Justin K. O'Hare, Ph.D.

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Current Position

Assistant Professor — 2024 – present
Department of Pharmacology
Anschutz Medical Campus
University of Colorado
Aurora, CO 80045

Past Positions

Visiting Instructor — 2022 - 2024
Laboratory of Ivan Soltez, Ph.D.
Department of Neurosurgery
Stanford University
Palo Alto, CA

Associate Research Scientist — 2022 - 2024
Zuckerman Mind Brain Behavior Institute
Columbia University
New York, New York
Advisors: Attila Losonczy, M.D., Ph.D. | Franck Polleux, Ph.D.

Postdoctoral Research Fellow — 2018 - 2022
Zuckerman Mind Brain Behavior Institute
Columbia University
New York, New York
Advisors: Attila Losonczy, M.D., Ph.D. | Franck Polleux, Ph.D.

Postdoctoral Research Scientist — 2017 - 2018
Zuckerman Mind Brain Behavior Institute
Columbia University
New York, New York
Advisors: Attila Losonczy, M.D., Ph.D. | Franck Polleux, Ph.D.

Education

Ph.D., Neurobiology — 2012 – 2017
Duke University
Durham, North Carolina
Advisor: Nicole Calakos, M.D., Ph.D.

B.A., Double Major in Biological Sciences (Honors) and Cognitive Science — 2008 – 2012
Northwestern University
Evanston, Illinois
Advisors: Ravi Allada, M.D. | Ken Paller, Ph.D. | Aryeh Routtenberg, Ph.D.

Additional Training

Diversity, Equity, Inclusion, and Belonging in the Mentor-Mentee Relationship — 2022
Columbia University
New York, New York
Instructor: Dana Crawford, Ph.D.

Neurobiology Methods Course — 2013
Marine Biological Laboratory
Woods Hole, Massachusetts
Course Directors: Graeme Davis, Ph.D. | Timothy Ryan, Ph.D.

Grants and Awards

BRAIN Initiative K99/R00 Award to Promote Diversity (K99NS127815) — 2022 – 2027
National Institutes of Health

BRAIN Initiative F32 NRSA Fellowship (F32MH118716) — 2018 – 2021
National Institutes of Health

Grass Fellowship in Neuroscience — 2016
Grass Foundation

Bill Hall Prize for Excellence in Graduate Student Research — 2016
Duke Neurobiology

Program for Excellence in Science — 2014 – 2016
American Association for the Advancement of Science

Graduate Research Fellowship Honorable Mention — 2014
National Science Foundation

Ruth K. Broad Research Award for Graduate Students — 2014 – 2015
Ruth K. Broad Foundation

Publications

Virga, D.M.*, **O'Hare, J.K.**, Losonczy, A., Polleux, F. Increased rigidity of hippocampal spatial representations in an Alzheimer's disease mouse model. *In preparation.*

O'Hare, J.K., Wang, J., Shala, M.D., Polleux, F., Losonczy, A. Variable recruitment of distal tuft dendrites shapes new place fields. *BioRxiv*, 2024

O'Hare, J.K., Hirabayashi, Y., Hewitt, V.L., Blockus, H., Szoboszlay, M., Rolotti, S.V., Geiller, T.C., Negrean, A., Chelur, V., Polleux, F., Losonczy, A. Compartment-specific tuning of dendritic feature selectivity by intracellular Ca^{2+} release. *Science*, 2022†

† Preview: Palmer, L.M. Intracellular calcium release: A conductor of compartmentalized dendritic plasticity. *Cell*, 2022

† Brain Initiative Research Spotlight: https://brainblog.nih.gov/brain-blog/research-spotlight-f32-recipient-reveals-new-mechanism-synaptic-plasticity-help-mice

† Twitter post by Acting NIH Director Dr. Lawrence A. Tabak: https://twitter.com/NIHDirector/status/1509584915280453677

Terada, S., Geiller, T., Liao, Z., **O'Hare, J.K.**, Vancura, B., Losonczy, A. Adaptive Stimulus Selection for Consolidation in the Hippocampus. *Nature*, 2022

Turi, G.F.; Li, W.K.; Chavlis, S.; Pandi, I; **O'Hare, J.K.;** Priestley, J.B.; Grosmark, A.D.; Liao, Z.; Ladow, M.; Zhang, J.F.; Zemelman, B.V.; Poirazi, P.; Losonczy, A. Vasoactive Intestinal Polypeptide-Expressing Interneurons in the Hippocampus Support Goal-Oriented Spatial Learning. *Neuron*, 2019

O'Hare, J.K.; Calakos, N.; Yin, H.H. Recent Insights into Corticostriatal Circuit Mechanisms underlying Habits. *Current Opinion in Behavioral Sciences*, 2018

Wang, X.; Gallegos, D.A.; Pogorelov, V.M.; **O'Hare, J.K.;** Calakos, N.; Wetself, W.C.; West, A.E. Parvalbumin interneurons of the mouse Nucleus Accumbens are required for amphetamine-induced locomotor sensitization and conditioned place preference. *Neuropsychopharmacology*, 2018

O'Hare, J.K.; Ade, K.K.; Gaidis, E.; Li, H.; Kim, N.; Yin, H.H.; Calakos, N. Striatal fast-spiking interneurons selectively modulate circuit output and are required for habitual behavior. *eLife*, 2017

O'Hare, J.K.; Ade, K.K.; Sukharnikova, T.; Van Hooser, S.D.; Palmeri, M.L.; Yin, H.H.; Calakos, N. Pathway-Specific Striatal Substrates for Habitual Behavior. *Neuron*, 2016†

† Selected press coverage, Huffington Post: "*Your 'Sweet Tooth' Is Really Your Brain Out To Get You*" https://www.huffpost.com/entry/neuroscience-sugar-habit_n_569cee63e4b0b4eb759f05c7

† Television coverage: http://science.unctv.org/content/breaking-habits

Ade, K.K.; Wan, Y.; Hamman, H.C.; Guo, W.; **O'Hare, J.K.;** Quian, A.; Van Hooser, S.D.; Palmeri, M.L.; Wetsel, W.C.; Conn, P.J.; Huber, K.M.; Calakos, N. Increased mGluR5 signaling underlies OCD-like behavioral and striatal circuit abnormalities in mice. *Biological Psychiatry*, 2016

Antony, J.W.; Gobel, E.W.; **O'Hare, J.K.**; Reber, P.J.; Paller, K.A. Cued memory reactivation during sleep influences skill learning. *Nature Neuroscience*, 2012

Invited Seminars

CU Anschutz Dept. of Pharmacology Annual Retreat	2024
COSYNE 2024 Workshop on dendritic Ca^{2+} spikes	2024
University of Colorado NeuroTechnology Center Symposium	2023

MD Anderson Cancer Center, Dept. of Neuro-Oncology 2023
University of California, Riverside, Dept. of Biomedical Sciences 2023
Rutgers University, Dept. of Neuroscience & Cell Biology 2023
Scripps Research, Dept. of Neuroscience 2023
Northwestern University, Dept. of Neuroscience 2023
University of Colorado Anschutz, Dept. of Pharmacology 2023
University of Texas Health Science Center, Dept. of Neurobiology & Anatomy 2023
University of Michigan, Dept. of Molecular, Cellular, and Developmental Biology 2022
Oregon Health & Science University, Dept. of Anesthesiology 2022
EMBO Workshop: "Dendritic Anatomy, Molecules, and Function" 2022
Columbia University, "Zuckerman Institute Postdoctoral Seminars" 2021
Fordham University Lincoln Center Science Club 2018
Columbia University, Zuckerman Institute 2017
Baylor College of Medicine, Dept. of Neuroscience 2017
University of North Carolina, Dept. of Psychology & Neuroscience 2017
Gordon Research Conference: "Basal Ganglia: From Cell Types to Function" 2016
Broad Foundation Awardee Seminars 2015

Service and Outreach

1. Scientific Community Service

Member, BRAIN Initiative Council 2023 – present
Member, BRAIN Initiative Training and DEIA Committee 2023 – present
Session Chair, Gordon Research Seminar, Dendrites: Structure & Function 2023
Co-Chair, Gordon Research Seminar on Basal Ganglia 2016

2. Institutional Service

Postdoctoral Recruitment Committee, CU Anschutz 2024 - present
Member, Zuckerman Institute Scientific Platforms Search Committee 2021 – 2022
Member, Duke Neurobiology Speaker Selection Committee 2014 – 2016
Local Interviewer, Northwestern University Alumni Admissions Council 2014

3. Teaching, Mentorship, and Public Outreach

Mentor, BRAIN Initiative Trainee Pre-Meeting 2023 – present
Guest Lecturer, NeuroTech Training Seminar, Stanford University 2023
Mentor, Columbia Black Undergraduate Mentorship Program 2022 – present
Board Member, Alessio's Glad House (5013c mental illness advocacy)† 2019 – present
†Website launched May, 2022: www.alessiosgladhouse.org
Mentored 4 Undergraduate Students, Columbia University 2018 – present
Lab Facilitator for K-5 Students, Duke University F.E.M.M.E.S. 2013 – 2014
Teaching Assistant, Fundamentals of Neurobiology, Duke University 2013
Lab Facilitator for K-5 Students, Northwestern University L.A.B.S. 2012