Stanford

Matthew Pomrenze

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

Bio

ACADEMIC APPOINTMENTS

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

Publications

PUBLICATIONS

- **A multi-institutional investigation of psilocybin's effects on mouse behavior.** *Nature neuroscience*
  Lu, O. D., White, K., Raymond, K. B., Liu, C., Klein, A. S., Green, N., Vaillancourt, S., Gallagher, A. J., Shindy, L., Li, A., Wallquist, K. E., Li, R., Zou, et al
  2026

- **BLA kappa opioid receptor inputs to the BNST mediate social stress-induced increases in alcohol drinking.** *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology*
  Paliarin, F., Doré, E., Mirza, S., Finlay, L., Weiser, E., Panthagani, P., Nguyen, T. Y., Duplantis, C., Basavanhalli, S., Guillory, S. B., Messing, R. O., Pomrenze, M. B., Maiya, et al
  2026

- **Dopamine and serotonin inversely modulate D2 medium spiny neurons to regulate cocaine reward.** *Nature communications*
  Cardozo Pinto, D. F., Guo, M. Y., Pomrenze, M. B., Morishita, W., Li, M. X., Zweifel, L. S., Eshel, N., Malenka, R. C.
  2026

- **I've got a friend somewhere: control of social behavior across striatal subregions.** *Frontiers in behavioral neuroscience*
  Li, M. X., Baek, J., Guo, M. Y., Pomrenze, M. B., Chen, A. P.
  2026; 20: 1763517

- **Serotonin modulates nucleus accumbens circuits to suppress aggression in mice.** *Nature communications*
  Zhang, Z., Touponse, G. C., Alderman, P. J., Yassine, T., Pomrenze, M. B., Harris, T. W., Shank, A. N., Malenka, R. C., Eshel, N.
  2026

- **Cholinergic modulation of dopamine release drives effortful behaviour.** *Nature*
  Touponse, G. C., Pomrenze, M. B., Yassine, T., Denomme, N., Wang, M., Mehta, V., Zhang, Z., Malenka, R. C., Eshel, N.
  2026

- **I've got a friend in you: How the brain socializes during opioid withdrawal.** *Neuron*
  Zhang, Z., Pomrenze, M. B., Eshel, N.
  2025; 113 (21): 3498-3500

- **5-HT2C receptors in the nucleus accumbens constrain the rewarding effects of MDMA.** *Molecular psychiatry*
  Pomrenze, M. B., Vaillancourt, S., Salgado, J. S., Raymond, K. B., Llorach, P., Sacai, H., Rijsketic, D. R., Hietamies, T. M., Touponse, G. C., Cardozo Pinto, D. F., Rastegar, Z., Casey, A. B., Eshel, et al
  2025

- **Ketamine evokes acute behavioral effects via μ-opioid receptor expressing neurons of the central amygdala.** *Biological psychiatry*
  Pomrenze, M. B., Vaillancourt, S., Llorach, P., Rijsketic, D. R., Casey, A. B., Gregory, N., Zhao, W., Girard, T. E., Mattox, K. T., Salgado, J. S., Malenka, R. C., Heifets, B. D.

2025

- **Opponent control of reinforcement by striatal dopamine and serotonin.** *Nature*
  Cardozo Pinto, D. F., Pomrenze, M. B., Guo, M. Y., Touponse, G. C., Chen, A. P., Bentzley, B. S., Eshel, N., Malenka, R. C.
  2024
- **5-HT2Creceptors in the nucleus accumbens constrain the rewarding effects of MDMA.** *bioRxiv : the preprint server for biology*
  Pomrenze, M. B., Vaillancourt, S., Salgado, J. S., Raymond, K. B., Llorach, P., Touponse, G. C., Cardozo Pinto, D. F., Rastegar, Z., Casey, A. B., Eshel, N., Malenka, R. C., Heifets, B. D.
  2024
- **Myelin plasticity in the ventral tegmental area is required for opioid reward.** *Nature*
  Yalçın, B., Pomrenze, M. B., Malacon, K., Drexler, R., Rogers, A. E., Shamardani, K., Chau, I. J., Taylor, K. R., Ni, L., Contreras-Esquivel, D., Malenka, R. C., Monje, M.
  2024
- **MDMA enhances empathy-like behaviors in mice via 5-HT release in the nucleus accumbens.** *Science advances*
  Rein, B., Raymond, K., Boustani, C., Tuy, S., Zhang, J., St Laurent, R., Pomrenze, M. B., Boroon, P., Heifets, B., Smith, M., Malenka, R. C.
  2024; 10 (17): eadl6554
- **Opioid receptor expressing neurons of the central amygdala gate behavioral effects of ketamine in mice.** *bioRxiv : the preprint server for biology*
  Pomrenze, M. B., Vaillancourt, S., Llorach, P., Rijsketic, D. R., Casey, A. B., Gregory, N., Salgado, J. S., Malenka, R. C., Heifets, B. D.
  2024
- **Opioidergic tuning of social attachment: reciprocal relationship between social deprivation and opioid abuse** *Frontiers in Neuroanatomy*
  Galiza Soares, J. A., Sutley-Koury, S. N., Pomrenze, M. B., Tucciarone , J. M.
  2025; 18: 1521016
- **Opioidergic tuning of social attachment: reciprocal relationship between social deprivation and opioid abuse.** *Frontiers in neuroanatomy*
  Galiza Soares, J. A., Sutley-Koury, S. N., Pomrenze, M. B., Tucciarone, J. M.
  2024; 18: 1521016
- **UNRAVELing the synergistic effects of psilocybin and environment on brain-wide immediate early gene expression in mice.** *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology*
  Rijsketic, D. R., Casey, A. B., Barbosa, D. A., Zhang, X., Hietamies, T. M., Ramirez-Ovalle, G., Pomrenze, M. B., Halpern, C. H., Williams, L. M., Malenka, R. C., Heifets, B. D.
  2023
- **UNRAVELing the synergistic effects of psilocybin and environment on brain-wide immediate early gene expression in mice.** *bioRxiv : the preprint server for biology*
  Rijsketic, D. R., Casey, A. B., Barbosa, D. A., Zhang, X., Hietamies, T. M., Ramirez-Ovalle, G., Pomrenze, M., Halpern, C. H., Williams, L. M., Malenka, R. C., Heifets, B. D.
  2023
- **Modulation of 5-HT release by dynorphin mediates social deficits during opioid withdrawal.** *Neuron*
  Pomrenze, M. B., Cardozo Pinto, D. F., Neumann, P. A., Llorach, P., Tucciarone, J. M., Morishita, W., Eshel, N., Heifets, B. D., Malenka, R. C.
  2022
- **Somatodendritic Release of Cholecystokinin Potentiates GABAergic Synapses Onto Ventral Tegmental Area Dopamine Cells.** *Biological psychiatry*
  Martinez Damonte, V., Pomrenze, M. B., Manning, C. E., Casper, C., Wolfden, A. L., Malenka, R. C., Kauer, J. A.
  2022
- **Friend of the Devil: Negative Social Influences Driving Substance Use Disorders.** *Frontiers in behavioral neuroscience*
  Pomrenze, M. B., Paliarin, F., Maiya, R.
  2022; 16: 836996
- **Gray areas: Neuropeptide circuits linking the Edinger-Westphal and Dorsal Raphe nuclei in addiction.** *Neuropharmacology*
  Pomrenze, M. B., Walker, L. C., Giardino, W. J.
  2021: 108769

- **Love it or Leave it: Differential Modulation of Incentive Motivation by Corticotropin-Releasing Factor Neurons.** *Biological psychiatry*
  Pomrenze, M. B., Marinelli, M.
  2021; 89 (12): 1113-1115
- **Extended Amygdala Neuropeptide Circuitry of Emotional Arousal: Waking Up on the Wrong Side of the Bed Nuclei of Stria Terminalis.** *Frontiers in behavioral neuroscience*
  Giardino, W. J., Pomrenze, M. B.
  2021; 15: 613025
- **Dissecting neural mechanisms of prosocial behaviors.** *Current opinion in neurobiology*
  Walsh, J. J., Christoffel, D. J., Wu, X., Pomrenze, M. B., Malenka, R. C.
  2020; 68: 9–14
- **A New Look at the Role of Mesoamygdaloid Dopamine Neurons in Aversive Conditioning.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
  Cardozo Pinto, D. F., Taniguchi, L. n., Norville, Z. C., Pomrenze, M. B.
  2020; 40 (40): 7590–92
- **Differential regulation of alcohol consumption and reward by the transcriptional cofactor LMO4.** *Molecular psychiatry*
  Maiya, R. n., Pomrenze, M. B., Tran, T. n., Tiwari, G. R., Beckham, A. n., Paul, M. T., Dayne Mayfield, R. n., Messing, R. O.
  2020
- **Dissecting the Roles of GABA and Neuropeptides from Rat Central Amygdala CRF Neurons in Anxiety and Fear Learning.** *Cell reports*
  Pomrenze, M. B., Giovanetti, S. M., Maiya, R., Gordon, A. G., Kreeger, L. J., Messing, R. O.
  2019; 29 (1): 13
- **Promoting activity of (α4)3(β2)2 nicotinic cholinergic receptors reduces ethanol consumption.** *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology*
  Wang, J., Blasio, A., Chapman, H. L., Doebelin, C., Liaw, V., Kuryatov, A., Giovanetti, S. M., Lindstrom, J., Lin, L., Cameron, M. D., Kamenecka, T. M., Pomrenze, M. B., Messing, et al
  2019
- **Inactivation of a CRF-dependent amygdalofugal pathway reverses addiction-like behaviors in alcohol-dependent rats.** *Nature communications*
  de Guglielmo, G., Kallupi, M., Pomrenze, M. B., Crawford, E., Simpson, S., Schweitzer, P., Koob, G. F., Messing, R. O., George, O.
  2019; 10 (1): 1238
- **A Corticotropin Releasing Factor Network in the Extended Amygdala for Anxiety.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
  Pomrenze, M. B., Tovar-Diaz, J., Blasio, A., Maiya, R., Giovanetti, S. M., Lei, K., Morikawa, H., Hopf, F. W., Messing, R. O.
  2019; 39 (6): 1030-1043
- **Novel Small-Molecule Inhibitors of Protein Kinase C Epsilon Reduce Ethanol Consumption in Mice.** *Biological psychiatry*
  Blasio, A., Wang, J., Wang, D., Varodayan, F. P., Pomrenze, M. B., Miller, J., Lee, A. M., McMahon, T., Gyawali, S., Wang, H. Y., Roberto, M., McHardy, S., Pleiss, et al
  2018; 84 (3): 193-201
- **Cooperative CRF and α1 Adrenergic Signaling in the VTA Promotes NMDA Plasticity and Drives Social Stress Enhancement of Cocaine Conditioning.** *Cell reports*
  Tovar-Díaz, J., Pomrenze, M. B., Kan, R., Pahlavan, B., Morikawa, H.
  2018; 22 (10): 2756-2766
- **The Corticotropin Releasing Factor Receptor 1 in Alcohol Use Disorder: Still a Valid Drug Target?** *Alcoholism, clinical and experimental research*
  Pomrenze, M. B., Fetterly, T. L., Winder, D. G., Messing, R. O.
  2017; 41 (12): 1986-1999
- **Repeated social defeat stress enhances glutamatergic synaptic plasticity in the VTA and cocaine place conditioning.** *eLife*
  Stelly, C. E., Pomrenze, M. B., Cook, J. B., Morikawa, H.
  2016; 5

- **DAT isn't all that: cocaine reward and reinforcement require Toll-like receptor 4 signaling.** *Molecular psychiatry*
  Northcutt, A. L., Hutchinson, M. R., Wang, X., Baratta, M. V., Hiranita, T., Cochran, T. A., Pomrenze, M. B., Galer, E. L., Kopajtic, T. A., Li, C. M., Amat, J., Larson, G., Cooper, et al
  2015; 20 (12): 1525-37