Stanford

Austen Brooks Casey

Postdoctoral Scholar, Anesthesiology, Perioperative and Pain Medicine

Bio

BIO

Austen Brooks Casey, PhD, is a postdoctoral scholar in the Department of Anesthesiology, Perioperative and Pain Medicine (advisor: Boris Dov Heifets, MD, PhD). He originates from western North Carolina, and has had a long-standing interest in drug discovery for major depression and schizophrenia, which was invigorated by initial coursework in organic chemistry and biochemistry. Austen trained at Northeastern University (advisor: Raymond G. Booth, PhD) where he studied the medicinal chemistry and pharmacology of novel ligands targeting serotonergic G protein-coupled receptors. Currently, he is investigating neural circuits activated by psychedelic drugs, with the long-term goal of using modern techniques in neuroscience to complement drug design efforts toward the development of novel antidepressant and antipsychotic medications.

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Northeastern University (2021)
- Diploma, Tri-County Early College High School (2014)
- Associate of Arts, Unlisted School (2014)
- Bachelor of Science, Warren Wilson College (2016)
- PhD, Northeastern University , Medicinal Chemistry (2021)
- BS, Warren Wilson College , Chemistry: concentration in Biochemistry (2016)
- AA, Tri-County Community College (2014)

STANFORD ADVISORS

- Boris Heifets, Postdoctoral Faculty Sponsor

Research & Scholarship

LAB AFFILIATIONS

- Boris Heifets, Heifets Lab (8/2/2021)

Publications

PUBLICATIONS

- **The psychoplastogen tabernanthalog induces neuroplasticity without proximate immediate early gene activation.** *Nature neuroscience*
  Aarrestad, I. K., Cameron, L. P., Fenton, E. M., Casey, A. B., Rijsketic, D. R., Patel, S. D., Sambyal, R., Johnson, S. B., Ly, C., Viswanathan, J., Barragan, E. V., Lozano, S. A., Seban, et al
  2025

- **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

- **Psilocybin Has No Analgesic Properties in Multiple Mouse Models of Acute and Chronic Pain**
  Gregory, N. S., Girard, T. E., Ram, A., Casey, A. B., Malenka, R. C., Tawfik, V. L., Heifets, B. D.
  CHURCHILL LIVINGSTONE.2025

- **Neural Circuit Delineation of (±)-3,4-methylenedioxymethamphetamine (MDMA)-evoked Sociability and Fear Memory Deficits**
  Casey, A., Rijsketic, D., Zhao, W., Palmer, A., Salgado, J., Llorach, P., Wall, N., Pomrenze, M., Malenka, R., Heifets, B.
  ELSEVIER SCIENCE INC.2024: S254

- **Anesthesia as a Control for Blinding in Psychedelic Therapy**
  Hietamies, T., Casey, A., Zhao, W., Rijsketic, D., Deverett, B., Restagar, Z., Heifets, B.
  ELSEVIER SCIENCE INC.2024: S199

- **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

- **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

- **Brain-Wide Activity Mapping Reveals a Required Role for the Dorsal Endopiriform Nucleus in MDMA-Evoked Prosocial Behavior**
  Heifets, B., Rijsketic, D., Salgado, J., Wall, N., Ramirez-Ovalle, G., Llorach, P., Lopez, R., Casey, A., Hietamies, T., Rastegar, Z., Barbosa, D., Beier, K., Malenka, et al
  ELSEVIER SCIENCE INC.2023: S57-S58

- **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

- **"Selective" serotonin 5-HT2A receptor antagonists.** *Biochemical pharmacology*
  Casey, A. B., Cui, M., Booth, R. G., Canal, C. E.
  2022: 115028

- **A new class of serotonin 5-HT2A/5-HT2C receptor inverse agonists: Synthesis, molecular modeling, in vitro and in vivo pharmacology of novel 2-aminotetralins** *British Journal of Pharacology*
  Casey, A. B., Mukherjee, M., McGlynn, R. P., Cui, M., Kohut, S. J., Booth, R. G.
  2021

- **(S)-5-(2 '-Fluorophenyl)-N,N-dimethyl-1,2,3,4-tetrahydronaphthalen-2-amine, a Serotonin Receptor Modulator, Possesses Anticonvulsant, Prosocial, and Anxiolytic-like Properties in an Fmr1 Knockout Mouse Model of Fragile X Syndrome and Autism Spectrum Disorder** *ACS PHARMACOLOGY & TRANSLATIONAL SCIENCE*
  Armstrong, J. L., Casey, A. B., Saraf, T. S., Mukherjee, M., Booth, R. G., Canal, C. E.
  2020; 3 (3): 509-523

- **Synthesis of novel 5-substituted-2-aminotetralin analogs: 5-HT1A and 5-HT7 G protein-coupled receptor affinity, 3D-QSAR and molecular modeling** *BIOORGANIC & MEDICINAL CHEMISTRY*

Perry, C. K., Casey, A. B., Felsing, D. E., Vemula, R., Zaka, M., Herrington, N. B., Cui, M., Kellogg, G. E., Canal, C. E., Booth, R. G.
2020; 28 (3): 115262

- **Classics in Chemical Neuroscience: Aripiprazole** *ACS CHEMICAL NEUROSCIENCE*
  Casey, A. B., Canal, C. E.
  2017; 8 (6): 1135-1146