Stanford



Kevin Kelley

Assistant Professor of Psychiatry and Behavioral Sciences (General Psychiatry and Psychology)

CLINICAL OFFICE (PRIMARY)

- **Psychiatry**

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Bio

BIO

As a neuroscientist and psychiatrist, I am motivated by how little we understand about the pathophysiology of psychiatric disorders and hope that further knowledge will help to alleviate the ongoing distress of many of our patients. My research program leverages computational genomics, human brain cellular models, and molecular neuroscience techniques to understand the cellular and molecular mechanisms of human brain development and how dysfunction in these processes lead to psychiatric disorders.

CLINICAL FOCUS

- Psychiatry

ACADEMIC APPOINTMENTS

- Assistant Professor-Univ Med Line, Psychiatry and Behavioral Sciences
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- BBRF Young Investigator Award, Brain & Behavior Research Foundation (2024)
- Miller Award, Best Paper By a Psychiatric Resident at Stanford University (2023)
- Laughlin Fellow, American College of Psychiatrists (2022)
- Sammy Kuo Award (finalist), Best Postdoctoral publication in Neuroscience at Stanford University (2022)
- Travel Award, Trefethen MSTP Family Research UCSF (2018)
- Travel Award, American Academy of Neurology (2015)
- Predoctoral Fellowship, CIRM (2013-2016)
- Member, Phi Beta Kappa (2009)

- Postgraduate Scholar, NCAA (2009)

PROFESSIONAL EDUCATION

- Board Certification: Psychiatry, American Board of Psychiatry and Neurology (2023)
- Residency: Stanford University Psychiatry and Behavioral Sciences (2023) CA
- Medical Education: University of California at San Francisco School of Medicine (2019) CA
- PhD, University of California at San Francisco School of Medicine , Neuroscience
- BA, Pomona College , Chemistry, Physics

Teaching

STANFORD ADVISEES

Postdoctoral Research Mentor

Veronika Petrova

Publications

PUBLICATIONS

- **Generating human neural diversity with a multiplexed morphogen screen in organoids.** *Cell stem cell*
  Amin, N. D., Kelley, K. W., Kaganovsky, K., Onesto, M., Hao, J., Miura, Y., McQueen, J. P., Reis, N., Narazaki, G., Li, T., Kulkarni, S., Pavlov, S., Pașca, et al
  2024; 31 (12): 1831-1846.e9
- **Host circuit engagement of human cortical organoids transplanted in rodents.** *Nature protocols*
  Kelley, K. W., Revah, O., Gore, F., Kaganovsky, K., Chen, X., Deisseroth, K., Pașca, S. P.
  2024
- **Maturation and circuit integration of transplanted human cortical organoids.** *Nature*
  Revah, O., Gore, F., Kelley, K. W., Andersen, J., Sakai, N., Chen, X., Li, M. Y., Birey, F., Yang, X., Saw, N. L., Baker, S. W., Amin, N. D., Kulkarni, et al
  2022; 610 (7931): 319-326
- **Human brain organogenesis: Toward a cellular understanding of development and disease.** *Cell*
  Kelley, K. W., Pașca, S. P.
  2021
- **Variation among intact tissue samples reveals the core transcriptional features of human CNS cell classes.** *Nature neuroscience*
  Kelley, K. W., Nakao-Inoue, H., Molofsky, A. V., Oldham, M. C.
  2018; 21 (9): 1171-1184
- **Kir4.1-Dependent Astrocyte-Fast Motor Neuron Interactions Are Required for Peak Strength.** *Neuron*
  Kelley, K. W., Ben Haim, L., Schirmer, L., Tyzack, G. E., Tolman, M., Miller, J. G., Tsai, H. H., Chang, S. M., Molofsky, A. V., Yang, Y., Patani, R., Lakatos, A., Ullian, et al
  2018; 98 (2): 306-319.e7
- **An integrated transcriptomic cell atlas of human neural organoids.** *Nature*
  He, Z., Dony, L., Fleck, J. S., Szałata, A., Li, K. X., Slišković, I., Lin, H. C., Santel, M., Atamian, A., Quadrato, G., Sun, J., Pașca, S. P., Camp, et al
  2024; 635 (8039): 690-698
- **CLARIFYING THE MOLECULAR CONSEQUENCES OF ONCOGENIC MUTATIONS THROUGH MULTISCALE AND MULTIOMIC ANALYSIS OF INDIVIDUAL TUMORS**
  Schupp, P., Shelton, S., Brody, D., Eliscu, R., Johnson, B., Mazor, T., Kelley, K., Potts, M., McDermott, M., Huang, E., Lim, D., Pieper, R., Berger, et al
  OXFORD UNIV PRESS INC.2023
- **Assembloid CRISPR screens reveal impact of disease genes in human neurodevelopment** *NATURE*

Meng, X., Yao, D., Imaizumi, K., Chen, X., Kelley, K. W., Reis, N., Thete, M., Arjun McKinney, A., Kulkarni, S., Panagiotakos, G., Bassik, M. C., Pasca, S. P.
2023

- **Assembloid CRISPR screens reveal impact of disease genes in human neurodevelopment.** *Nature*
  Meng, X., Yao, D., Imaizumi, K., Chen, X., Kelley, K. W., Reis, N., Thete, M. V., Arjun McKinney, A., Kulkarni, S., Panagiotakos, G., Bassik, M. C., Pașca, S. P.
  2023

- **Scrutinizing disease states and regulation in human microglia.** *Nature genetics*
  Kelley, K. W., Pașca, S. P.
  2021

- **Neurotoxic microglia promote TDP-43 proteinopathy in progranulin deficiency.** *Nature*
  Zhang, J., Velmeshev, D., Hashimoto, K., Huang, Y. H., Hofmann, J. W., Shi, X., Chen, J., Leidal, A. M., Dishart, J. G., Cahill, M. K., Kelley, K. W., Liddelow, S. A., Seeley, et al
  2020; 588 (7838): 459-465

- **Generation of Functional Human 3D Cortico-Motor Assembloids.** *Cell*
  Andersen, J. n., Revah, O. n., Miura, Y. n., Thom, N. n., Amin, N. D., Kelley, K. W., Singh, M. n., Chen, X. n., Thete, M. V., Walczak, E. M., Vogel, H. n., Fan, H. C., Paşca, et al
  2020

- **Does Adult Neurogenesis Persist in the Human Hippocampus?** *Cell stem cell*
  Paredes, M. F., Sorrells, S. F., Cebrian-Silla, A., Sandoval, K., Qi, D., Kelley, K. W., James, D., Mayer, S., Chang, J., Auguste, K. I., Chang, E. F., Gutierrez Martin, A. J., Kriegstein, et al
  2018; 23 (6): 780-781

- **Oligodendrocyte-encoded Kir4.1 function is required for axonal integrity.** *eLife*
  Schirmer, L., Möbius, W., Zhao, C., Cruz-Herranz, A., Ben Haim, L., Cordano, C., Shiow, L. R., Kelley, K. W., Sadowski, B., Timmons, G., Pröbstel, A. K., Wright, J. N., Sin, et al
  2018; 7

- **Astrocyte-derived interleukin-33 promotes microglial synapse engulfment and neural circuit development** *SCIENCE*
  Vainchtein, I. D., Chin, G., Cho, F. S., Kelley, K. W., Miller, J. G., Chien, E. C., Liddelow, S. A., Nguyen, P. T., Nakao-Inoue, H., Dorman, L. C., Akil, O., Joshita, S., Barres, et al
  2018; 359 (6381): 1269–73

- **Human hippocampal neurogenesis drops sharply in children to undetectable levels in adults** *NATURE*
  Sorrells, S. F., Paredes, M. F., Ebrian-Silla, A. C., Sandoval, K., Qi, D., Kelley, K. W., James, D., Mayer, S., Chang, J., Auguste, K. I., Hang, E. F. C., Gutierrez, A. J., Kriegstein, et al
  2018; 555 (7696): 377-+

- **Secretagogin is Expressed by Developing Neocortical GABAergic Neurons in Humans but not Mice and Increases Neurite Arbor Size and Complexity.** *Cerebral cortex (New York, N.Y. : 1991)*
  Raju, C. S., Spatazza, J., Stanco, A., Larimer, P., Sorrells, S. F., Kelley, K. W., Nicholas, C. R., Paredes, M. F., Lui, J. H., Hasenstaub, A. R., Kriegstein, A. R., Alvarez-Buylla, A., Rubenstein, et al
  2017: 1-13

- **Progranulin Deficiency Promotes Circuit-Specific Synaptic Pruning by Microglia via Complement Activation** *CELL*
  Lui, H., Zhang, J., Makinson, S. R., Cahill, M. K., Kelley, K. W., Huang, H., Shang, Y., Oldham, M. C., Martens, L. H., Gao, F., Coppola, G., Sloan, S. A., Hsieh, et al
  2016; 165 (4): 921-935

- **Astrocytes: The Final Frontier….** *Neuron*
  Kelley, K. W., Rowitch, D. H.
  2016; 89 (1): 1-2

- **Transcriptional architecture of the human brain.** *Nature neuroscience*
  Kelley, K. W., Oldham, M. C.
  2015; 18 (12): 1699-701

- **Distinct and separable roles for EZH2 in neurogenic astroglia.** *eLife*
  Hwang, W. W., Salinas, R. D., Siu, J. J., Kelley, K. W., Delgado, R. N., Paredes, M. F., Alvarez-Buylla, A., Oldham, M. C., Lim, D. A.
  2014; 3: e02439
- **Astrocyte-encoded positional cues maintain sensorimotor circuit integrity.** *Nature*
  Molofsky, A. V., Kelley, K. W., Tsai, H. H., Redmond, S. A., Chang, S. M., Madireddy, L., Chan, J. R., Baranzini, S. E., Ullian, E. M., Rowitch, D. H.
  2014; 509 (7499): 189-94
- **Expression profiling of Aldh1l1-precursors in the developing spinal cord reveals glial lineage-specific genes and direct Sox9-Nfe2l1 interactions.** *Glia*
  Molofsky, A. V., Glasgow, S. M., Chaboub, L. S., Tsai, H. H., Murnen, A. T., Kelley, K. W., Fancy, S. P., Yuen, T. J., Madireddy, L., Baranzini, S., Deneen, B., Rowitch, D. H., Oldham, et al
  2013; 61 (9): 1518-32
- **Polymorph-specific kinetics and thermodynamics of β-amyloid fibril growth.** *Journal of the American Chemical Society*
  Qiang, W., Kelley, K., Tycko, R.
  2013; 135 (18): 6860-71