



Scott Owen

Assistant Professor of Neurosurgery and, by courtesy, of Neurobiology

Bio

ACADEMIC APPOINTMENTS

- Assistant Professor, Neurosurgery
- Assistant Professor (By courtesy), Neurobiology
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Stanley Fahn Junior Faculty Award, Parkinson's Foundation (2021-2024)
- NARSAD Young Investigator Award, Brain and Behavior Research Foundation (2019-2020)
- K99 Pathway to Independence Award, NIMH (2016-2018)
- Award for Scientific Excellence, Gladstone Institutes (2017)
- F32 - Ruth L. Kirschstein National Research Service Award (NRSA), NINDS (2014-2016)
- Above and Beyond Award, Gladstone Institutes (2012)
- F31 - Ruth L. Kirschstein National Research Service Award (NRSA), NIMH (2008-2010)
- NDSEG Graduate Fellowship, Department of Defense (2005-2008)
- Bassett Physics Prize, Amherst College (1999)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Faculty Member, Society for Neuroscience NeuroOnline Training Series (2018 - 2018)
- Chair, Gordon-Kenan Research Seminar on Inhibition in the CNS (2015 - 2015)
- Panelist, National Defense Science and Engineering Graduate Fellowship Selection Committee (2015 - 2015)
- Co-Chair, Gordon-Kenan Research Seminar on Interneuron Diversity (2013 - 2013)

PROFESSIONAL EDUCATION

- Visiting Scientist, The Allen Institute , Neuroscience (2020)
- Post-Doc, Gladstone Institutes, UCSF , Neuroscience (2019)
- PhD, Stanford University , Molecular and Cellular Physiology (2012)
- AB, Amherst College , Physics (2002)

LINKS

- Owen Lab Website: <https://med.stanford.edu/owen-lab.html>

Teaching

COURSES

2025-26

- Cellular/Molecular Neuroscience Laboratory: NEPR 288 (Sum)

2024-25

- Cellular/Molecular Neuroscience Laboratory: NEPR 288 (Sum)

2023-24

- Cellular/Molecular Neuroscience Laboratory: NEPR 288 (Sum)

2022-23

- Cellular/Molecular Neuroscience Laboratory: NEPR 288 (Sum)

STANFORD ADVISEES

Med Scholar Project Advisor

Aneysis Gonzalez

Doctoral Dissertation Reader (AC)

Lorna Jayne, Shreya Malhotra, Lavonna Mark, Allison Morningstar, Theo Ruffins, Blake Zhou

Postdoctoral Faculty Sponsor

Fei Deng

Doctoral Dissertation Advisor (AC)

Deniz Bingul, Makenna Fluegel, Rennie Kendrick, Emmalyn Leonard

Publications

PUBLICATIONS

- **Enhancer AAV toolbox for accessing and perturbing striatal cell types and circuits.** *Neuron*
Hunker, A. C., Wirthlin, M. E., Gill, G., Johansen, N. J., Hooper, M., Omstead, V., Vargas, S., Lerma, M. N., Taskin, N., Weed, N., Laird, W. D., Bishaw, Y. M., Bendrick, et al
2025; 113 (10): 1507
- **Aged neurons don't register energy need.** *Science (New York, N.Y.)*
Bingul, D., Owen, S. F.
2024; 386 (6728): 1349-1350
- **Data-driven synapse classification reveals a logic of glutamate receptor composition.** *bioRxiv : the preprint server for biology*
Micheva, K. D., Simhal, A. K., Schardt, J., Smith, S. J., Weinberg, R. J., Owen, S. F.
2024
- **Distinctive physiology of molecularly identified medium spiny neurons in the macaque putamen.** *Cell reports*
Ting, J. T., Johansen, N. J., Kalmbach, B. E., Taskin, N., Lee, B., Clark, J. K., Kendrick, R., Ng, L., Radaelli, C., Weed, N., Enstrom, R., Ransford, S., Redford, et al
2024; 43 (11): 114963
- **Enhancer AAV toolbox for accessing and perturbing striatal cell types and circuits.** *bioRxiv : the preprint server for biology*

- Hunker, A. C., Wirthlin, M. E., Gill, G., Johansen, N. J., Hooper, M., Omstead, V., Taskin, N., Weed, N., Vargas, S., Bendrick, J. L., Gore, B., Ben-Simon, Y., Bishaw, et al
2024
- **Areal specializations in the morpho-electric and transcriptomic properties of primate layer 5 extratelencephalic projection neurons.** *Cell reports*
Dembrow, N. C., Sawchuk, S., Dalley, R., Opitz-Araya, X., Hudson, M., Radaelli, C., Alfiler, L., Walling-Bell, S., Bertagnolli, D., Goldy, J., Johansen, N., Miller, J. A., Nasirova, et al
2024; 43 (9): 114718
 - **A multimodal cell census and atlas of the mammalian primary motor cortex** *NATURE*
Callaway, E. M., Dong, H., Ecker, J. R., Hawrylycz, M. J., Huang, Z., Lein, E. S., Ngai, J., Osten, P., Ren, B., Tolias, A., White, O., Zeng, H., Zhuang, et al
2021; 598 (7879): 86-102
 - **Comparative cellular analysis of motor cortex in human, marmoset and mouse.** *Nature*
Bakken, T. E., Jorstad, N. L., Hu, Q., Lake, B. B., Tian, W., Kalmbach, B. E., Crow, M., Hodge, R. D., Krienen, F. M., Sorensen, S. A., Eggermont, J., Yao, Z., Aevermann, et al
2021; 598 (7879): 111-119
 - **Signature morpho-electric, transcriptomic, and dendritic properties of human layer 5 neocortical pyramidal neurons.** *Neuron*
Kalmbach, B. E., Hodge, R. D., Jorstad, N. L., Owen, S., de Frates, R., Yanny, A. M., Dalley, R., Mallory, M., Graybuck, L. T., Radaelli, C., Keene, C. D., Gwinn, R. P., Silbergeld, et al
2021; 109 (18): 2914-2927.e5
 - **Thermal constraints on in vivo optogenetic manipulations.** *Nature neuroscience*
Owen, S. F., Liu, M. H., Kreitzer, A. C.
2019; 22 (7): 1061-1065
 - **An open-source control system for in vivo fluorescence measurements from deep-brain structures.** *Journal of neuroscience methods*
Owen, S. F., Kreitzer, A. C.
2019; 311: 170-177
 - **Targeted genomic CRISPR-Cas9 screen identifies MAP4K4 as essential for glioblastoma invasion.** *Scientific reports*
Prolo, L. M., Li, A. n., Owen, S. F., Parker, J. J., Foshay, K. n., Nitta, R. T., Morgens, D. W., Bolin, S. n., Wilson, C. M., Vega L, J. C., Luo, E. J., Nwagbo, G. n., Waziri, et al
2019; 9 (1): 14020
 - **A Genetically Encoded Fluorescent Sensor Enables Rapid and Specific Detection of Dopamine in Flies, Fish, and Mice.** *Cell*
Sun, F., Zeng, J., Jing, M., Zhou, J., Feng, J., Owen, S. F., Luo, Y., Li, F., Wang, H., Yamaguchi, T., Yong, Z., Gao, Y., Peng, et al
2018; 174 (2): 481-496.e19
 - **Fast-Spiking Interneurons Supply Feedforward Control of Bursting, Calcium, and Plasticity for Efficient Learning.** *Cell*
Owen, S. F., Berke, J. D., Kreitzer, A. C.
2018; 172 (4): 683-695.e15
 - **Oxytocin enhances hippocampal spike transmission by modulating fast-spiking interneurons** *NATURE*
Owen, S. F., Tuncdemir, S. N., Bader, P. L., Tirko, N. N., Fishell, G., Tsien, R. W.
2013; 500 (7463): 458-?
 - **Ca(v)1 and Ca(v)2 Channels Engage Distinct Modes of Ca²⁺ Signaling to Control CREB-Dependent Gene Expression** *CELL*
Wheeler, D. G., Groth, R. D., Ma, H., Barrett, C. F., Owen, S. F., Safa, P., Tsien, R. W.
2012; 149 (5): 1112-1124
 - **Mouse model of Timothy syndrome recapitulates triad of autistic traits** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Bader, P. L., Faizi, M., Kim, L. H., Owen, S. F., Tadross, M. R., Alfa, R. W., Bett, G. C., Tsien, R. W., Rasmusson, R. L., Shamloo, M.
2011; 108 (37): 15432-15437
 - **Inhibitory Neurons Hear Themselves during Development** *NEURON*
Owen, S. F., Tsien, R. W.

2010; 66 (2): 164-166

- **Excitation-transcription coupling mechanisms engaged by specific calcium channel types**

Tsien, R. W., Wheeler, D. G., Groth, R. D., Ma, H., Owen, S. F., Barrett, C. F.

ELSEVIER IRELAND LTD.2010: E20

- **Fast line-based experiment timing system for LabVIEW** *REVIEW OF SCIENTIFIC INSTRUMENTS*

Owen, S. F., Hall, D. S.

2004; 75 (1): 259-65