

Curriculum Vitae – Alex Kwan

Full name: Chun Hay Alex Kwan
Address: Room 111 Weill Hall
526 Campus Rd
Ithaca, NY 14853, USA

Email: alex.kwan@cornell.edu
Webpage: <http://alexkwanlab.org/>
Twitter: @kwanalexc

Education

1998 – 2003 B.A.Sc., Engineering Physics, Simon Fraser University
2003 – 2009 Ph.D., Applied Physics, Cornell University (Advisor: Watt W. Webb)
2009 – 2013 Postdoc, Neurobiology, University of California, Berkeley (Advisor: Yang Dan)

Positions

2013 – 2019 Assistant Professor, Department of Psychiatry, Yale University
2019 – 2022 Associate Professor, Department of Psychiatry, Yale University
2022 – present Associate Professor, Meinig School of Biomedical Engineering, Cornell University
2023 – present Associate Professor, Dept. of Psychiatry, Weill Cornell Medicine (secondary appointment)

Research interests and selected publications

1) The neural mechanisms of psychoactive drugs for treating depression

Shao LX, Liao C, Gregg I, Davoudian PA, Savalia NK, Delagarza K, and Kwan AC. Psilocybin induces rapid and persistent growth of dendritic spines in frontal cortex in vivo. *Neuron* (2021).

Kwan AC, Olson DE, Preller KH, and Roth BL. The neural basis of psychedelic action. *Nature Neuroscience* (2022).

Ali F, Gerhard DM, Sweasy K, Pothula S, Pittenger C, Duman RS, and Kwan AC. Ketamine disinhibits dendrites and enhances calcium signals in prefrontal dendritic spines. *Nature Communications* (2020).

Savalia NK, Shao LX, and Kwan AC. A dendrite-focused framework for understanding the actions of ketamine and psychedelics. *Trends in Neurosciences* (2021).

Davoudian PA, Shao LX, and Kwan AC. Shared and distinct brain regions targeted for immediate early gene expression by ketamine and psilocybin. *ACS Chemical Neuroscience* (2023).

Jefferson SJ, Gregg I, Dibbs M, Liao C, Wu H, Davoudian PA, Woodburn SC, Wehrle PH, Sprouse JS, Sherwood AM, Kaye AP, Pittenger C, and Kwan AC. 5-MeO-DMT modifies innate behaviors and promotes structural neural plasticity in mice. *Neuropsychopharmacology* (2023).

2) The neural implementation of reinforcement learning for decision-making

Wang H, Ortega HK, Atilgan H, Murphy CE, and Kwan AC. Pupil correlates of decision variables in mice playing a competitive mixed-strategy game. *eNeuro* (2022).

Wang H and Kwan AC. Competitive and cooperative games for probing the neural basis of social decision-making in animals. *Neuroscience and Biobehavioral Reviews* (2023).

Barthas F and Kwan AC. Secondary motor cortex: where ‘sensory’ meets ‘motor’ in the rodent frontal cortex. *Trends in Neurosciences* (2017).

Siniscalchi MJ, Phoumthippavong V, Ali F, Lozano M, and Kwan AC. Fast and slow transitions in frontal ensemble activity during flexible sensorimotor behavior. *Nature Neuroscience* (2016).

Ali F and Kwan AC. Interpreting in vivo calcium signals from neuronal cell bodies, axons, and dendrites: a review. *Neurophotonics* (2020).

Awards and honors

Croucher Fellowship (2009)

NARSAD Young Investigator (2014)

One Mind – Compass Rising Star Award (2022)

Grants

NIH R01 MH121848 (PI: Kwan, 2020 – 2025)

NIH R01 MH128217 (PI: Kwan, 2022 – 2027)

One Mind – Compass Rising Star Award (PI: Kwan, 2023 – 2025)

Intra-Cellular Therapies sponsored research (PI: Kwan, 2023 – 2025)

NIH U01 NS128660 (PI: Xu, co-I: Kwan, 2022 – 2026)

Recent talks (* scheduled)

2022: WCBR, U. Cincinnati, Johns Hopkins, Science of Consciousness, Legacy Research Institute, UT MD Anderson UT Health, Am. Psychiatric Association, Penn, UVA, SfN minisymposium, UBC MATRIX-N, Northwestern Feinberg

2023: UC Irvine, Dartmouth, UCSD, Sensorium Therapeutics, Einstein Center for Neurosciences Berlin, UConn, Compass Pathways, Korea Institute for Basic Science, ACNP

2024: UCSF, ISRP*, Johns Hopkins*, NEURON conference*, Weizmann Institute*, EBPS workshop*

Teaching and outreach

2023 – present BME 3310/5310: Medical and Preclinical Imaging

2023 – present BME 6350: Introduction to Neurotechnology

2024 – present BME 7900: Biomedical Engineering Graduate Colloquium

2018 – present Skype a Scientist (with 8 classrooms in NJ, ME, CA, AL, MA, GA)

Professional service

2023 Lead organizer, 4th Annual Rising Stars in Engineering in Health Workshop

2025 Founding co-chair, Gordon Research Conference *Neurobiology of Psychedelics*

2023 – present Editorial Board, Neuropsychopharmacology - Digital Psychiatry and Neuroscience

NIH grant review panels: NDPR (2017); ZNS1-SRB-M(06) (2018); ZRG1-MDCN-P(57) (2/2019, 6/2019, 2/2020); ZMH1 ERB-L (02) (2021); ZRG1 IFCN-U (02) (2021); ZRG1 IFCN-T (55) (2021); ZMH1 ERB-M (04) (2022); ZMH1 ERB-M (03) (2023); ZRG1 ICN-A (02) (2023); ZMH1 ERB-M (02) (2023); ZDA1 BSW-N (M2) (2024)

Other grant review panels: NSF GRFP (2017); VA MHBA (2017); NSF/NIH CRCNS (2018, 2019)

Scientific advisory board: Empyrean Neuroscience, Freedom Biosciences, Psylo