

## *Yevgenia (Genia) Kozorovitskiy, PhD*

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### **1. EDUCATION**

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PhD, Princeton University, Neuroscience & Psychology	2007
Ion Channel Physiology Course, Cold Spring Harbor Laboratories	2007
BA, Princeton University, Psychology & Neuroscience, <i>Summa cum laude</i>	2001

### **2. POSTDOCTORAL RECOGNITIONS (selected)**

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#### Fellowship awards during postdoctoral training:

Leonard and Isabelle Goldenson Research Fellowship, Goldenson Foundation	2011
William F. Milton Fund Award, Harvard University	2008
Harvard University Society of Fellows Junior Fellowship	2007

#### Other honors and awards during postdoctoral training:

Anuradha Rao Memorial Award, Cell Press/Society for Neuroscience	2013
Cell Press Award at Gordon Research Conference Dendrites	2009

#### Fellowship awards in the independent position:

Scialog: Advancing Bioimaging Award	2021
NSF CAREER Award, National Science Foundation	2019
Searle Scholar Award, Kinship Foundation	2016
Sloan Research Fellowship, Alfred P. Sloan Foundation	2016
Beckman Young Investigator Award, Arnold & Mabel Beckman Foundation	2015
Rita Allen Scholar Award, Rita Allen Foundation	2015
Cornew Innovation Award, Chemistry of Life Processes Institute	2015
Chicago Biomedical Consortium Catalyst Award	2015
Whitehall Foundation Grant, Whitehall Foundation	2015
William and Bernice Bumpus Innovation Award, W. & B. Bumpus Foundation	2015
NARSAD Young Investigator Grant and P&S Fund Investigator, Brain & Behavior Research Foundation and P&S Fund	2015

#### Other honors and awards in the independent position:

Kavli Frontiers of Science Fellow, Kavli Foundation & National Academies of Science	2017
American College of Neuropsychopharmacology Travel Award, ACNP	2017
Janett Rosenberg Trubatch Career Development Award, Society for Neuroscience	2016

### **3. EMPLOYMENT**

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Soretta and Henry Shapiro Research Professor of Molecular Biology	9/2020–
Associate Professor, Northwestern University, Department of Neurobiology	9/2020–

Assistant Professor, Northwestern University, Department of Neurobiology	2014–2020
Assistant Professor (courtesy), Feinberg Medical School, Department of Physiology	2019–2020
Member, Chemistry of Life Processes Institute	4/2015–
Postdoctoral Research Fellow, Harvard Medical School/HHMI	2008–2014
“Neural activity and neuromodulation in developmental wiring of basal ganglia circuits”	
Adviser: Bernardo Sabatini, MD, PhD	
Junior Fellow, Harvard Society of Fellows, Harvard University	2007–2010
Graduate Research Fellow, Princeton University	2002–2007
“Social experience-induced structural plasticity in the adult rodent and primate brain”	
Adviser: Elizabeth Gould, PhD	
Undergraduate Research Fellow, Princeton University	1999–2001
“Social dominance influences adult hippocampal neurogenesis”	
Adviser: Elizabeth Gould, PhD	

#### 4. PUBLICATIONS

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##### *Manuscripts in Process (selected)*

\*co-first, #corresponding authors.

Yang Y\*, Wu M\*, Wegener A\*, Vázquez-Guardado A, Efimov A, Lie F, Wang T, Ma Y, Banks A, Xie Z, Huang Y, Good C#, **Kozorovitskiy Y#**, Rogers JA#. (in revision). Preparation and use of wireless reprogrammable multilateral optogenetic devices for behavioral neuroscience.

Canton-Josh JE, Qin J, Kozorovitskiy Y (in revision). Dopaminergic regulation of vestibulo-cerebellar circuits through unipolar brush cells. Related Biorxiv preprint: <https://doi.org/10.1101/2021.03.26.437266>

Priest MF, Freda SN, Badong D, Dumrongprechachan V, Kozorovitskiy Y (submitted). Peptidergic modulation of fear responses by the Edinger-Westphal nucleus. Related Biorxiv preprint: <https://doi.org/10.1101/2021.08.05.455317>

Wu Y\*, Wu M\*, Vázquez-Guardado A\*, Kim J\*, Zhang X, Avila A, Kim JT, Deng Y, Xu Y, Melzer S, Bai Y, Meng L, Zhang Y, Guo H, Hong L, Kanatzidis E, Haney CR, Waters E, Hu Z, Lie F, Chamorro LP, Sabatini B, Huang Y#, **Kozorovitskiy Y#**, Rogers JA#. (submitted). Real-time programmable gene delivery, optogenetics and photopharmacology enabled by wireless multi-lateral optofluidic microsystems.

Kumar M, Kishore S, McLean D, Kozorovitskiy Y. Crossbill: an open access single objective light-sheet microscopy platform. Related Biorxiv preprint: <https://doi.org/10.1101/2021.04.30.442190>

##### *Research Papers*

Dumrongprechachan V, Salisbury RB, Soto G, Kumar M, MacDonald ML#, **Kozorovitskiy Y#** (2021). Cell-type and subcellular compartment-specific apex2 proximity labeling reveals activity-

dependent nuclear proteome dynamics in the striatum. *Nature Communications*, 12(1). <https://doi.org/10.1038/s41467-021-25144-y>

Yang Q\*, Wei T\*, Yin R\*, Wu M\*, Xu Y\*, Koo J, Choi Y, Xie Z, Chen S, Kandela I, Yao S, Deng Y, Avila R, Liu T, Bai W, Yang Y, Han M, Zhang Q, Haney C, Lee B, Aras K, Wang T, Seo M, Luan H, Lee S, Brikha A, Ghoreishi-Haack N, Tran L, Stepien I, Aird F, Waters E, Yu X, Banks A, Trachiotis G, Torkelson J, Huang Y, **Kozorovitskiy Y<sup>#</sup>**, Efimov I<sup>#</sup>, Rogers J<sup>#</sup> (2021). Photocurable, bioresorbable adhesives as functional interfaces between flexible bioelectronic devices and soft biological tissues. *Nature Materials*. <https://doi.org/10.1038/s41563-021-01051-x>

Ausra J, Wu M, Zhang X, Vázquez-Guardado A, Skelton P, Peralta R, Avila R, Murickan T, Haney CR, Huang Y, Rogers JA<sup>#</sup>, Kozorovitskiy Y<sup>#</sup>, Gutruf P<sup>#</sup> (2021). Wireless, battery-free, subdermally implantable platforms for transcranial and long-range optogenetics in freely moving animals. *Proceedings of the National Academy of Sciences*, 118(30).

Yang Y\*, Wu M\*, Vazquez-Guardado A\*, Good C, Grajales J, Deng Y, Yu X, Wang T, Wegner A, Avila R, Minkowicz S, Lee J, Zhang S, Legaria A, Ma Y, Han M, Zhao H, Lu W, Yu Y, Gereau R, Xie Z<sup>#</sup>, Huang Y<sup>#</sup>, **Kozorovitskiy Y<sup>#</sup>**, Rogers J<sup>#</sup> (2021). Real-time control in wireless multilateral optogenetics for broad neuroscience applications. *Nature Neuroscience*, 24(7): 1035–1045.

Wu M, Minkowicz S, Dumrongprechachan V, Hamilton P, Xiao L, **Kozorovitskiy Y<sup>#</sup>** (2021). Attenuated dopamine signaling after aversive learning is restored by ketamine to rescue escape actions. *eLife*, 10: e64041.

Wu M, Minkowicz S, Dumrongprechachan V, Hamilton P, **Kozorovitskiy Y<sup>#</sup>** (2021). Ketamine rapidly enhances glutamate-evoked dendritic spinogenesis in medial prefrontal cortex through dopaminergic mechanisms. *Biological Psychiatry*, 89(11): 1096–1105.

Shemetov A, Monakhov M, Zhang Q, Canton-Josh E, Kumar M, Shcherbakova D, Yao J, **Kozorovitskiy Y**, Ji N, Verkhusha V<sup>#</sup> (2021). Near-infrared genetically encoded calcium indicator for multiplexed applications. *Nature Biotechnology*, 39(3): 368–377.

Chen C, Soto G, Bannon N, Kang S, **Kozorovitskiy Y<sup>#</sup>**, Parisiadou L<sup>#</sup> (2020). Pathway-specific deregulation of striatal excitatory synapses in LRRK2 mutations. *eLife*, 9: e58997.

Kumar M, **Kozorovitskiy Y** (2020). Tilt (in)variant lateral scan in oblique plane microscopy: a geometrical optics approach. *Biomedical Optics Express*, 11(6): 3346-59.

Kumar M, **Kozorovitskiy Y<sup>#</sup>** (2019). Tilt-invariant oblique plane illumination microscopy for large-scale volumetric imaging. *Optics Letters*, 44(7): 1706-9.

Kumar M, Kishore S, Nasenbeny J, McLean D, **Kozorovitskiy Y<sup>#</sup>** (2018). Integrated one- and two-photon scanned oblique plane illumination (SOPi) microscopy for rapid volumetric imaging. *Optics Express*, 26 (10): 13027-41.

Xiao L, Priest MF, **Kozorovitskiy Y<sup>#</sup>** (2018). Oxytocin functions as a spatiotemporal filter for excitatory synaptic inputs to VTA dopamine neurons. *eLife*, 7, pii: e33892.

Banala S\*, Arvin M\*, Bannon N, Jin X, Macklin J, Wang Y, Peng C, Zhao G, Marshall J, Gee K, Wokosin D, Kim V, McIntosh J, Contractor A, Lester H, **Kozorovitskiy Y**, Drenan R<sup>#</sup>, Lavis L<sup>#</sup>

(2018). Development of photoactivatable drugs enables nicotinic optopharmacology. *Nature Methods*, 15(5): 347-50.

Urban B, Xiao L, Chen S, Dong B, Yang H, **Kozorovitskiy Y**, Zhang H<sup>#</sup> (2018). *In vivo* super-resolution imaging of neuronal structure in the mouse brain. *IEEE Transactions on Biomedical Engineering*, 65(1): 232-238.

Urban B, Xiao L, Chen S, Dong B, **Kozorovitskiy Y**<sup>#</sup>, Zhang H<sup>#</sup> (2018). Imaging neuronal structure dynamics using two-photon super-resolution patterned excitation reconstruction (SuPER) microscopy. *Journal of Biophotonics*, Mar, 11(3). <sup>#</sup>co-corresponding authors

Xiao L, Priest MF, Nasenbeny J, Lu T, **Kozorovitskiy Y**<sup>#</sup> (2017). Biased oxytocinergic modulation of midbrain dopamine systems. *Neuron*, 95(2): 368-384.

Peixoto R, Wang W, Croney D, **Kozorovitskiy Y**, Sabatini B<sup>#</sup> (2016). Early hyperactivity and precocious maturation of corticostriatal circuits in Shank3B<sup>-/-</sup> mice. *Nature Neuroscience*, 19(5): 716-24.

**Kozorovitskiy Y**, Peixoto R, Wang W, Saunders A, Sabatini B<sup>#</sup> (2015). Neuromodulation of excitatory synaptogenesis in striatal development. *eLife*, pii: e10111.

Tang J, Szikra T, **Kozorovitskiy Y**, Teixeira M, Sabatini B, Roska B, Cepko C<sup>#</sup> (2013). A nanobody-based system using fluorescent proteins as scaffolds for cell-specific gene manipulation. *Cell*, 154(4): 928-39.

Kwon H, **Kozorovitskiy Y**, Oh W, Peixoto R, Akhtar N, Saulnier J, Gu C, Sabatini B<sup>#</sup> (2012). Neuroligin-1-dependent competition regulates cortical synaptogenesis and synapse number. *Nature Neuroscience*, 15(12): 1667-74.

**Kozorovitskiy Y**<sup>\*</sup>, Saunders A<sup>\*</sup>, Johnson C, Lowell B, Sabatini B<sup>#</sup> (2012). Recurrent network activity drives striatal synaptogenesis. *Nature*, 485(7400): 646-50.

Glasper E, **Kozorovitskiy Y**, Pavlic A, Gould E<sup>#</sup> (2011). Paternal experience suppresses adult neurogenesis without altering hippocampal function in *Peromyscus californicus*. *Journal of Comparative Neurology*, 519(11): 2271-81.

Leuner B, **Kozorovitskiy Y**, Gross C, Gould E<sup>#</sup> (2007). Diminished adult neurogenesis in the marmoset brain precedes old age. *PNAS*, 104(43): 17169-73.

**Kozorovitskiy Y**, Hughes M, Lee K, Gould E<sup>#</sup> (2006). Fatherhood affects dendritic spines and vasopressin V1a receptors in the primate prefrontal cortex. *Nature Neuroscience*, 9(9): 1094-5.

**Kozorovitskiy Y**, Gross C, Copil K, Battaglia L, McBreen M, Stranahan A, Gould E<sup>#</sup> (2005). Experience induces structural and biochemical changes in the adult primate brain. *PNAS*, 102(48): 17478-82.

Leuner B, Mendolia-Loffredo S, **Kozorovitskiy Y**, Samburg D, Gould E, Shors T<sup>#</sup> (2004). Learning enhances the survival of new neurons beyond the time when the hippocampus is required for memory. *Journal of Neuroscience*, 24(34): 7477-81.

**Kozorovitskiy Y, Gould E<sup>#</sup>** (2004). Dominance hierarchy influences adult neurogenesis in the dentate gyrus. *Journal of Neuroscience*, 24(30): 6755–9.

Shors T, Townsend D, Zhao M, **Kozorovitskiy Y, Gould E<sup>#</sup>** (2002). Neurogenesis may relate to some but not all types of hippocampal-dependent learning. *Hippocampus*, 12: 578–84.

### **Reviews and Book Chapters**

Peixoto R, **Kozorovitskiy Y<sup>#</sup>** (2020). Striatal circuit development and synapse maturation. In *Cellular Migration and Formation of Neuronal Connections*. Eds. Rubenstein, J, Rakic, P; Elsevier.

Priest MF, **Kozorovitskiy Y<sup>#</sup>** (2016). News and Views: PAM helps solve VTA's SHANKless problem. *Nature Neuroscience*, 19(7): 864-6.

**Kozorovitskiy Y, Gould E<sup>#</sup>** (2007). Adult neurogenesis in the hippocampus. In *Handbook of Developmental Cognitive Neuroscience*, Eds. Charles Nelson & Monica Luciana; MIT Press.

**Kozorovitskiy Y, Gould E<sup>#</sup>** (2006). Adult neurogenesis and regeneration. In *Cognitive Reserve*, Eds. Yaakov Stern; Taylor Francis.

**Kozorovitskiy Y<sup>#</sup>** (2005). Journal Club: Not every graft has what it takes to attract a mossy fiber. *Journal of Neuroscience*, 24(45): 10337–8.

**Kozorovitskiy Y, Gould E<sup>#</sup>** (2003). Adult neurogenesis: A mechanism for brain repair? *Journal of Clinical and Experimental Neuropsychology*, 25(5): 721–732.

### **5. PROFESSIONAL TALKS (recent)**

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NIH Seminar Series (Zoom), <i>Bethesda, MD</i>	04/2021
UT Austin (Zoom), <i>Austin, TX</i>	04/2021
UCSF (Zoom), <i>San Francisco, CA</i>	01/2021
NYU Oxytocin U19 symposium (keynote Zoom), <i>New York, NY</i>	12/2020
IIT (Zoom), <i>Chicago, IL</i>	09/2020
Washington University (Zoom), <i>Seattle, WA</i>	06/2020
Northwestern University, Neurobiology department seminar (Zoom), <i>Evanston IL</i>	04/2020
University of Kentucky, <i>Lexington, KY</i>	02/2020
Vanderbilt University (Biophotonics Center), <i>Nashville, TN</i>	02/2020
University of North Carolina, <i>Chapel Hill, NC</i>	01/2020
University of Chicago, <i>Chicago, IL</i>	01/2020
IBRO Symposium Chair/Speaker, World Congress of Neuroscience, <i>Daegu, Korea</i>	09/2019
Yale University, Neuroscience Program Retreat Keynote Speaker, <i>New Haven, CT</i>	08/2019
Rita Allen Foundation Symposium, Banbury Center, CSHL, <i>Long Island, NY</i>	08/2019
Beckman Symposium, <i>Irvine, CA</i>	08/2019
Symposium on Advanced Photonic Imaging in Neuroscience, Institut de Neurosciences de la Timone, <i>Marseille, France</i>	07/2019
Columbia University, <i>NYC, NY</i>	06/2019
Washington University in St. Louis, <i>St. Louis, MO</i>	05/2019
World Congress of Neurohypophyseal Peptides, <i>Ein Gedi, Israel</i>	04/2019

Searle Scholars Meeting, <i>Chicago, IL</i>	04/2019
Dendrites Gordon Research Conference, <i>Ventura, CA</i>	04/2019
Stanford University, <i>Palo Alto, CA</i>	03/2019
University of Illinois at Chicago, <i>Chicago, IL</i>	01/2019
Duke University, Department of Neurobiology, <i>Durham, NC</i>	01/2019
American College of Psychoneuropharmacology, <i>Hollywood, FL</i>	12/2018
Society for Neuroscience, <i>San Diego, CA</i>	11/2018
Learning for Life Lectures Course, <i>Chicago, IL</i>	09/2018
ACD NIH BRAIN Initiative workshop, <i>Chicago, IL</i>	09/2018
Cold Spring Harbor Laboratories, Ion Channels and Synaptic Transmission, <i>NY</i>	06/2018
NIH/NIAAA, <i>Rockville, MD</i>	05/2018
NIH/NINDS, <i>Bethesda, MD</i>	05/2018
University of Minnesota, <i>Minneapolis, MN</i>	05/2018
Basal Ganglia Gordon Research Conference, <i>Ventura, CA</i>	04/2018

## 6. PEER REVIEW AND RELATED ACTIVITIES

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### Scientific Review:

*eLife, Nature Neuroscience, Nature Methods, Neuron, Journal of Neuroscience, Cell Reports, Scientific Reports, Nature Communications, Journal of Neurophysiology, Molecular Psychiatry, Biomedical Optics Express, TINS, Nature Methods, eNeuro, Neuropsychopharmacology, Science Advances, Biomedical Optics Express, Frontiers in Molecular Neuroscience, et al.*

### Federal Grant Review:

BRAIN Initiative U01 and U19 review, NINDS, NIH (3x/year; 2020, co-Chair)	2018–
BRAIN Initiative R01 and R34 review, NINDS, NIH (1-2x/year)	2018–
ACD NIH BRAIN Initiative workshop, speaker & panelist	2018
Ad hoc reviewer, Molecular Neuropharmacology (MNPS) study section, NIH	2018–
Early Career Reviewer, NIH, MNPS study section	2017

## 7. ACTIVE GRANTS

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R01 NS107539 Kozorovitskiy (PI) “Mechanisms of striatal structural and functional plasticity”	9/1/18–8/31/23
R01 MH117111 Kozorovitskiy (PI) “Neurohypophyseal regulation of midbrain dopamine systems”	8/13/18–5/31/23
NSF, IOS-1846234 Kozorovitskiy (PI) “CAREER: Mapping the proteomic landscape of neural systems”	1/15/19–1/14/24
R01 MH118497 Kozorovitskiy (co-I), MacDonald (PI) “Synaptic protein networks, genetic risk, and spine loss in Schizophrenia”	5/1/19-4/30/24