



## Jessica Walsh

Basic Life Research Scientist, Psych/Major Laboratories and Clinical & Translational Neurosciences Incubator

### Bio

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#### BIO

My career in neuroscience spans 17 years of work in diverse areas of the mental health field. There is a clear trajectory of my commitment to investigating mental health disorders seen from the various positions have that led to my current stage. My training has endowed me with a strong skill set for interrogating neurobiological systems. In addition, conducting research in numerous distinct settings has left me with a well-developed scientific philosophy, and a nuanced understanding of different mental health disorders, ranging from Alzheimer's disease, to Depression, to Autism Spectrum Disorder, all of which are complex brain disorders with severe public health implications.

#### HONORS AND AWARDS

- Sammy Kuo Award in Neuroscience, Stanford University (2018)
- Ruth L. Kirschstein National Research Service for Individual Postdoctoral Fellows, National Institute of Mental Health, Bethesda, Maryland (2014)

### Publications

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#### PUBLICATIONS

- **Loss of the neural-specific BAF subunit ACTL6B relieves repression of early response genes and causes recessive autism.** *Proceedings of the National Academy of Sciences of the United States of America*  
Wenderski, W., Wang, L., Krokhotin, A., Walsh, J. J., Li, H., Shoji, H., Ghosh, S., George, R. D., Miller, E. L., Elias, L., Gillespie, M. A., Son, E. Y., Staahl, et al  
2020
- **Distinct neural mechanisms for the prosocial and rewarding properties of MDMA.** *Science translational medicine*  
Heifets, B. D., Salgado, J. S., Taylor, M. D., Hoerbelt, P., Cardozo Pinto, D. F., Steinberg, E. E., Walsh, J. J., Sze, J. Y., Malenka, R. C.  
2019; 11 (522)
- **5-HT release in nucleus accumbens rescues social deficits in mouse autism model.** *Nature*  
Walsh, J. J., Christoffel, D. J., Heifets, B. D., Ben-Dor, G. A., Selimbeyoglu, A., Hung, L. W., Deisseroth, K., Malenka, R. C.  
2018
- **Gating of social reward by oxytocin in the ventral tegmental area.** *Science (New York, N.Y.)*  
Hung, L. W., Neuner, S., Polepalli, J. S., Beier, K. T., Wright, M., Walsh, J. J., Lewis, E. M., Luo, L., Deisseroth, K., Dölen, G., Malenka, R. C.  
2017; 357 (6358): 1406–11
- **Excitatory transmission at thalamo-striatal synapses mediates susceptibility to social stress.** *Nature neuroscience*  
Christoffel, D. J., Golden, S. A., Walsh, J. J., Guise, K. G., Heshmati, M., Friedman, A. K., Dey, A., Smith, M., Rebusi, N., Pfau, M., Ables, J. L., Aleyasin, H., Khibnik, et al  
2015; 18 (7): 962-964
- **Enhancing Depression Mechanisms in Midbrain Dopamine Neurons Achieves Homeostatic Resilience** *SCIENCE*  
Friedman, A. K., Walsh, J. J., Juarez, B., Ku, S. M., Chaudhury, D., Wang, J., Li, X., Dietz, D. M., Pan, N., Vialou, V. F., Neve, R. L., Yue, Z., Han, et al

2014; 344 (6181): 313–19

- **Stress and CRF gate neural activation of BDNF in the mesolimbic reward pathway** *NATURE NEUROSCIENCE*  
Walsh, J. J., Friedman, A. K., Sun, H., Heller, E. A., Ku, S. M., Juarez, B., Burnham, V. L., Mazei-Robison, M. S., Ferguson, D., Golden, S. A., Koo, J. W., Chaudhury, D., Christoffe, et al  
2014; 17 (1): 27–29
- **Rapid regulation of depression-related behaviours by control of midbrain dopamine neurons** *NATURE*  
Chaudhury, D., Walsh, J. J., Friedman, A. K., Juarez, B., Ku, S. M., Koo, J. W., Ferguson, D., Tsai, H., Pomeranz, L., Christoffel, D. J., Nectow, A. R., Ekstrand, M., Domingos, et al  
2013; 493 (7433): 532–?
- **Role of vascular risk factors and vascular dysfunction in Alzheimer's disease.** *The Mount Sinai journal of medicine, New York*  
Dickstein, D. L., Walsh, J., Brautigam, H., Stockton, S. D., Gandy, S., Hof, P. R.  
; 77 (1): 82–102
- **Midbrain circuit regulation of individual alcohol drinking behaviors in mice** *NATURE COMMUNICATIONS*  
Juarez, B., Morel, C., Ku, S. M., Liu, Y., Zhang, H., Montgomery, S., Gregoire, H., Ribeiro, E., Crumiller, M., Roman-Ortiz, C., Walsh, J. J., Jackson, K., Croote, et al  
2017; 8: 2220
- **Essential Role of Mesolimbic Brain-Derived Neurotrophic Factor in Chronic Social Stress-Induced Depressive Behaviors** *BIOLOGICAL PSYCHIATRY*  
Koo, J., Labonte, B., Engmann, O., Calipari, E. S., Juarez, B., Lorsch, Z., Walsh, J. J., Friedman, A. K., Yorgason, J. T., Han, M., Nestler, E. J.  
2016; 80 (6): 469–78
- **Basal forebrain projections to the lateral habenula modulate aggression reward** *NATURE*  
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2016; 534 (7609): 688–?
- **KCNQ channel openers reverse depressive symptoms via an active resilience mechanism** *NATURE COMMUNICATIONS*  
Friedman, A. K., Juarez, B., Ku, S. M., Zhang, H., Calizo, R. C., Walsh, J. J., Chaudhury, D., Zhang, S., Hawkins, A., Dietz, D. M., Murrough, J. W., Ribadeneira, M., Wong, et al  
2016; 7: 11671
- **THE HETEROGENEITY OF VENTRAL TEGMENTAL AREA NEURONS: PROJECTION FUNCTIONS IN A MOOD-RELATED CONTEXT** *NEUROSCIENCE*  
Walsh, J. J., Han, M. H.  
2014; 282: 101–8
- **Locus-specific epigenetic remodeling controls addiction- and depression-related behaviors** *NATURE NEUROSCIENCE*  
Heller, E. A., Cates, H. M., Pena, C. J., Sun, H., Shao, N., Feng, J., Golden, S. A., Herman, J. P., Walsh, J. J., Mazei-Robison, M., Ferguson, D., Knight, S., Gerber, et al  
2014; 17 (12): 1720–27
- **Light and chemical control of neuronal circuits: possible applications in neurotherapy.** *Expert review of neurotherapeutics*  
Whittle, A. J., Walsh, J., de Lecea, L.  
2014; 14 (9): 1007–1017
- **Amyloid precursor protein (APP) regulates synaptic structure and function** *MOLECULAR AND CELLULAR NEUROSCIENCE*  
Tyan, S., Shih, A., Walsh, J. J., Maruyama, H., Sarsoza, F., Ku, L., Eggert, S., Hof, P. R., Koo, E. H., Dickstein, D. L.  
2012; 51 (1–2): 43–52
- **Deletion of the amyloid precursor-like protein 2 (APLP2) does not affect hippocampal neuron morphology or function** *MOLECULAR AND CELLULAR NEUROSCIENCE*  
Midthune, B., Tyan, S., Walsh, J. J., Sarsoza, F., Eggert, S., Hof, P. R., Dickstein, D. L., Koo, E. H.  
2012; 49 (4): 448–55
- **Reinforcement-Related Regulation of AMPA Glutamate Receptor Subunits in the Ventral Tegmental Area Enhances Motivation for Cocaine** *JOURNAL OF NEUROSCIENCE*  
Choi, K. H., Edwards, S., Graham, D. L., Larson, E. B., Whisler, K. N., Simmons, D., Friedman, A. K., Walsh, J. J., Rahman, Z., Monteggia, L. M., Eisch, A. J., Neve, R. L., Nestler, et al

2011; 31 (21): 7927-7937

- **Mesolimbic Dopamine Neurons in the Brain Reward Circuit Mediate Susceptibility to Social Defeat and Antidepressant Action** *JOURNAL OF NEUROSCIENCE*

Cao, J., Covington, H. E., Friedman, A. K., Wilkinson, M. B., Walsh, J. J., Cooper, D. C., Nestler, E. J., Han, M.  
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