center for Cognitive Health and Lifelong Development (CHILD) with Director Silvia Bunge
- 2012-2013 Member, Faculty Search Committee, Health Psychology Search, UC Berkeley Psychology Dept.
- 2009 – 2012 Director of Ernest Gallo Center Postdoctoral Welfare events
- 2008 – 2009 Member of UCSF Memory and Ageing Center discussion group on "The self," frontal cortex, and fronto-temporal dementia
- 2009 – 2013 Director of Optogenetics Core for UCSF Keck Center labs and Ernest Gallo Clinic and Research Center, also organized two related conferences
- 2010 – 2011 UCSF OHNS Faculty Search Committee Member
- 2010 – 2011 UCSF Neuroscience Program Retreat Organizer (two years)
- 2008 – 2011 UCSF Neuroscience Program admissions committee member

## Public service

- 2015–present Classroom volunteer 1 hr/week in Oakland Public School
- 02-13 Speaker, Cinnamon Girls Mentoring Organization Oakland, CA
- 2009 UCSF SEP BioTeach Program, volunteer teacher at Gianni Middle School, San Francisco, CA Prepared and taught lessons for 4 visits

## Research awards – active

### Towards a unified framework for dopamine signaling in the striatum

*1U19NS113201 (Co-PI) 8/15/19 - 7/31/24*

*NIH/NINDS (Sabatini PI, Wilbrecht Co-PI)*

This U19 project unites 6 PIs at 4 sites. The major goal of this project is to develop an integrated and comprehensive model of basal ganglia dopamine function in movement, action, motivation and reward.

### The influence of ASD risk genes on reinforcement learning and cortico-striatal circuit development

*SFARI Pilot Award (PI) \$300,000 4/1/19 - 3/31/21 Simons Foundation*

The major goals for this project are to examine learning and cortical-striatal circuit development in two mouse ASD risk models.



**SL-CN: Science of Learning in Adolescence: Integrating Developmental Studies in Animals and Humans**

*SL:CN 1640885 (Co-PI) 9/1/16 - 8/31/19 (NCE) NSF*

In collaboration with Anne G.E. Collins, PhD and Ron Dahl, MD and a larger network, we are investigating how learning changes during the pubertal transition in mice and people using parallel tasks. My lab is executing the mouse component. We are measuring learning under deterministic and probabilistic contingencies and using computational modeling to isolate unique variables of learning that may have separable biological components. We also manipulate puberty onset in the mice to test the role of gonadal steroids.

**The Impact of Early Food Insecurity on Flexible Updating and Ethanol Consumption**

*R21AA025172 (PI) 6/10/17 - 5/31/19 (NCE) NIH/NIAAA*

The major goal of this project is to develop a new animal model of early life adversity in which food delivery is restricted and/ stable and restricted and uncertain. We will investigate the effect of these feeding manipulations in adolescence on adult flexibility and adult ethanol consumption.

**Optical Monitoring of Modulatory Neurotransmitter Levels Using New Infrared Nanosensors**

*R21DA044010 (PI) 7/1/17 - 6/30/19 (NCE) NIH*

The major goals for this project are to develop a new non genetically encoded tool to image dopamine release.

**Tools to illuminate a missing dimension in neuroimaging: neuromodulation**

*Radical Ideas in Brain Science (Co-PI) 9/1/17 - 8/31/20 UC Berkeley VCR/California Brain Initiative*

The major goals for this project are to develop nIR nanosensor tools and methods to image dopamine release in the retina and the cortex.

**Is gonadal hormone dependent development of frontal cortical inhibitory neurotransmission relevant to juvenile absence epilepsy and juvenile myoclonic epilepsy?**

*Elizabeth Rennie Fund (PI) 9/1/18 - 10/31/19 UC Berkeley*

The major goals for this project are to determine if gonadal hormone dependent development of frontal cortical inhibitory neurotransmission is relevant to juvenile absence epilepsy and juvenile myoclonic epilepsy

**Research awards – past support****Effects of adolescent cocaine on frontal spine turnover, synapses, and behavior**

*R01DA029150 (Wilbrecht PI) 4/01/2010 – 2/28/2017 NIH*

The major goal of this project was to compare the short and long term effects of repeated cocaine exposure on spine dynamics, synapses and behavior.

Role: Principal Investigator (Awarded PECASE)

**Longitudinal imaging of frontal cortex afferents in a mouse model of anxiety**

*R01MH087542 (Wilbrecht PI) 9/16/2009 – 8/31/2015 NIH*

The major goals of this project were to investigate the impact of the val66met point mutation in the BDNF gene and early life adversity on the maturation of frontal cortex dependent behaviors and frontal circuits in mice. We changed focus from anxiety-like behavior to cognitive flexibility when the two BDNF val66met lines available to us did not both show an anxiety phenotype. (BRAINS award)

Role: Principal Investigator

**Learning at the level of the neural circuit: applied optogenetics in nongenetic models**

*1RC2NS069350-01 (Sabes) (Wilbrecht subcontract) 09/1/09-8/31/2011 NIH*

My lab served as a local core (with aid from Deisseroth lab) to test and disseminate viral and optogenetic tools for behavioral studies at the UCSF Keck and Gallo Center.

Role:Subcontract

## Publications

Citations 4896, h-index 27, i10-index 33 (Google Scholar Nov. 2019)

### Pre-prints

- [1] Kristen Delevich, Nana J. Okada, Ameet Rahane, Zicheng Zhang, Christopher D. Hall, and Linda Wilbrecht. “Sex and pubertal status influence dendritic spine density onto frontal cortico-striatal projection neurons”. In: *Cerebral Cortex (In Press)* (2019). DOI: [10.1101/787408](https://doi.org/10.1101/787408). eprint: <https://www.biorxiv.org/content/early/2019/09/30/787408.full.pdf>. URL: <https://www.biorxiv.org/content/early/2019/09/30/787408>
- [2] Kristen Delevich, Benjamin Hoshal, Anne GE Collins, and Linda Wilbrecht. “Choice suppression through opponent but not independent function of the striatal indirect pathway”. In: *bioRxiv* (2019). DOI: [10.1101/675850](https://doi.org/10.1101/675850). eprint: <https://www.biorxiv.org/content/early/2019/06/20/675850.full.pdf>. URL: <https://www.biorxiv.org/content/early/2019/06/20/675850>

### Peer-reviewed research publications

- [3] Kristen Delevich, Christopher Hall, Josiah R. Boivin, David Piekarski, Yuting Zhang, and Linda Wilbrecht. “Prepubertal gonadectomy reveals sex differences in approach-avoidance behavior in adult mice”. In: *Hormones and Behavior* (2019). eprint: <https://www.biorxiv.org/content/early/2019/05/28/638916.full.pdf>. URL: <https://www.biorxiv.org/content/early/2019/05/28/638916>
- [4] A. Wren Thomas, Kristen Delevich, Irene Chang, and Linda Wilbrecht. “Variation in early life maternal care predicts later long range frontal cortex synapse development in mice”. In: *Developmental Cognitive Neuroscience* (2019), p. 100737. ISSN: 1878-9293. DOI: <https://doi.org/10.1016/j.dcn.2019.100737>. URL: <http://www.sciencedirect.com/science/article/pii/S187892931930324X>
- [5] Sarah L. Master, Maria K. Eckstein, Neta Gotlieb, Ronald Dahl, Linda Wilbrecht, and Anne G.E. Collins. “Distangling the systems contributing to changes in learning during adolescence”. In: *Developmental Cognitive Neuroscience* (2019), p. 100732. ISSN: 1878-9293. DOI: <https://doi.org/10.1016/j.dcn.2019.100732>. URL: <http://www.sciencedirect.com/science/article/pii/S1878929319303196>
- [6] A. G. Beyene, K. Delevich, J. T. Del Bonis-O'Donnell, D. J. Piekarski, W. C. Lin, A. W. Thomas, S. J. Yang, P. Kosillo, D. Yang, G. S. Prounis, L. Wilbrecht, and M. P. Landry. “Imaging striatal dopamine release using a nongenetically encoded near infrared fluorescent catecholamine nanosensor”. In: *Sci Adv* 5.7 (2019), eaaw3108. ISSN: 2375-2548. DOI: [10.1126/sciadv.aaw3108](https://doi.org/10.1126/sciadv.aaw3108)
- [7] A. Vandenberg, W. C. Lin, L. H. Tai, D. Ron, and L. Wilbrecht. “Mice engineered to mimic a common Val66Met polymorphism in the BDNF gene show greater sensitivity to reversal in environmental contingencies”. In: *Dev Cogn Neurosci* 34 (2018), pp. 34–41. ISSN: 1878-9293. DOI: [10.1016/j.dcn.2018.05.009](https://doi.org/10.1016/j.dcn.2018.05.009)

- [8] J. R. Boivin, D. J. Piekarski, A. W. Thomas, and L. Wilbrecht. “Adolescent pruning and stabilization of dendritic spines on cortical layer 5 pyramidal neurons do not depend on gonadal hormones”. In: *Dev Cogn Neurosci* 30 (2018), pp. 100–107. ISSN: 1878-9293. DOI: [10.1016/j.dcn.2018.01.007](https://doi.org/10.1016/j.dcn.2018.01.007)
- [9] J. R. Boivin, D. J. Piekarski, J. K. Wahlberg, and L. Wilbrecht. “Age, sex, and gonadal hormones differently influence anxiety- and depression-related behavior during puberty in mice”. In: *Psychoneuroendocrinology* 85 (2017), pp. 78–87. ISSN: 0306-4530. DOI: [10.1016/j.psyneuen.2017.08.009](https://doi.org/10.1016/j.psyneuen.2017.08.009)
- [10] D. J. Piekarski, J. R. Boivin, and L. Wilbrecht. “Ovarian Hormones Organize the Maturation of Inhibitory Neurotransmission in the Frontal Cortex at Puberty Onset in Female Mice”. In: *Curr Biol* 27.12 (2017), 1735–1745.e3. ISSN: 0960-9822. DOI: [10.1016/j.cub.2017.05.027](https://doi.org/10.1016/j.cub.2017.05.027)
- [11] V. Warnault, E. Darcq, N. Morisot, K. Phamluong, L. Wilbrecht, S. M. Massa, F. M. Longo, and D. Ron. “The BDNF Valine 68 to Methionine Polymorphism Increases Compulsive Alcohol Drinking in Mice That Is Reversed by Tropomyosin Receptor Kinase B Activation”. In: *Biol Psychiatry* 79.6 (2016), pp. 463–73. ISSN: 0006-3223. DOI: [10.1016/j.biopsych.2015.06.007](https://doi.org/10.1016/j.biopsych.2015.06.007)
- [12] M. Stephenson-Jones, K. Yu, S. Ahrens, J. M. Tucciarone, A. N. van Huijstee, L. A. Mejia, M. A. Penzo, L. H. Tai, L. Wilbrecht, and B. Li. “A basal ganglia circuit for evaluating action outcomes”. In: *Nature* 539.7628 (2016), pp. 289–293. ISSN: 0028-0836. DOI: [10.1038/nature19845](https://doi.org/10.1038/nature19845)
- [13] T. K. Roseberry, A. M. Lee, A. L. Lalive, L. Wilbrecht, A. Bonci, and A. C. Kreitzer. “Cell-Type-Specific Control of Brainstem Locomotor Circuits by Basal Ganglia”. In: *Cell* 164.3 (2016), pp. 526–37. ISSN: 0092-8674. DOI: [10.1016/j.cell.2015.12.037](https://doi.org/10.1016/j.cell.2015.12.037)
- [14] C. M. Johnson, F. A. Loucks, H. Peckler, A. W. Thomas, P. H. Janak, and L. Wilbrecht. “Long-range orbitofrontal and amygdala axons show divergent patterns of maturation in the frontal cortex across adolescence”. In: *Dev Cogn Neurosci* 18 (2016), pp. 113–20. ISSN: 1878-9293. DOI: [10.1016/j.dcn.2016.01.005](https://doi.org/10.1016/j.dcn.2016.01.005)
- [15] Z. A. Op de Macks, S. A. Bunge, O. N. Bell, L. Wilbrecht, L. J. Kriegsfeld, A. S. Kayser, and R. E. Dahl. “Risky decision-making in adolescent girls: The role of pubertal hormones and reward circuitry”. In: *Psychoneuroendocrinology* 74 (2016), pp. 77–91. ISSN: 0306-4530. DOI: [10.1016/j.psyneuen.2016.08.013](https://doi.org/10.1016/j.psyneuen.2016.08.013)
- [16] C. M. Johnson, H. Peckler, L. H. Tai, and L. Wilbrecht. “Rule learning enhances structural plasticity of long-range axons in frontal cortex”. In: *Nat Commun* 7 (2016), p. 10785. ISSN: 2041-1723. DOI: [10.1038/ncomms10785](https://doi.org/10.1038/ncomms10785)
- [17] A. W. Thomas, N. Caporale, C. Wu, and L. Wilbrecht. “Early maternal separation impacts cognitive flexibility at the age of first independence in mice”. In: *Dev Cogn Neurosci* 18 (2016), pp. 49–56. ISSN: 1878-9293. DOI: [10.1016/j.dcn.2015.09.005](https://doi.org/10.1016/j.dcn.2015.09.005)
- [18] J. R. Boivin, D. M. Piscopo, and L. Wilbrecht. “Brief cognitive training interventions in young adulthood promote long-term resilience to drug-seeking behavior”. In: *Neuropharmacology* 97 (2015), pp. 404–13. ISSN: 0028-3908. DOI: [10.1016/j.neuropharm.2015.05.036](https://doi.org/10.1016/j.neuropharm.2015.05.036)
- [19] A. Vandenberg, D. J. Piekarski, N. Caporale, F. J. Munoz-Cuevas, and L. Wilbrecht. “Adolescent maturation of inhibitory inputs onto cingulate cortex neurons is cell-type specific and TrkB dependent”. In: *Front Neural Circuits* 9 (2015), p. 5. ISSN: 1662-5110. DOI: [10.3389/](https://doi.org/10.3389/)

[fncir.2015.00005](#)

- [20] A. M. Lee, J. L. Hoy, A. Bonci, L. Wilbrecht, M. P. Stryker, and C. M. Niell. “Identification of a brainstem circuit regulating visual cortical state in parallel with locomotion”. In: *Neuron* 83.2 (2014), pp. 455–466. ISSN: 0896-6273. DOI: [10.1016/j.neuron.2014.06.031](#)
- [21] F. J. Munoz-Cuevas, J. Athilingam, D. Piscopo, and L. Wilbrecht. “Cocaine-induced structural plasticity in frontal cortex correlates with conditioned place preference”. In: *Nat Neurosci* 16.10 (2013), pp. 1367–9. ISSN: 1097-6256. DOI: [10.1038/nn.3498](#)
- [22] L. H. Tai, A. M. Lee, N. Benavidez, A. Bonci, and L. Wilbrecht. “Transient stimulation of distinct subpopulations of striatal neurons mimics changes in action value”. In: *Nat Neurosci* 15.9 (2012), pp. 1281–9. ISSN: 1097-6256. DOI: [10.1038/nn.3188](#)
- [23] C. Johnson and L. Wilbrecht. “Juvenile mice show greater flexibility in multiple choice reversal learning than adults”. In: *Dev Cogn Neurosci* 1.4 (2011), pp. 540–51. ISSN: 1878-9293. DOI: [10.1016/j.dcn.2011.05.008](#)
- [24] Y. Xia, J. R. Driscoll, L. Wilbrecht, E. B. Margolis, H. L. Fields, and G. O. Hjelmstad. “Nucleus accumbens medium spiny neurons target non-dopaminergic neurons in the ventral tegmental area”. In: *J Neurosci* 31.21 (2011), pp. 7811–6. ISSN: 0270-6474. DOI: [10.1523/jneurosci.1504-11.2011](#)
- [25] L. Wilbrecht, A. Holtmaat, N. Wright, K. Fox, and K. Svoboda. “Structural plasticity underlies experience-dependent functional plasticity of cortical circuits”. In: *J Neurosci* 30.14 (2010), pp. 4927–32. ISSN: 0270-6474. DOI: [10.1523/jneurosci.6403-09.2010](#)
- [26] A. Holtmaat, T. Bonhoeffer, D. K. Chow, J. Chuckowree, V. De Paola, S. B. Hofer, M. Hubener, T. Keck, G. Knott, W. C. Lee, R. Mostany, T. D. Mrsic-Flogel, E. Nedivi, C. Portera-Cailliau, K. Svoboda, J. T. Trachtenberg, and L. Wilbrecht. “Long-term, high-resolution imaging in the mouse neocortex through a chronic cranial window”. In: *Nat Protoc* 4.8 (2009), pp. 1128–44. ISSN: 1750-2799. DOI: [10.1038/nprot.2009.89](#)
- [27] L. Wilbrecht, H. Williams, N. Gangadhar, and F. Nottebohm. “High levels of new neuron addition persist when the sensitive period for song learning is experimentally prolonged”. In: *J Neurosci* 26.36 (2006), pp. 9135–41. ISSN: 0270-6474. DOI: [10.1523/jneurosci.4869-05.2006](#)
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## Teaching

### Formal scheduled classes for students

Session	Year	Course Number and Title	Role	Units
Spring	2008	Dopamine Mini Course UCSF Eric Huang	Lecturer	NA
Winter	2012	NS 245 Behavioral Neuroscience UCSF (with Patricia Janak)	Organizer and Lecturer	3
Fall	2013	PSYCH 210B Behavioral Neuroscience Proseminar UC Berkeley (With Lance Kriegsfeld)	Organizer and Lecturer	3
Fall	2014	Psych 114 Biology of Learning and Neural Plasticity UC Berkeley (solo)	Organizer and Lecturer	3
Fall	2014	Public health 290 Behavioral Change in Adolescence UC Berkeley (with Ron Dahl)	Organizer and Lecturer	3
Spring	2015	Psych 290 Experience dependent plasticity (with Silvia Bunge) UC Berkeley	Organizer and Lecturer	3
Fall	2015	PSYCH 210B Behavioral Neuroscience Proseminar UC Berkeley (With Lance Kriegsfeld)	Organizer and Lecturer	3
Spring	2016	Psych 114 Biology of Learning and Neural Plasticity UC Berkeley (solo)	Organizer and Lecturer	3
Spring	2017	Psych 194B Undergraduate Honors Thesis seminar with GSI Casey Brown	Organizer and Lecturer	2
Spring	2017	Psych 114 Biology of Learning and Neural Plasticity UC Berkeley (solo)	Organizer and Lecturer	3
Fall	2017	PSYCH 210B Behavioral Neuroscience Proseminar UC Berkeley (With Lance Kriegsfeld and David Foster)	Organizer and Lecturer	3
Spring	2018	Psych 114 Biology of Learning UC Berkeley (solo) Changed class to Tier II level	Organizer and Lecturer	3
Spring	2019	Psych 114 Biology of Learning UC Berkeley (solo)	Organizer and Lecturer	3



## Postgraduate and other courses

Year	Topic	Role
2010– 2013	Imaging in the Nervous System, Cold Spring Harbor Laboratory Course Annual Summer event, 2-3 full days	Lecturer and lab "practical" leader
2015– 2018	UC Consortium on the Developmental Science of Adolescence Summer Institute (2-3 days each August)	Faculty Member, Lecturer and organizer

## Mentoring

### Postdoctoral fellows and residents directly supervised

Year	Name	Student Role	Faculty Role	Current Position
2008– 2013	F. Javier Munoz-Cuevas, Ph.D.	Postdoctoral Fellow	Supervisor, mentor	U Maryland, Senior Scientist Jurado Lab
2009– present	Lung-Hao Tai, Ph.D.	Postdoctoral Fellow	Supervisor, mentor	Currently in lab now, Senior scientist in my group
2010– 2012	Natalia Caporale, Ph.D.	Postdoctoral Fellow	Supervisor, mentor	UC Davis Lecturer with potential for SOE
2012– 2014	Ezequiel Galarce PhD	Robert Wood Johnson Fellow	Supervisor, mentor	Currently researcher at Rally Health
2013– 2018	David Piekarski PhD	Postdoctoral Fellow	Supervisor, mentor	researcher at Palo Alto VA
2015– present	Kristen Delevich, PhD	Postdoctoral Fellow	Supervisor, mentor	Currently in lab Funded by F32 NRSA, Tourette's Foundation
2018– present	George Prounis, PhD	Postdoctoral Fellow	Supervisor, mentor	Currently in lab

## Predoctoral students directly supervised

Year	Name	Program or School	Faculty Role	Current Position
2008– 2015	Carolyn Johnson	UCSF, Neuroscience graduate program	Neuro-graduate PhD Advisor	Postdoc with Takao Hensch, Harvard
2008– 2013	Angela Vandenberg	UCSF, Neuroscience graduate program	Neuro-graduate PhD Advisor	SF State University Bellingham College, Lecturer
2010– 2013	A. Moses Lee	UCSF Medical Scientist Training Program	PhD Advisor	Medical resident at UCSF Psychiatry
2013– 2018	A. Wren Thomas	Helen Wills Neuroscience graduate program	PhD Advisor	Offered Postdoc at UCSF, Funded by NSF GRF award 2013-2016
2014– 2017	Josiah Boivin	UCSF, Neuroscience graduate program	Neuro-graduate PhD Advisor	In Postdoctoral position at MIT, Nedivi lab
2015– present	Wan Chen Lin	UC Berkeley Psychology	PSy- PhD Advisor	current student
2017– present	Abraham Beyene	Chemistry	Co-Mentor	Co mentor on NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (D-SPAN) Award
2018– present	Juliana Chase	Psychology	PhD Advisor	current student
2019– present	Azure Grant	HWNI	Co Advisor	current student
2019– present	Madeline Klinger	HWNI	Co Advisor	current student

## Other supervision

I also supervised a Masters student from University of Maastricht, Aroma Dabas in 2014-2015, an SROP program student, Noah Jones summer 2015, a CAL NERDS summer student, Niusha Bavadian Summer 2015, a Masters student from the UCSF UC Berkeley Joint Medical Program, Dan Schwartz from 1/ 2016.

Summer 2019, we hosted Chris Machle funded by SURF, Chris Hall funded by Rose Hills SURF, Oyindmola Akinremi (UC Davis student), Albert Qu (CS, Berkeley) and Noah Cryns (CNR, Berke-

ley).

Our lab provides research experience for a group of 5-10 undergrads year round. Typically students work 10+ hours per week and stay 2-4 semesters. Undergraduate students from 2016- 2018 have been accepted into graduate programs at Northwestern, McGill, and the post baccalaureate program at NIH. Three others were accepted to medical school.

## **References**

Available on request.