

Stanford



Neal Amin

Clinical Assistant Professor, Psychiatry and Behavioral Sciences

Bio

BIO

I am a Clinical Assistant Professor in the Department of Psychiatry at Stanford University in the lab of Sergiu Pasca, MD. I completed the Research Track Psychiatry Residency Program at Stanford University. I earned my MD and PhD degrees from the University of California, San Diego where I conducted my graduate studies with Samuel L. Pfaff, PhD, at the Salk Institute for Biological Studies. My Bachelor of Arts was earned from Columbia College, Columbia University. I am an attending physician in Stanford's Evaluation Clinic. My basic neurobiology translational research identifies and corrects gene networks in human neural cell types associated with varied brain disorders, including autism, motor neuron disease, neurodegeneration, and aging. I apply advanced single cell transcriptomics and deep learning models applied on mice and human stem cell derived models of the brain called neural organoids. The products of my research include first author publications in *Science* and *Neuron*, patents, presentations at national and international conferences, and recognition and funding from the NINDS, NIMH and private foundations including the BBRF and the Deeda Blair Research Initiative.

ACADEMIC APPOINTMENTS

- Clinical Assistant Professor, Psychiatry and Behavioral Sciences
- Member, Wu Tsai Neurosciences Institute

PROFESSIONAL EDUCATION

- Board Certification, American Board of Psychiatry and Neurology , Psychiatry
- Residency, Stanford University , Psychiatry
- PhD, UC San Diego , Biomedical Sciences
- MD, UC San Diego
- BA, Columbia University, Columbia College

Publications

PUBLICATIONS

- **Single-cell transcriptomic landscape of the developing human spinal cord.** *Nature neuroscience*
Andersen, J., Thom, N., Shadrach, J. L., Chen, X., Onesto, M. M., Amin, N. D., Yoon, S. J., Li, L., Greenleaf, W. J., Müller, F., Pasca, A. M., Kaltschmidt, J. A., Pa#ca, et al
2023
- **Generating human neural diversity with a multiplexed morphogen screen in organoids** *bioRxiv*
Amin, N. D., Kelley, K. W., Hao, J., Narazaki, G., Li, T., McQueen, P., Kulkarni, S., Pavlov, S., Pasca, S. P.
2023

- **Motor neurons use push-pull signals to direct vascular remodeling critical for their connectivity** *NEURON*
Martins, L. F., Brambilla, I., Motta, A., de Pretis, S., Bhat, G., Badaloni, A., Malpighi, C., Amin, N. D., Imai, F., Almeida, R. D., Yoshida, Y., Pfaff, S. L., Bonanomi, et al
2022; 110 (24): 4090-+
- **Modulating miR-218 in Human Motor Neurons Using Assembloids**
Amin, N., Kulkarni, S., Pasca, S.
WILEY.2022: S168
- **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
- **Mouse embryo models built from stem cells take shape in a dish.** *Nature*
Amin, N. D., Pa#ca, S. P.
2022; 610 (7930): 39-40
- **Detecting microRNA-mediated gene regulatory effects in murine neuronal subpopulations.** *STAR protocols*
Amin, N. D., Senturk, G., Hayashi, M., Driscoll, S. P., Pfaff, S. L.
2022; 3 (1): 101130
- **A hidden threshold in motor neuron gene networks revealed by modulation of miR-218 dose.** *Neuron*
Amin, N. D., Senturk, G., Costaguta, G., Driscoll, S., O'Leary, B., Bonanomi, D., Pfaff, S. L.
2021
- **Conserved genetic signatures parcellate cardinal spinal neuron classes into local and projection subsets.** *Science (New York, N.Y.)*
Osseward, P. J., Amin, N. D., Moore, J. D., Temple, B. A., Barriga, B. K., Bachmann, L. C., Beltran, F., Gullo, M., Clark, R. C., Driscoll, S. P., Pfaff, S. L., Hayashi, M.
2021; 372 (6540): 385-393
- **Neuronal defects in a human cellular model of 22q11.2 deletion syndrome.** *Nature medicine*
Khan, T. A., Revah, O. n., Gordon, A. n., Yoon, S. J., Krawisz, A. K., Goold, C. n., Sun, Y. n., Kim, C. H., Tian, Y. n., Li, M. Y., Schaepe, J. M., Ikeda, K. n., Amin, et al
2020
- **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., Pa#ca, et al
2020
- **Building Models of Brain Disorders with Three-Dimensional Organoids** *NEURON*
Amin, N. D., Pasca, S. P.
2018; 100 (2): 389–405
- **Speed and segmentation control mechanisms characterized in rhythmically-active circuits created from spinal neurons produced from genetically-tagged embryonic stem cells** *ELIFE*
Sternfeld, M. J., Hinckley, C. A., Moore, N. J., Pankratz, M. T., Hilde, K. L., Driscoll, S. P., Hayashi, M., Amin, N. D., Bonanomi, D., Gifford, W. D., Sharma, K., Goulding, M., Pfaff, et al
2017; 6
- **Loss of motoneuron-specific microRNA-218 causes systemic neuromuscular failure** *SCIENCE*
Amin, N. D., Bai, G., Klug, J. R., Bonanomi, D., Pankratz, M. T., Gifford, W. D., Hinckley, C. A., Sternfeld, M. J., Driscoll, S. P., Dominguez, B., Lee, K., Jin, X., Pfaff, et al
2015; 350 (6267): 1525-1529
- **Chemical scaffolds with structural similarities to siderophores of nonribosomal peptide-polyketide origin as novel antimicrobials against Mycobacterium tuberculosis and Yersinia pestis** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Ferreras, J. A., Gupta, A., Amin, N. D., Basu, A., Sinha, B. N., Worgall, S., Jayaprakash, V., Quadri, L. N.
2011; 21 (21): 6533–37