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Education

Post-doctoral Fellow in Neuroscience; Mentor: Dr. Yishi Jin, UC Santa Cruz, HHMI	1996-2000
PhD in Biochemistry; Mentor: Dr. Peter Candido, University of British Columbia	1990-1995
BSc in Biochemistry, Wuhan University, China	1986-1990

Appointments

Visiting Professor, Harvard University	Since 2020
Co-Director, the Nanoscale Biomedical Imaging Facility, Sinai Health System and the Hospital for Sick Children	Since 2018
Professor of Molecular Genetics, University of Toronto	Since 2012
Senior Scientist, the Lunenfeld-Tanenbaum Research Institute	Since 2006
Associate Professor of Molecular Genetics, Physiology, University of Toronto	2006-2012
Scientist, the Lunenfeld-Tanenbaum Research Institute	2001-2006
Assistant Professor of Molecular Genetics, University of Toronto	2001-2006

Distinctions

Outstanding Reviewer, CIHR	2025
Fellow, the Royal Society of Canada	Since 2025
Canada's Most Powerful Women: Top 100 TM STEM Award	2025
Fellow, the Canadian Institute for Advanced Research	2023-2028
Tier 1 Canada Research Chair in Neural Circuit Development and Function	2018-2032
Visiting Scholar, the EMBL	2024
Lloyd S. D. Fogler QC Award of Excellence Award	2014-2015
Fellow, The Radcliffe Institute for Advanced Study, Harvard University	2013-2014
Lawrence and Judy Tanenbaum Research Chair in Neuroscience, MSH	2008-2011
Fellow, Mobility Program in Science and Technology, France	2008
Early Researcher Award, the Ontario Ministry of Research and Innovation	2007-2011
EJLB Scholar, the EJLB Foundation	2007-2011
Petro Canada Young Innovator Award	2006-2007
Early Researcher Award, Samuel Lunenfeld Research Institute	2006
Tier 2 Canada Research Chair in Neuroscience	2001-2011
Long-term Post-doctoral Fellowship, the Human Frontier Science Foundation	1996-1998
University Graduate Fellowship, the University of British Columbia	1991-1995

Service

Reviewing Editor, eLife	Since 2025
Scientific Advisory Board Member, Channeling Hope Foundation	Since 2023
Reviewing Editor, eNeuron	2023-2025
Faculty Appointments Advisory Committee, Temerty Faculty of Medicine, University of Toronto	2023-2026
Graduate Advisory Team, Department of Molecular Genetics, University of Toronto	2019
Graduate Admissions Committee, Department of Molecular Genetics, University of Toronto	Since 2018
Advisory Board Member, WormBase	Since 2018
Steering Committee, Research Coordination Network on Comparative Neurobiology, NSF	Since 2017
Review Committee, Canadian Gairdner Foundation	2015-2018
Review Committee, Radcliffe Institute, Harvard University	Since 2014
Graduate Admissions Committee, Department of Physiology, University of Toronto	2014-2016
Graduate Awards Committee, Department of Physiology, University of Toronto	2014-2016
Graduate Awards Committee, Department of Molecular Genetics, University of Toronto	2010-2017
Steering Committee, Graduate Program in Developmental Biology, University of Toronto	2006-2012
Reviewer for Journals	Since 2001
Reviewer for Grant Panels	Since 2001
Supervisory Committee for thesis studies, University of Toronto (BSc, MSc, PhD)	Since 2001

International Courses and Workshops

Neurophysics of Active Sensing, KITP, UC Santa Barbara	2025
<i>C. elegans</i> , from genome editing to imaging, EMBL, Heidelberg, Germany	2022
Workshop lectures, Brain Initiative, NIH	2020-2022
Neural Systems & Behavior, Marine Biological Laboratory, Woods Hole, MA, USA	2019
Course Coordinator, Neural Systems & Behaviour, MBL	2018-2019
Developmental Neurobiology, Okinawa Institute of Science and Technology, Japan	2017-2019
Organizing Committee, International <i>C. elegans</i> Meetings and Workshops	2008-2017
Session Committee, American Society for Cell Biology	2013
Program Advisor, 2012 Gairdner Award Neural Symposium	2012
Course Coordinator, <i>C. elegans</i> course, Cold Spring Harbor Laboratory	2008-2010
The <i>C. elegans</i> Course, Cold Spring Harbor Laboratory, Cold Spring, NY, USA	2008-2010

Teaching at University of Toronto

JDB1025H: Developmental Biology (Collaborative Program in Developmental Biology)
JYG1555H: Cellular and Molecular Neurobiology (Physiology)
MMG1012H: Advanced Imaging: Techniques and Application in Biological Systems (Molecular Genetics)
MMG1012H: Developmental Neurobiology (Molecular Genetics)
MGY460H: Contemporary Concept and Analyses of Developmental Biology
MGY480Y: Undergraduate Research Thesis Course (Fourth Year)
MGY399Y: Undergraduate Research Opportunity Program (Third Year)
MGY299Y: Undergraduate Research Opportunity Program (Second Year)

Publications *: correspondence

Connectomics

Wang M, Li W, Mulcahy B, Witvliet D, Chang C, Meirovitch Y, Berger D, Yang F, Shandok I, Britz S, Preibisch S, Darbandi A, Stigloher C, ShXingi G, Lichtman JW, Zhen M* (2026) **Development- and state-dependent wiring plasticity of the *C. elegans* nervous system** (Manuscript in preparation)

Pavarino EC, Yang E, Dhanyasi N, Wang M, Bidel F, Lu X, Yang F, Mukesh BR, Drescher B, Hochner B, Katz PS, Zhen M, Lichtman JW, Meriovitch Y (2023). **mEMbrain: an interactive deep learning MATLAB tool for connectomics segmentation on commodity desktops.** *Frontiers in Neural Circuits* 17:952921. PMID: 37396399

Mulcahy B*, Witvliet D, Mitchell JM, Schalek RL, Berger D, Wu Y, Holmyard D, Lu Y, Ahamed T, Samuel ADT, Chisholm AD, Lichtman JW, Zhen M* (2022). **Post-embryonic remodeling of the *C. elegans* motor circuit.** *Current Biology* 32(21): 4645-4659. PMID: 36283410

Witvliet D*, Mulcahy B, Mitchell JM, Meirovitch Y, Berger DR, Wu Y, Liu Y, Koh WR, Parvathala R, Holmyard D, Schalek RL, Shavit N, Chisholm AD, Lichtman JW*, Samuel ADT*, Zhen M*. (2021). **Connectomes across development reveal principles of brain maturation in *C. elegans*.** *Nature* 596: 257-261. PMID 34349261.

Britz S, Markert SM, Witvliet D, Steyer AM, Tröger S, Mulcahy B, Kollmannsberger P, Schwab Y, Zhen M, Stigloher C. (2021). **Structural analysis of the *C. elegans* dauer larval anterior sensilla by Focused Ion Beam-Scanning Electron Microscopy.** *Frontiers in Neuroanatomy* 15:732520. PMID: 34819841

Cuentas-Condori A, Mulcahy B, He S, Palumbos S, Zhen M, Miller DM III. (2019). ***C. elegans* neurons have functional dendritic spines** *eLife* 8: e47918. PMID: 31584430.

Mulcahy B*, Witvliet D, Holmyard D, Mitchell J, Chisholm A, Samuel ADT*, Zhen M*. (2018). **A Pipeline for Volume Electron Microscopy of the *Caenorhabditis elegans* Nervous System.** *Frontiers in Neural Circuits* 12:94. PMID: 30949033.

Kaltdorf KV, Theiss M, Markert SM, Zhen M, Dandekar T, Stigloher C, Kollmannsberger P. (2018). **Automated classification of synaptic vesicles in electron tomograms of *C. elegans* using machine learning.** *PloS One Computational Biology* 13(10):e0205348. PMID: 30296290.

Markert SM, Britz S, Proppert S, Lang M, Witvliet D, Mulcahy B, Sauer M, Zhen M, Bessereau JL, Stigloher C. (2016). **Filling the gap: adding super-resolution to array tomography for correlated ultrastructural and molecular identification of electrical synapses at the *C. elegans* connectome.** *Neurophotonics* 3(4): 041802. PMID: 27175373.

Circuits: activity, dynamics, and behaviors

Bach M, Bergs A, Mulcahy B, Zhen M, Gottschalk A. **Coordinated electrical and chemical signaling between two neurons orchestrates switching of motor states.** *bioRxiv* 2023.01.04.522780; doi: <https://doi.org/10.1101/2023.01.04.522780> *Current Biology* (Submitted)

Meng J, Ahamed T*, Yu B, Hung W, El Mouridi S, Leclercq-Blondel A, Gendrel M, Wang Z, Chen L, Wen Q, Boulin T, Gao S*, Zhen M*. (2024). **A tonically active neuron continuously drives mutually exclusive motor states at different timescales.** *Science Advances* 10(15): eadk0002. PMID: 38598630

Li Y, Chitturi J, Yu B, Zhang Y, Wu J, Ti P, Hung W, Zhen M, Gao S (2023). **UBR-1 ubiquitin ligase regulates the balance between GABAergic and glutamatergic signaling.** *EMBO Reports* 24(11), e57014. PMID: 37811674

Lin A*, Qin S, Casademunt H, Wu M, Hung W, Cain G, Tan NZ, Valenzuela R, Lesanpezeshki L, Venkatachalam V, Pehlevan C*, Zhen M, Samuel ADT.* (2023). **Functional imaging and quantification of multineuronal olfactory responses in *C. elegans*.** *Science Advances* 9, eade1249. PMID: 36857454

Lu Y, Ahamed T, Mulcahy B, Witvliet D, Guan SA, Hung W, Meng J, Wen Q, Samuel ADT, Zhen M.* (2022). **Extrasynaptic signaling enables an asymmetric juvenile motor circuit to produce a symmetric gait.** *Current Biology* 32: 4631–4644. PMID: 36182701

Chen L, Liu Y, Su P, Hung W, Li H, Wang Y, Yue Z, Ge M, Wu Z, Zhang Y, Fei P, Chen L, Tao L, Mao H, Zhen M, Gao S. (2022). **Escape Steering by Cholecystokinin Peptidergic Signaling.** *Cell Reports* 38(6): 110330. PMID: 35139370.

Susoy V, Hung W, Witvliet D, Whitener JE, Wu M, Graham BJ, Zhen M, Venkatachalam V, Samuel ADT. (2021). **Natural sensory context drives diverse brain-wide activity during *C. elegans* mating.** *Cell* 184(20): 5122-5137.e17. PMID: 34534446

Ji N, Venkatachalam V, Rodgers H, Hung W, Kawano T, Clark C, Lim M, Alkema MJ*, Zhen M*, Samuel ADT*. (2021). **Corollary discharge promotes a sustained motor state in a neural circuit for navigation.** *eLife* 2021;10:e68848. PMID: 33880993

Yuan W, Zhang X, Qi X, Hung W, Florman J, Huo J, Xu T, Xie Y, Alkema M, Zhen M, Wen Q. (2020). **Flexible motor sequence generation during stereotyped escape responses.** *eLife* 2020;9:e56942/ PMID: 32501216. PMCID: PMC7338056.

Ao Y, Zeng K, Yu B, Miao Y, Hung W, Zhen M, Yang X, Zhang Y, Gao S. (2019). **An Upconversion Nanoparticle Enables Near Infrared-Optogenetic Manipulation of the *C. elegans* Motor Circuit.** *ACS Nano* 13(3): 3373-3386. PMID: 30681836.

Wen Q*, Gao S*, Zhen M*. (2018). ***C. elegans* excitatory ventral cord motor neurons derive rhythm for body undulation.** *Phil. Trans. R. Soc. B.* 373(1758). PMID: 30201835.

Xu T, Huo J, Shao S, Po M, Kawano T, Lu Y, Qu M, Zhen M, Wen Q. (2018). **A descending pathway through electrical coupling facilitates undulatory wave propagation in *C. elegans*.** *PNAS* 115(19): E4493-E4502. PMID: 29686107.

Gao S*, Guan S, Fouad AD, Meng J, Huang Y, Li Y, Alcaire S, Hung W, Kawano T, Lu Y, Qi YB, Jin Y, Alkema M, Fang-Yen C, Zhen M*. (2018). **Excitatory Motor Neurons are Local Oscillators for Reverse Locomotion.** *eLife* 6:e299915. PMID: 29360035.

Lim MA*, Chitturi J, Laskova V, Meng, J, Findeis D, Wiekenbert A, Mulcahy B, Luo L, Li Y, Lu Y, Hung W, Qu Y, Ho C, Holmyard D, McWhirter R, Ni J, Samuel ADT, Miller DM, Schnabel R, Calarco JA, Zhen M*. (2016). **Neuroendocrine modulation sustains the *C. elegans* forward motor state.** *eLife*. e19887, 2016. PMID: 27855782. PMCID: PMC5120884.

Venkatachalam V*, Ji N, Wang X, Clark C, Mitchell JK, Klein M, Tabone CJ, Florman J, Ji H, Greenwood J, Chisholm AD, Srinivasan J, Alkema M*, Zhen M*, Samuel ADT*. (2016). **Pan-neuronal imaging in roaming *Caenorhabditis elegans*.** *PNAS* 113(8): E1082-8. PMID: 26711989. PMCID: PMC4776525.

Ardeshiri R, Mulcahy B, Zhen M, Rezai P. (2016). **A Hybrid Microfluidic Device for On-demand Orientation and Multidirectional Imaging of *C. elegans* Organs and Neurons.** *Biomicrofluidics* 10(6): 064111. eCollection 2016. PMID: 27990213. PMCID: PMC5135714.

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Wen Q, Po MD, Hulme E, Chen S, Liu X, Kowk SW, Gershow M, Leifer AM, Butler V, Fang-Yen C, Kawano T, Schafer WR, Whitesides G, Wyart M, Chklovskii DB, Zhen M, Samuel, ADT. (2012). **Proprioceptive coupling within motor neurons drives *C. elegans* forward locomotion.** *Neuron* 76(4): 750-761. PMID: 23177960.

Kawano T, Po MD, Gao S, Leung G, Ryu WS, Zhen M*. (2011). **An Imbalancing Act: Gap Junctions Reduce the Backward Motor Circuit Activity to Bias *C. elegans* for Forward Locomotion.** *Neuron* 72(4): 572-586. PMID: 22099460.

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Neuronal Excitability: leak channels

Yue Z, Li, Y, Yu, B, Xu, Y, Chen, L, Chitturi, J, Meng, J, Hung, W, Tian, Y, El Mouridi, S, Zhang, C, Zhen, M, Boulín, T, Gao S. (2024) **A Leak K⁺ Channel TWK-40 Regulates Rhythmic Motor Program in *C. elegans*.** *PNAS Nexus* 3(7):234. PMID: 38957449.

Gao S*, Xie L, Kawano T, Po MD, Pirri J, Guan S, Alkema M, Zhen M*. (2015). **The NCA sodium leak channel is required for persistent motor circuit activity that sustains locomotion.** *Nature Communications* 6 (6323). PMID: 25716181.

Qi Y, Po MD, Mac P, Kawano T, Jorgensen EM, Zhen M, Jin Y. (2013). **Hyperactivation of B-type motor neurons results in aberrant synchrony of the *C. elegans* motor circuit.** *Journal of Neuroscience* 33(12): 5319-5325. PMID: 23516296.

Xie L, Gao S, Alcaire SM, Aoyagi K, Wang Y, Griffin JK, Stagljar I, Nagamatsu S, Zhen M*. (2013). **NLF-1 Delivers a Sodium Leak Channel to Regulate Neuronal Excitability and Modulate Rhythmic Locomotion.** *Neuron* 77(6): 1069-1082. PMID: 23522043.

Bouhours M, Po MD, Gao S, Hung W, Li H, Georgiou J, Roder JC, Zhen M*. (2011). **A Co-operative Regulation of Neuronal Excitability by UNC-7 Innexin and NCA/NALCN Leak Channel.** *Molecular Brain* 4:16. PMID: 21489288.

Sancar F, Touroutine D, Gao S, Oh HJ, Gendrel M, Bessereau JL, Kim H, Zhen M, Richmond JE. (2011). **The dystrophin-associated protein complex maintains muscle excitability by regulating Ca(2+)-dependent K(+) (BK) channel localization.** *Journal of Biological Chemistry* 286(38): 33501-10. PMID: 21795674.

Yeh E, Ng S, Zhang M, Bouhours M, Wang Y, Wang M, Hung W, Aoyagi K, Melnik-Martine, K, Li M, Liu F, Schafer WR, Zhen M*. (2008). **A putative cation channel, NCA-1, and a novel protein, UNC-80, transmit neuronal activity in *C. elegans*.** *PLoS Biology* 6(3) e55. PMID: 18336069.

Neural Development and Synaptic Transmission

Das A, Franco J, Mulcahy B, Wang L, Chapman D, Jaisinghani C, Pruitt B, Zhen M, Goodman M (2024) ***C. elegans* touch receptor neurons direct mechanosensory complex organization via repurposing conserved basal lamina proteins.** *Current Biology* 34(14), 3133-3151. *e10*. PMID: 38964319

Cuentas-Condori A, Chen S, Gallick K, Krout M, Tipps J, Flautt L, Mulcahy B, Zhen M, Richmond J, Miller DM.III (2023). **The Epithelial Na⁺ Channel UNC-8 promotes an endocytic mechanism that recycles presynaptic components from old to new boutons in remodeling neurons.** *Cell Reports* 42(11):113327. PMID: 37906594

Tien C, Yu B, Huang M, Stepien K, Sugita K, Xie X, Han L, Monnier P, Zhen M, Rizo J, Gao S, Sugita S. (2020). **Open syntaxin overcomes synaptic transmission defects in diverse *C. elegans* exocytosis mutants.** *Nature Communications* 11(5516). PMID: 33139696.

Huang YC, Pirri JK, Rayes D, Gao S, Mulcahy B, Grant J, Saheki Y, Francis MM, Zhen M, Alkema AJ. (2020). **Gain-of-function mutations in the UNC-2/CaV2 α channel lead to hyperactivity and excitation-dominant synaptic transmission in *Caenorhabditis elegans*** *eLife* 2019; 8:e45905. PMID: 31364988.

Park S, Bin NR, Yu B, et al. Feng ZP, Monnier P, Sun HS, Zhen M, Gao S, Rizo J, Sugita S. (2017). **UNC-18 and Tomosyn antagonistically control synaptic vesicle priming downstream of UNC-13 in *C. elegans*.** *J Neurosci.* 37(36): 8797-8815. PMID: 28821673.

Opperman KJ, Mulcahy B, Giles AC, Risley M, Birnbaum RL, Tulgren ED, Dawson-Scully K, Zhen M, Grill B. (2017). **The HECT family ubiquitin ligase EEL-1 regulates neuronal function and development.** *Cell Reports* 19: 822-835. PMID: 28445732.

Meng J, Ma X, Tao H, JPin X, Witvliet D, Zhu M, Dong M, Zhen M, Jin Y, Qi YB. (2017). **Myrf ER-Bound Transcription Factors Drive *C. elegans* Synaptic Plasticity via Cleavage-Dependent Nuclear Translocation.** *Developmental Cell* 41: 180-194. PMID: 28441531.

Park S, Bin NR, Michael Rajah M, Kim B, Chou TC, Kang SY, Sugita K, Parsaud L, Smith M, Monnier PP, Ikura M, Zhen M, Sugita S. (2015). **Conformational states of syntaxin-1 govern the necessity of N-peptide binding in exocytosis of PC12 cells and *Caenorhabditis elegans*.** *Mol Biol Cell* 27(4): 669-85. PMID: 26700321. PMCID: PMC4750926.

- Maro GS, Gao S, Olechwiec AM, Hung WL, Liu M, Özkan E, Zhen M,* Shen K* (2015). **MADD-4/Punctin and Neurexin Organize the *C. elegans* GABAergic Postsynapses through Neuroligin.** *Neuron* 86: 1420-1432. PMID: 26028574.
- Wang J, Chitturi, J, Ge Q, Laskova V, Li X, Ding M, Zhen M,* Huang X*. (2015). **The *C. elegans* COE Transcription Factor UNC-3 Activates Lineage-Specific Apoptosis and Affects Neurite Growth.** *Development* 142(8): 1447-57. PMID: 25790851.
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- Hung WL, Hwang, C, Gao S, Liao EH, Chitturi J, Wang Y, Li H, Stigloher C, Bessereau JL, Zhen M.* (2013). **Attenuation of Insulin Signaling Contributes to FSN-1-mediated Regulation of Synapse Development.** *EMBO J.* 32(12): 1745-1760. PMID: 23665919.
- Najarro EH, Wong L, Zhen M, Carpio EP, Goncharov A, Garriga G, Lundquist EA, Jin Y, Ackley BD. (2012). ***C. elegans* Flamingo Cadherin FMI-1 Regulates GABAergic Neuronal Development.** *Journal of Neuroscience* 32(12): 4196-211. PMID: 22442082.
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Liao EH, Hung W, Abrams B, Zhen M*. (2004). **An SCF-like ubiquitin ligase complex that controls presynaptic differentiation.** *Nature* 430 (6997): 345-50. PMID: 15208641.

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Crump JG, Zhen M, Jin Y, Bargmann CI. (2001). **The SAD-1 kinase regulates presynaptic vesicle clustering and axon termination.** *Neuron* 29(1): 115-29. PMID: 11182085.

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Methods

Xie R, Mulcahy B, Darbandi A, Marwah S, Ali F, Lee Y, Parlakgul G, Hotamisligil G, Wang B, MacParland S, Zhen M, Bader GD (2025). **Transfer learning improves performance in volumetric electron**

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Wang Z, Zhu L, Zhang H, Li G, Li C, Yi L, Yang Y, Ding Y, Zhen M, Gao S, Hsiai T, Fei P. (2021). **Real-time volumetric reconstruction of biological dynamics with light-field microscopy and deep learning.** *Nature Methods*. 18: 551-556. PMID: 33574612.

Zhao F, Yang Y, Li Y, Jiang H, Xie X, Yu T, Wang X, Liu Q, Zhang H, Jia H, Liu S, Zhen M, Zhu D, Gao S, Fei P. (2020). **Efficient and cost-effective 3D cellular imaging by sub-voxel-resolving light-sheet add-on microscopy.** *J. Biophotonics* 13(6):e201960243. PMID: 32077244.

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Development, Diseases, and Animal/Cell Models

Cheng X, Ronald X, Ben M, Ali D, Cornelia T, Ishaan C, Yuna L, Jun M, Fez A, Ian M, Sonya M, Mei Z, Gary B (2026). **Multiscale volume electron microscopy of the human liver maps vascular-cellular architecture, organelle dynamics and inter-organelle communication.** *Nature Cell Biology* (submitted).

Wu S, Guo J, Li Y, Roy C, Wang Y, Mulcahy B, Li W, Ravivarma S, Calarco J, Hung W*, Zhen M*. (2026). **Three Muscle-Specific DAF-16/FOXO Transcriptional Targets Activated by Reduced Insulin/IGF-1 Signaling.** *G3* (Advanced Access). <https://doi.org/10.1093/g3journal/jkag030>.

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Li Y, Gong L, Wu J, Hung WL, Zhen, M, Gao S (2024) **UBR-1 deficiency leads to ivermectin resistance in *Caenorhabditis elegans*.** *eLife* 13:RP103718. PMID: 40167441.

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Hung WL, Wang Y, Chitturi J, Zhen M*. (2014). **A *C. elegans* Developmental Decision Requires Insulin Signaling-Mediated Neuron-Intestine Communication.** *Development* 141(8): 1767-79. PMID: 24671950.

Murakami T, Yang SP, Xie L, Kawano T, Fu, D, Mukai A, Bohm C, Chen F, Robertson J, Suzuki H, Tartaglia GG, Vendruscolo M, Kaminski Schierle, GD, Chan FT, Monoley A, Crowther D, Kaminski CF, Zhen M, St George-Hyslop P*. (2012). **ALS mutations in FUS cause neuronal dysfunction and death in *C. elegans* by a dominant gain-of-function mechanism.** *Human Molecular Genetics* 21(1): 1-9. PMID: 21949354.

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Trainees

Undergraduate students (a partial list)

2025-	Alexandra Worms, Astrophysics, University of Toronto
2024	Mishaal Kandapath, Computer Science, University of Toronto
2024	Ethan Chan, Computer Science, University of Toronto
2023-2026	Yuna Lee, Neuroscience and Molecular Genetics and Microbiology, University of Toronto
2023-2025	Xindi Tao, Computer Science and Neuroscience, University of Toronto
2023-2026	Huayin Luo, Molecular Genetics, University of Toronto
2023-2024	Danish Islam, Computer Engineering, University of Toronto
2023	Congrong (Ruby) He, Cell and Molecular Biology, University of Toronto
2023	Michael Cheng, Neuroscience and Physiology, University of Toronto
2023	Shuyu van Kerkwijk, Biophysics, University of British Columbia
2022-2023	Mohamed Ebsim, Biological Physics, University of Toronto
2022-2023	Cheng Yue Zhang, Bioinformatics and Computational Biology, University of Toronto
2022-2023	Ishaan Chandok, Mathematics & Physical Sciences, University of Toronto
2022	Endri Mjeku, Applied Mathematics and Physics, University of Toronto
2022	Szymon Sobczak, Mathematics, University of Oxford
2022	Maximilian Hofmann, Physics, Goethe University
2021-2023	Rory Gao, School of Engineering, University of Toronto
2020-2023	Mohammad Haddadnia, Molecular Genetics, University of Toronto

2020-2021	Randa Higazy, Cell and Systems Biology, University of Toronto
2019-2022	Shifei Wu, Molecular Genetics, University of Toronto (Current: PhD Candidate, U of T)
2019	Raymond Zhang, Molecular Genetics, University of Toronto
2019	Mindy Kim, Human Biology, Cornell University (Current: PhD Candidate, Harvard)
2018-2020	Alice Xu, Molecular Genetics, University of Toronto (Current: MSc Candidate, U of T)
2018-2020	Christine Wong, Laboratory Medicine and Pathobiology, University of Toronto
2018-2020	Yufang Flora Liu, Computer Science, U of T (Current: Software Engineer, Google)
2018-2019	Xinran Liu, Physiology, University of Toronto (Current: MD Candidate, U of T)
2018-2019	Zonelle Wijesinha, Cell and Systems Biology, U of T (Current: Manager, AdaptX2 Studios)
2018	Danqian Cao, Physics, Chinese University of Science and Technology (Current: PhD Candidate, University College London)
2018	Isis So, Molecular Genetics, University of Toronto (Current: Teaching Assistant, U of T)
2017-2019	Anson Sathaseevan, Molecular Genetics, U of T (Current: Queen's Medical School)
2017-2018	Amelia Srajer, Molecular Genetics, U of T (Current: Resident, Alberta Health Services)
2016-2020	Maggie Chang, Physiology, U of T (Current: PhD Candidate, McGill)
2016-2019	Soomin Maeng, Physiology, University of Toronto (Current: MSc, Engineer, U of T)
2016-2018	Claudia Arndt, Molecular Genetics, U of T (Current: Western Medical School)
2016-2018	Zitong (Jerry) Wang, Physiology, McMaster University (Current: PhD candidate, Caltech.)
2016-2017	Sabrina Chan, Molecular Genetics, University of Toronto (Current: PhD Candidate, U of T)
2015-2016	Sean Ihn, Molecular Genetics, University of Toronto
2015-2016	Richard Li, Molecular Genetics, University of Toronto
2015	Lebohand Radabe, Computer Science, University of Toronto
2015	Angie Qu, Physiology, University of Toronto (Current: Pharmacist, MSH)
2014-2017	Kevin Chan, Molecular Genetics, University of Toronto (Current: Medical School, U of T)
2014-2017	Wan Xian Koh, Physiology, University of Toronto (Current: Medical School, UBC)
2014-2015	Jenny Qian, Biomedical and Systems Engineering, UofT (Current: Queen's medical school)
2014-2015	Ryan Ramos, Neuroscience, McGill University (Current: U of T Medical School)
2012-2013	Peter Jin, Cell and Systems Biology, University of Toronto (Current: PhD, Columbia Uni.)
2010-2011	Sihui Asuka Guan, Pharmacology, University of Toronto (Current: Medical writer)
2010-2011	Cynthia Chan, Molecular Genetics, University of Toronto
2009-2010	Chris Wedeles, Molecular Genetics, University of Toronto (Current: Scientist, Genentech)
2009-2010	Fidelia Famiyeh, Cell and Systems Biology, University of Toronto
2009-2010	Ruixi Lou, Physiology, University of Toronto
2009-2010	Tetyana Pekar, Physiology, University of Toronto (Current: Pekar Tutoring)
2008-2010	Salvador Alcaire, Physiology, University of Toronto (Current: Dentist)
2007-2008	Nazanin Montazeri, Physiology, University of Toronto (Current: Physician)
2007-2010	Catherine Cheng, Molecular Genetics, University of Toronto
2006-2007	Sidrah Ahmad, Faculty of Arts and Science, University of Toronto
2006	Lok Sum Wong, CSB, University of Toronto (Current: Senior Scientist, Otomagnetics)
2005-2006	Michelle Li, Molecular Genetics, University of Toronto (Current: Founder, Clever Carbon)
2005	Maja Salihbegovic, Life Sciences, York University (Current: Physiotherapist)
2003-2005	Sharon Ng, Molecular Genetics, University of Toronto (Current: Scientist, GSK)

2003-2005	Christine Hwang, Institute of Medical Science, University of Toronto (Current: Physician)
2003	Robert Stevenson, Molecular Genetics, University of Toronto

Graduate students

01/2025-	Erin Gao, Molecular Genetics (PhD candidate)
01/2024-	Lucinda Zhu, Molecular Genetics (PhD candidate)
09/2023-	Congrong (Ruby) He, Cell and Molecular Biology (PhD candidate) Co-Supervised with John Calarco
09/2023-	Tian Du, Physiology (PhD Candidate), Co-Supervised with Lu-Yang Wang
09/2023-02/2025	Sruthy Ravivarma, Cell and Systems Biology (PhD Candidate)
01/2022-	Alanna Love, Molecular Genetics (PhD Candidate)
01/2022-06/2024	Ze Nan (Tommy) Tang, MSc, Molecular Genetics
09/2019-	Hongruo Zhang, Physiology (PhD Candidate)
09/2019-07/2022	Julian Moran, MSc, Molecular Genetics (Current: Bioinformatician, TCAG SickKids)
09/2019-09/2022	William Li, MSc, Molecular Genetics
09/2018-07/2023	Neeraja Ramakrishnan, PhD, Physiology
09/2018-10/2025	Dan (Mona) Wang, PhD, Molecular Genetics
09/2018-07/2021	Christine Rehaluk, MSc, Physiology
01/2018- 11/2025	Jayant Rai, Molecular Genetics, PhD, Co-Supervised with Kenichi Okamoto
04/2016-12/2018	Min Wu, MSc, Molecular Genetics (Current: Bioinformatician, Geneseeq Technology Inc.)
01/2015-11/2021	Jun Meng, Physiology, PhD, Physiology (Current: Postdoctoral fellow, U of T)
01/2015-06/2020	Daniel Witvliet, PhD, Molecular Genetics (Current: Senior Data Scientist, Coursera)
09/2014-02/2020	Yangning Lu, PhD, Physiology (Current: PDF, MIT)
09/2012-03/2015	Sihui Asuka Guan, MSc, Physiology (Current: Scientific Writer, Overland Pharmaceuticals)
09/2011-04/2013	Tetyana Pekar, MSc, Physiology (Current: Tutor and Academic Editor, Pekar Tutoring)
09/2010-04/2013	Salvador Alcaire, MSc, Institute of Medical Science (Current: Dentist)
09/2010-04/2013	Valeriya Laskova, MSc, Physiology (Current: Interior Design Intern, IBI Group)
09/2009-04/2012	Louis Wei-Chun Barbier, MSc, Molecular Genetics (Current: Psychotherapist)
09/2008-05/2011	Nicholas Watkins, MSc, Molecular Genetics (Current: Genetic Diagnostic Specialist, MSH)
03/2008-04/2015	Jyothsna Chitturi, PhD, Institute of Medical Science (Current: Scientist, Biogenesis Pharma)
09/2007-01/2010	Christine Hwang, MSc, Institute of Medical Science (Current: Physician)
09/2007-04/2013	Lin Xie, PhD, Institute of Medical Science (Current: Managing Partner, HEDA Ventures)
09/2006-08/2011	John Calarco, PhD, Molecular Genetics (Current: Associate Professor, CSB, U of T)
09/2006-03/2012	Calvin Mok, PhD, Medical Science (Current: Lecturer, CSB, U of T)
09/2006-01/2008	Joanne Kim, MSc, Molecular Genetics (Current: Sr. Health Consultant, Prov. of Ontario)
09/2006-01/2008	Sharon Ng, MSc, Molecular Genetics (Current: Scientist, GlaxoSmithKline)
01/2005-10/2011	Michelle Po, PhD, Molecular Genetics (Current: Highland Therapeutics)
09/2004-04/2006	Yu Liu, MSc, Physiology (Current: Programmer, Applied Systems Inc.)
09/2001-12/2007	Edward Liao, PhD, Molecular Genetics (Current: Director, Cell Biology, Kite Pharma)

Postdoctoral fellows

11/2021-06/2023	Jun Meng, PhD, University of Toronto (Current: PDF, MRC, University of Cambridge)
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03/2021-03/2022	Leila Lesanpezeshki, PhD, Texas Tech University (Current: Data Scientist, Red Nucleus)
10/2019-09/2022	Tosif Ahamed, PhD, Okinawa Institute of Science and Technology (Current: Theory Fellow, HHMI/Janelia Research Campus)
01/2018-12/2018	Katarina Pankova, PhD, Ludwig Maximilian University (Current: Senior Product Manager, Singleron Biotechnologies)
09/2015-12/2016	Yan Li, PhD, University of Saskatchewan (Current: Senior Researcher, Zhen Lab)
03/2014-08/2016	Ni Ji, PhD, MIT (Co-Supervised with Aravi Samuel and Mark Alkema) (Current: Principal Investigator, Chinese Institute for Brain Research, China)
09/2013-05/2023	Ben Mulcahy, PhD, University of Southampton (Current: Staff Scientist, Zhen Lab)
09/2012-08/2015	Maria Lim, PhD, University of Pennsylvania (Current: Medical Writer)
10/2011-09/2013	Michelle Po, PhD, University of Toronto (Current: Highland Therapeutics)
09/2008-10/2015	Shangbang Gao, PhD, Institute of Biophysics, Chinese Academy of Science (Current: Professor, Huazhong University of Science and Technology, China)
09/2005-04/2007	Kyota Aoyagi, PhD, University of Tokyo (Current: Professor, Kyorin University)
09/2005-03/2010	Magali Bouhours, PhD, University Pierre et Marie Curie (Current: Project manager, University of Ottawa)
01/2004-04/2015	Tsutomo Murakami, PhD, Tokyo University, Co-supervised with Peter St. George-Hyslop (Current: Physician)
10/2003-12/2011	Taizo Kawano, PhD, Kobe University (Current: Associate Professor, Uni. of Tsukuba)
09/2001-12/2007	Edward Yeh, PhD, University of Toronto (Current: Lab Technologist, Children's Hospital of Eastern Ontario)

Advisees (University of Toronto unless otherwise noted)

11/2024-	Zhihong Luo, Cell and Systems Biology (PhD candidate)
01/2024-	Cameron Parro, Cell and Systems Biology (PhD candidate)
01/2024-	Cheng Xing, Molecular Genetics (PhD candidate)
09/2023-	James Li, Department of Physiology (PhD candidate)
09/2022-	Ernest Liang, Dept. of Cell and Systems Biology (PhD Candidate)
01/2021-	Yin Chen Wan, Dept. of Molecular Genetics (PhD Candidate)
05/2020-07/2022	Tanzim Hoque, MSc, Dept. of Cell and Systems Biology, UTM
12/2019-11/2025	Jade Chan, PhD, Dept. of Molecular Genetics
09/2019-09/2021	Alexander Kwan, MSc, Dept. of Molecular Genetics
08/2019-06/2025	Ronald Xie, PhD, Dept. of Molecular Genetics
09/2017-02/2023	Madison Gray, PhD, Dept. of Molecular Genetics
01/2017-05/2023	Maria Mercado, PhD, Dept. of Molecular Genetics
01/2017-04/2021	Albert Lin, PhD, Department of Physics, Harvard (Current: Fellow, Center for the Physics of Biological Function, Princeton)
01/2017-08/2019	Rachel Kim, MSc, Dept. of Molecular Genetics
09/2016-11/2022	Weifan Dong, PhD, Dept. of Molecular Genetics (Current: Postdoctoral Fellow, U of T)
09/2016-05/2022	Chidozie Ojobo, PhD, Molecular Genetics (Current: Chief Scientific Officer, Vitract)
09/2016-05/2020	Isabel Mackay-Clakett, MSc, Institute of Medical Science (Current: PhD Candidate, U of T)
09/2016-12/2019	Jarlath Rodgers, PhD, Cell and Systems Biology (Current: Gilder Gagnon Howe & Co)
09/2015-01/2022	Kelli Fenelon, PhD, Molecular Genetics

09/2015-07/2022	Julie Marocha, PhD, Molecular Genetics (Current: Projects Officer, Sunnybrook Res Ins.)
09/2015-06/2017	Megan Valencia, MSc, Molecular Genetics (Current: Research Scientist, U of T)
09/2014-11/2016	Dano Morrison, MSc, Physiology (Current: Research Engineer, Facebook Reality Labs)
09/2013-02/2019	Jelena Borovac, PhD, Molecular Genetics (Current: Medical Editor, Klick Health)
09/2013-06/2018	Alind Gupta, PhD, Molecular Genetics (Current: Research Principal, Data Science, Cytel.)
09/2012-06/2016	Daniel Merritt, MSc, Institute of Medical Science (Current: PDF, Columbia University)
09/2012-09/2017	Thomas Luyben, PhD, Molecular Genetics (Current: Associate, Sixty Degree Capital)
09/2009-01/2012	Evelyn Chea, MSc, Molecular Genetics
09/2009-11/2014	Sabiha Gardezi, PhD, Physiology
09/2007-01/2009	Kunjumon Vadakkan, MSc, Physiology
09/2006-01/2009	Michelle Li, MSc, Molecular Genetics
09/2005-01/2013	Lok Sum Wong, PhD, Cell and Systems Biology (Current: Senior Scientist, Otomagnetics)
09/2005-01/2012	Shu Ito, PhD, Molecular Genetics (Current: Senior Scientist, Otomagnetics Inc.)
09/2005-01/2012	Miriam Alexander, PhD, Molecular Genetics (Current: Physician)
09/2004-01/2006	Jennifer Chou, MSc, Physiology
09/2003-01/2005	Erik Law, MSc, Molecular Genetics
09/2001-01/2003	Sheila With, MSc, Molecular Genetics
09/2001-01/2003	Tilo Kunath, PhD, Molecular Genetics

Research Staff

2025-	Ze Nan (Tommy) Tang, MSc, Data Scientist
2023-	Ben Mulcahy, PhD, Research Scientist
2023-	William Li, MSc, Research Assistant
2019-2023	Dylan Fong, BSc, Programmer
2019-2020	Maggie Chang, BSc, Technician (Current: PhD Candidate, McGill University)
2016-2018	Claudia Arndt, BSc, Technician (Current: Medical School, Western University)
2016-2023	Yan Li, PhD, Research Technician
2010-2013	Hang Li, PhD, Technician
2002-	Wesley Hung, PhD, Research Associate
2001-	Ying Wang, MD, Research Technician

Collaborations (*were/are junior faculty)

Mark Alkema, University of Massachusetts Medical School
 Gary Bader, Department of Molecular Genetics, CCBR, University of Toronto
 Jean-Louis Bessereau, INSERM, Institute NeuroMyoGene, France
 Ben Blencowe, Department of Molecular Genetics, University of Toronto
 Thomas Boulin*, Lyon University, France
 John Calarco*, Department of Cell and Systems Biology, University of Toronto
 Andrew Chisholm, Department of Biology, University of California San Diego
 Andrew Cutter, Department of Cell and Systems Biology, University of Toronto
 Brent Derry*, Department of Molecular Genetics, University of Toronto

Christopher Fang-Yen*, University of Pennsylvania
 Andy Fraser*, Department of Molecular Genetics, CCB, University of Toronto
 Shangbang Gao*, Department of Life Sciences, Huazhong University of Science and Technology, China
 Penney Gilbert*, Department of Biomedical Materials and Biomedical Engineering, University of Toronto
 Miriam Goodman, Department of Physics, Stanford University
 Brock Grill*, Department of Neuroscience, Scripps Research
 Xun Huang*, Institute of Genetics, Chinese Academy of Sciences
 Michael Koelle, Department of Neuroscience, Yale University
 Yishi Jin, University of California San Diego
 Julie Lefebvre*, Department of Molecular Genetics, University of Toronto
 Jeff Lichtman, The Center for Brain Science, Harvard University
 Sonya MacParland*, University Health Network
 Jacques Michaud, Montreal Neurological Institute, Université de Montréal
 David Miller III, Department of Cell Biology, Vanderbilt University
 Andras Nagy, Institute of Medical Science, University of Toronto
 Kenichi Okamoto*, Department of Molecular Genetics, University of Toronto
 Jeehye Park*, Department of Molecular Genetics, University of Toronto, The Hospital for Sick Children
 Stephan Pless, Department of Drug Design and Pharmacology, University of Copenhagen
 Pouya Rezaei*, York University
 Janet Richmond, University of Illinois Chicago
 Peter St. George-Hyslop, Center for Neurodegeneration, University of Toronto
 Aravindhan DT Samuel, The Center for Brain Science, Physics Department, Harvard University
 Joshua Sanes, Center for Brain Science, Harvard University
 William Schafer, MRC Laboratory of Molecular Biology, UK
 Nir Shavit, Computer Science, MIT
 Kang Shen, Stanford University
 Guangwei Shi*, Institute of Biophysics, CAS
 Christian Stigloher*, Department of Biology, University of Würzburg, Germany
 Shuzo Sugita, Department of Physiology, University of Toronto, Toronto Western Hospital
 Vivek Venkatachalam*, Northeastern University
 Bo Wang*, The Vector Institute, Computer Science Department, University of Toronto
 Lu-Yang Wang, Department of Physiology, University of Toronto
 Quan Wen*, Department of Physics, Chinese University of Science and Technology, China
 Dong Yan*, Duke University

Patent

Compositions and Methods for Treating Congenital Disorders (Filing Date: November 12, 2022)

PCT Int'l Application No.: PCT/US22/49743 Applicants: Sinai Health System and its Mount Sinai Hospital, Toronto, Ontario (Canada); Ibigen Pharmaceuticals, Inc., Lexington, MA (US)

Funding

Canadian Institutes of Health Research (CIHR) PJT-195840 (10/2024 – 09/2029)

Genetic- and experience-dependent wiring decisions

NSERC Discovery grant RGPIN-2024-06020 (04/2024 – 03/2030)

A Circuit Investigation of the C. elegans Behavioral State

Lundbeck Foundation LF Collaborative Projects; Co-Lead (01/2023 – 12/2027)

The role of an evolutionarily conserved sodium leak current in brain development and disease

Canada Foundation for Innovation (CFI) Innovation Fund; Co-PI (01/2022 – 12/2026)

A Center for Quantitative Ultrastructural Analyses

Canada Research Chair (CRC) 950-232063 (04/2018 – 03/2032)

Tier 1 Canada Research Chair in Neural Circuit Development and Function

Completed

Canadian Institutes of Health Research (CIHR) Foundation Scheme 154274 (04/2017 – 06/2024)

Investigating mechanisms for synapse and circuit dynamics using the C. elegans model

Ibigen Pharmaceuticals Investigator (03/2022 – 12/2023)

Collaboration Agreement for the discovery and development of first-in-class therapeutic drug targeting NALCN for CLIFAHDD disease

Chan Zuckerberg Initiative Seed Networks for the Human Cell Atlas (HCA)

2019-002429; Co-PI (09/2019 – 8/2022) *A Reference Cell Atlas of Human Liver Diversity Over a Lifespan*

Brain Initiative, National Institutes of Health (NIH)

1UF1NS111697-01; Co-PI (08/2019 – 07/2022) *A Comprehensive Analysis of a Decision Circuit*

Natural Sciences and Engineering Research Council of Canada (NSERC) RGPIN-2017-06738

(06/2017 – 06/2022) *Identifying the insulin-signaling targets that regulate synapse development*

Canadian Foundation for Innovation (CFI) Co-PI (06/2017 – 05/2022)

Electron microscopy to advance 3-dimensional study of cells in health and disease

Canadian Foundation for Innovation (CFI) John R. Evans Leaders Fund (06/2017 – 06/2021)

The C. elegans motor system: development, operation and disease models

Brain Canada Foundation, Arthur J Hudson Translation Team Grant Co-applicant (10/2015 – 09/2020)

Discovery of therapeutic targets for FUS- and TDP43-dependent forms of ALS

Ibigen Pharmaceuticals (05/2018 – 09/2019) *Collaboration Agreement for the discovery and development of first-in-class therapeutic drug targeting NALCN for CLIFAHDD disease*

National Institutes of Health (NIH) NS082525-R01A1; Co-PI (05/2015 – 06/2019)

Sensory-motor processing in a developing nervous system

Canadian Institutes of Health Research (CIHR) MOP-93619 (03/2013 – 03/2018)

Deciphering the role of UBR1 E3 ubiquitin ligase using a C. elegans model

Canada Foundation for Innovation (CFI) (04/2015 – 03/2018)

Optogenetics and Live Imaging of the Functioning and Developing Biological Systems

Canadian Institutes of Health Research (CIHR) MOP-123250 (10/2012 – 09/2017)

Which direction to go? An optogenetic investigation of the C. elegans motor circuit

International Human Frontier Science Program Organization (HFSP) RGP0051/2014; Co-PI (05/2014 – 04/2017) *The development of the C. elegans nervous system at synaptic resolution*

Natural Sciences and Engineering Research Council of Canada (NSERC) PGPIN 262112-12 (04/2012 – 03/2017) *Regulation of neuronal polarity and motor circuit functions by the SAD Kinase*

Canadian Institutes of Health Research (CIHR) MOP-74530 (04/2012 – 03/2017)

Regulation of synapse development and neuronal activity by a novel cation channel

Rare Diseases: Models & Mechanisms Network (CIHR) Co-PI (08/2015 – 07/2016)

Intellectual disability with ataxia and arthrogryposis

CIHR China-Canada Joint Health Research Initiative MOP-CCI109618; Co-PI (01/2011 – 12/2013)

Regulation of axon migration and synapse patterning during the nervous system

Canadian Institutes of Health Research (CIHR) MOP93619; Co-PI (04/2009 – 03/2013)

Investigating the genetic complexity of Bardet-Biedle syndrome (BBS) using the C. elegans animal model

Natural Sciences and Engineering Research Council of Canada (NSERC) RGPIN 262112-07 (04/2007 – 03/2012) *Regulation of Neuronal Polarity in C. elegans*

Canadian Institutes of Health Research (CIHR) GMH79044; Co-PI (11/2005 – 10/2010)

Neurodevelopmental Genetics of Human Psychiatric Disorders

EJLB Foundation Scholar Research Programme (01/2007 – 03/2010)

The role of a novel calcium channel in active zone formation and synapse activity

Canadian Institutes of Health Research (CIHR) MOP 74530 (04/2005 – 03/2010) *Roles of ALK (Anaplastic Lymphoma Kinase) and other FSN-1 regulated signaling pathways during synaptogenesis*

Canadian Institutes of Health Research (CIHR) MOP 79404 (03/2006 – 02/2009)

Innexins and active zone formation at chemical synapses

Natural Sciences and Engineering Research Council of Canada (NSERC)

RGPIN262112-03 (03/2003 – 02/2007)

Investigating the role of a novel serine/threonine kinase SAD-1 in synaptogenesis

Canadian Institutes of Health Research (CIHR) MOP49567 (09/2001 – 08/2004)

Dissecting molecular mechanisms that regulate the presynaptic differentiation on C. elegans

Connaught Fund, University of Toronto (10/2002 – 10/2003)

Regulation of presynaptic differentiation and synapse formation in C. elegans

Selected Presentations (since 2015)

2025

Symposium of Deep Learning-assisted 3D EM Reconstruction of Cellular Structures, Beijing, China, April
18th Canadian Neuroscience Meeting, Canadian Association for Neuroscience, Canada, May
4D Cellular Physiology Seminar, Howard Hughes Medical Institute, Maryland, USA, May
From Structure to Behavior, Max Planck Society Schloss Ringberg, Germany, July
Neurophysics of Active Sensing, KITP, UC Santa Barbara, USA, August
Chinese Neuroscience Society 2025 Annual Meeting, Xi'an, China, September
2nd International NALCN Conference, San Antonio, Texas, USA, October

2024

OIST, Sensorimotor Circuits for Limb Control, Okinawa, Japan, March
Max Planck Institute for Biological Intelligence, Frankfurt, April
CNRS/INSERM, Université Claude Bernard Lyon 1, Institut NeuroMyoGène, April
Connectomics Conference, Berlin, Germany, June
President of the International Society for Neuroethology (ISN), Berlin, Germany, July
Cold Spring Harbor Meeting on Molecular Mechanisms of Neuronal Connectivity, New York, USA, September
Quebec Connectionmics Meeting, Quebec, Canada, October
Chinese *C. elegans* Conference, Wuhan, China, October

2023

NALCN symposium: The sodium leak channel in health and disease, Alicante, Spain, August
Department of Genetics and Genomics Sciences, Icahn School of Medicine, New York, USA, June
Departmental seminar at the University of Copenhagen, Department of Molecular and Cellular Pharmacology, Copenhagen, Denmark, May
HHMI/Janelia Research Campus, Navigational Algorithms and Neural Circuit Computations Directing Olfactory Search Across Species Conference, Ashburn, VA, March
NeuroDataShare 2023: exploring and sharing multi-scale neuroscience data, Sainsbury Wellcome Centre, UCL, February
Departmental seminar at UCL, Division of Biosciences, London, England, February

2022

CeNeuro 2022 Annual Conference, Keynote, Vienna, Austria, July
C. elegans, from genome editing to imaging. EMBL, Heidelberg, Germany, July
Connectomics 2022 Annual Conference, Berlin, Germany, May
Hotchkiss Brain Institute's 18th Annual Research Day, University of Calgary, Keynote, May
Moerman Symposium, Vancouver, BC, Canada, May
Brain Across the Lifespan: Tools and Methodologies for Measuring the Changing Brain, NIH and the Bill and Melinda Gates Foundation, April
Manitoba Neuroscience Network / WorldWideNeuro platform, April

2021

Canadian Association for Neuroscience 14th Annual Meeting, Plenary, August

NIH BRAIN Initiative and the Department of Energy Office of Science, March

2020

Neuroscience Program Seminar, University of Illinois at Urbana-Champaign, October

2019

The Giant Synapse Symposium. SFN, Chicago, USA, October

Neural Systems & Behavior. 2019 MBL (Marine Biology Laboratory). Woods Hole, MA, USA, July

2019 International *C. elegans* Meeting, Keynote, University of California Los Angeles, USA, June

13th Annual Canadian Neuroscience Meeting, Plenary, Toronto, Canada, May

Max Planck/HHMI Connectomics Meeting. Berlin, Germany, April

2019 International Conference on Neurostructural Biology. Tsinghua University, Beijing, China, April

University of Toronto CSB Brain and Behavior Seminar Series. Toronto, Canada, February

Okinawa Institute of Science and Technology Seminar. Okinawa, Japan, January

2018

University of Massachusetts Neuroscience and Behaviour Seminar Series, Amherst, MA, USA, October

Howard Hughes Medical Institute (HHMI)/Janelia Research Campus, Neuro-evo: A Comparative Approach to Cracking Circuit Function II Conference, Ashburn, United States

18th International Conference on Retinal Proteins, Orangeville ON, Canada, September

Synapse Diversity and Complexity – The Fondation des Treilles, Tourtour Provence, France, May

Howard Hughes Medical Institute (HHMI)/Janelia Research Campus, Analysis and Interpretation of Connectomes Conference, Ashburn, VA, USA, May

Howard Hughes Medical Institute (HHMI)/Janelia Research Campus, Neuro-evo: A Comparative Approach to Cracking Circuit Function II, VA, USA, May

Hughes Medical Institute (HHMI)/Janelia Research Campus, Neuronal Circuits of the Ventral Nerve Cord Conference, Ashburn, VA, USA, April

Neuronal Circuits Meeting, Cold Spring Harbor Laboratory, Cold Spring Harbor, United States, April

9th Canadian Developmental Biology Conference – 7th Canada Regional SDB Conference / Satellite Meeting, Mont-Tremblant QC, Canada, March.

The Royal Society, Connectome to Behaviour Conference, London, UK, January

2017

Dalhousie University Seminar Series, Halifax NS, Canada, November

Okinawa Institute of Science and Technology Developmental Neurobiology Course, Japan, August

Vanderbilt University Seminar, Nashville, TN, USA, March

Queens University Seminar, Kingston, Canada, March

2016

National Science Foundation (NSF) workshop on Comparative Principles of Brain Architecture and Function, San Diego, California, USA, November

9th Symposium for Chinese Neuroscientists Worldwide (SCNW 2016), Hefei, Anhui Province, China, July

11th International Conference of Neurons and Brain Diseases, Vancouver, Canada, July

Howard Hughes Medical Institute (HHMI)/Janelia Research Campus, Motor Control Circuits: Structure, Function and Behavior, Ashburn, VA United States, May

Howard Hughes Medical Institute (HHMI)/Janelia Research Campus, Neuro-evo: A Comparative Approach to Cracking Circuit Function, Ashburn, VA United States, May
6th Neuronal Circuits, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY United States, April
CeNeuro 2016: Neuronal Development, Synaptic Function & Behavior, Nagoya University, Nagoya, Japan
The Florida Atlantic University (FAU)/Scripps Neuroscience Seminar, Boca Raton, FL, USA, January

2015

Stanford, Department of Molecular and Cellular Physiology Seminar Series, California, USA, December
Department of Neurobiology, University of Massachusetts Medical School, Massachusetts, USA, November
Montreal Neurological Institute, McGill University, Montréal, Quebec, Canada, October
Chicago Biomedical Consortium and University of Chicago, Chicago, Illinois, USA, May
9th Canadian Annual Neuroscience (CAN) meeting, Plenary, Vancouver, British Columbia, May
Howard Hughes Medical Institute (HHMI)/Janelia Research Campus Workshop, Virginia, USA, February