

Max E. Joffe, Ph.D.

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Warren Center for Neuroscience Drug Discovery
Vanderbilt Center for Addiction Research
Vanderbilt University Department of Pharmacology
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Nashville, TN 37203

EDUCATION

- August 2006 – May 2010 College of Arts and Sciences
University of Maryland, College Park, MD
B.S. with Honors Citation
Major: Mathematics, Minor: Physics
- August 2011 – April 2016 Graduate School
Vanderbilt University, Nashville, TN
Ph.D. Pharmacology
Dissertation title: Nucleus accumbens N-methyl-D-aspartate receptor
function and reward learning: implications for cocaine use disorders
Adviser: Brad A. Grueter, Ph.D.
- May 2016 – present Postdoctoral Research Fellow
Department of Pharmacology
Vanderbilt University
Nashville, TN
Mentor: P. Jeffrey Conn, Ph.D.

SELECTED HONORS AND AWARDS

- 2020 Alcohol and the CNS Gordon Research Conference Poster Award
2019 Vanderbilt Pharmacology Abstract Competition Award and Travel Award
2018 ASPET Neuropharmacology Division Postdoctoral Scientist Award
2018 Vanderbilt Pharmacology Abstract Competition Award and Travel Award
2018 Vanderbilt Kennedy Center Travel Award
2017 9th International Meeting on Metabotropic Glutamate Receptors Poster Award
2016 Vanderbilt Kennedy Center Science Day Best Abstract
2015 Vanderbilt Graduate Student Travel Award
2014 Middle Tennessee Chapter for the Society of Neuroscience Best Presentation
2014 Vanderbilt Graduate Student Travel Award
2010 University of Maryland Honors Citation

PROFESSIONAL MEMBERSHIPS

- 2019- Research Society on Alcoholism
2018- American Society for Pharmacology and Experimental Therapeutics
2012- Society for Neuroscience

SERVICE

Ad hoc reviewer for *Advances in Pharmacology, Brain and Behavior, Brain Sciences (2), Current Molecular Pharmacology, Journal of Clinical Medicine, Neuropharmacology, Neuropsychopharmacology, and Neuroscience*

- 2020 Scientific Director, VI4 Artist-in-Residence Program
2019 Selection Committee, Vanderbilt Institute for Chemical Biology Armstrong Prize
2018- Special Volunteer, ArtLab Program at Vanderbilt
2018 Chair, Vanderbilt Center for Addiction Research Journal Club
2016 Chair, Vanderbilt Pharmacology Student-Invited Forum
2015 Vice President for Community Affairs, Vanderbilt Pharmacology Graduate Student Association
2015 Member, Vanderbilt Pharmacology Student-Invited Forum Committee
2014-2016 Member, Vanderbilt Pharmacology Journal Club Review Committee
2012-2016 Member, Vanderbilt Pharmacology Graduate Student Association

TEACHING EXPERIENCE***Didactic***

2016-2018	Guest Lecturer, Vanderbilt University NURO 8352 Methods and Experimental Design in Neuroscience Research "Murine neurobehavior: reward and reinforcement"
2016-2018	Guest Lecturer, Vanderbilt University NSC 3235 Biological Basis of Mental Disorders "Substance abuse and the reward circuitry"
2016	Seminar in College Teaching; Vanderbilt University
2008-2009	Seminar Section Leader; University of Maryland, College Park

Research supervision**Undergraduate students**

2019-	Joselyn Yang
2017-2019	Chiaki Santiago, UCSD Neuroscience PhD in progress (started summer 2019)
2014-2015	Sophie Vitter, National Committee for Quality Assurance

Research assistants

2017	Jennifer Zachry, Vanderbilt Pharmacology PhD in progress (started fall 2018)
2016	Douglas Shaw, Vanderbilt Human Genetics PhD in progress (started fall 2017)

PUBLICATIONS AND PRESENTATIONS***Publication and citation information***

[Complete List of Works in NCBI My Bibliography](#)

Statistics from June 2020, [link to Google Scholar account](#)

Papers: **18** total; **11** first; **6** corresponding; **12** research, **2** reviews, **2** commentaries, **2** book chapters

Citations: 210 since 2015

h-index: 9

Research articles in peer-reviewed journals

Joffe ME†, Winder DG**, Conn PJ**. Contrasting sex-dependent adaptations to synaptic physiology and membrane properties of prefrontal cortex interneuron subtypes in a mouse model of binge drinking. *Neuropharmacology*. In press. (**†: corresponding author**)
<https://www.biorxiv.org/content/10.1101/2020.01.05.895169v1>

Joffe ME†, **Santiago CI**, Oliver KH, Maksymetz J, Harris NA, Engers JL, Lindsley CW, Winder DG, Conn PJ†. mGlu₂ and mGlu₃ negative allosteric modulators divergently potentiate thalamocortical transmission and exert rapid antidepressant-like effects. *Neuron*. 2020 Jan 8;105(1):46-59. pii: S0896-6273(19)30847-5. doi: 10.1016/j.neuron.2019.09.044. Epub 2019 Nov 14.

(**†: corresponding authors**)

Preview by Potter et al., "Antidepressant Effects and Mechanisms of Group II mGlu Receptor-Specific Negative Allosteric Modulators." Neuron. 2020 Jan 8;105(1):46-59.

Maksymetz J, **Joffe ME**, Moran SP, Stansley BJ, Li B, Temple K, Engers D, Lawrence JJ, Lindsley CW, Conn PJ. M1 muscarinic receptors modulate discrete glutamatergic inputs to the prefrontal cortex: Implications for novel treatments of posttraumatic stress disorder. *Biological Psychiatry*. 2019 Jun 15;85(12):989-1000. doi: 10.1016/j.biopsych.2019.02.020. Epub 2019 March 7.

Joffe ME†, **Santiago CI**, Stansley BJ, Maksymetz J, Gogliotti RG, Engers JL, Nicoletti F, Lindsley CW, Conn, PJ†. Mechanisms underlying prelimbic prefrontal cortex mGlu₃/mGlu₅-dependent plasticity and reversal learning deficits following acute stress. *Neuropharmacology*. 2019 Jan;144:19-28. doi: 10.1016/j.neuropharm.2018.10.013. (**†: corresponding authors**)

Yohn SE, Foster DJ, Covey DP, Moehle MS, Galbraith J, Garcia-Barrantes PM, Cho HP, Bubser M, Blobaum AL, **Joffe ME**, Cheer JP, Jones CK, Lindsley CW, Conn PJ. Activation of the mGlu₁ metabotropic glutamate receptor has antipsychotic-like effects and is required for efficacy of M4 muscarinic receptor allosteric modulators. *Molecular Psychiatry*. 2018 Aug 16. doi: 10.1038/s41380-018-0206-2.

- Joffe ME**, Turner BD, Delpire E, Grueter BA. Genetic loss of GluN2B in D1-expressing cell types enhances long-term cocaine reward and thalamo-accumbens potentiation. *Neuropsychopharmacology*. 2018 Nov; 43(12):2383-2389. doi: 10.1038/s41386-018-0131-8. Epub 2018 Jun 25.
- Joffe ME**, **Santiago CI**, Engers JL, Lindsley CW, Conn PJ. Metabotropic glutamate receptor subtype 3 gates acute stress-induced dysregulation of amygdala-cortical function. *Molecular Psychiatry*. 2019 Jun; 24(6):916-927. doi:10.1038/s41380-017-0015-z. Epub 2017 Dec 21.
- **Di Menna L, ****Joffe ME**, Iacovelli L, Orlando R, Lindsley CW, Mairesse J, Gressens P, Cannella M, Caraci F, Copani A, Bruno V, Battaglia G, Conn PJ, Nicoletti F. Functional partnership between mGlu₃ and mGlu₅ metabotropic glutamate receptors in the central nervous system. *Neuropharmacology*. 2018 Jan;128:301-313. (**: equal contribution)
- Ghoshal A, Moran SP, Dickerson JW, **Joffe ME**, Grueter BA, Xiang Z, Lindsley CW, Rook JM, Conn PJ. Role of mGlu₅ receptors and inhibitory neurotransmission in M1 dependent muscarinic LTD in the prefrontal cortex: implications in schizophrenia. *ACS Chemical Neuroscience*. 2017 Oct 18;8(10):2254-2265. doi: 10.1021/acscchemneuro.7b00167.
- Joffe ME**, **Vitter SR**, Grueter BA. GluN1 deletions in D1- and A2A-expressing cell types reveal distinct modes of behavioral regulation. *Neuropharmacology*. 2017 Jan;112(PtA):172-180. doi:10.1016/j.neuropharm.2016.03.026
- Joffe ME** and Grueter BA. Cocaine experience enhances thalamo-accumbens N-methyl-D-aspartate receptor function. *Biological Psychiatry*. 2016 Nov 1;80(9):671-681. doi:10.1016/j.biopsych.2016.04.002
Commentary by Wright et al., "N-Methyl-D-Aspartate Receptors: "C"ing the Culprits Behind Cocaine-Induced Metaplasticity." Biological Psychiatry. 2016 Nov 1;80(9):644-646.
- Gould RW, Amato RJ, Bubser M, **Joffe ME**, Nedelcovych M, Gray AT, Nickols H, Yuh J, Zhan X, Felts AS, Rodriguez AL, Morrison RD, Byers FW, Rook JM, Daniels JS, Niswender CM, Conn PJ, Emmitte KA, Lindsley CW, Jones CK. Partial mGlu₅ negative allosteric modulators attenuate cocaine-mediated behaviors and lack psychotomimetic-like effects. *Neuropsychopharmacology*. 2016 Mar;41(4):1166-78. doi:10.1038/npp.2015.279

Commentaries, reviews, and book chapters

- Maksymetz J and **Joffe ME**. mGlu receptor modulation in murine models of stress and affective disorders. In Olive MF, Ed., *Metabotropic glutamate receptor technologies*, Neuromethods Series. (In press)
- Joffe ME** and Conn PJ. Antidepressant potential of metabotropic glutamate receptor mGlu₂ and mGlu₃ negative allosteric modulators. *Neuropsychopharmacology*. 2019 Jan;44(1):214-236. doi: 10.1038/s41386-018-0192-8.
- Joffe ME**. Persistent "sag" in prefrontal cortex function following adolescent binge drinking. *The Journal of Neuroscience*. 2018 Nov 7;38(45):9615-9617. doi: 10.1523/JNEUROSCI.1755-18.2018.
- Joffe ME†**, Centanni SW, Jaramillo AA, Winder DG, Conn PJ†. Metabotropic glutamate receptors in alcohol use disorder: basic physiology, synaptic plasticity, and promising pharmacotherapies. *ACS Chemical Neuroscience*. 2018 Sep 19. doi: 10.1021/acscchemneuro.8b00200 (†: corresponding authors)
- Joffe ME**, Grueter CA, Grueter BA. Biological substrates of addiction. *WIREs Cogn Sci*. 2014, 5:151–171. doi: 10.1002/wcs.1273
- **Nargund S, ****Joffe ME**, Tran D, Tugarinov V, Sriram G. Nuclear magnetic resonance methods for metabolic fluxomics. In Alper HS, Ed., *Systems Metabolic Engineering: Methods and Protocols*, Methods in Molecular Biology, vol. 985: 335-51. Humana Press. 2013 (**: equal contribution)

Invited scientific talks

- “Stress reorganizes prefrontal cortex circuits by hijacking mGlu receptor plasticity”. 10th International Meeting on Metabotropic Glutamate Receptors. Taormina, Italy. 10/1/2020. ** *postponed due to COVID-19*.
- “Sex differences in pathophysiology of prefrontal cortex interneurons in a mouse model of binge drinking.” Organized Translational Symposium *Leveraging insights from preclinical studies to treat cortical dysfunction in AUD*. Co-chair with Dr. Colleen Hanlon. Research Society on Alcoholism Annual Meeting. New Orleans, LA. 6/24/2020. ** *postponed due to COVID-19*.
- “Sex differences in pathophysiology of prefrontal cortex interneurons in a mouse model of binge drinking.” Alcohol and the Nervous System Gordon Research Seminar. Galveston, TX. 2/29/2020.
- “Acute stress usurps prefrontal cortex circuit function through mGlu₅-dependent plasticity on somatostatin interneurons.” Vanderbilt Pharmacology Retreat. Postdoctoral Abstract Competition Award. Nashville, TN. 10/30/2019.
- “Acute stress usurps prefrontal cortex circuit function through mGlu₅-dependent plasticity on somatostatin interneurons.” Inhibition in the CNS Gordon Research Seminar. Newry, ME. 7/6/2019.
- “Prefrontal cortex circuits underlying the rapid antidepressant actions of mGlu₂ and mGlu₃ negative allosteric modulators.” Vanderbilt Pharmacology Retreat. Postdoctoral Abstract Competition Award. Nashville, TN. 10/25/2018.
- “Metabotropic glutamate receptor subtype 3 and stress-induced prefrontal cortex dysfunction.” National Institute on Alcohol Abuse and Alcoholism. Rockville, MD. 5/1/2018.
- “Efficacy of negative allosteric modulators of mGlu₂ and mGlu₃ in a rodent model of Major depressive disorder.” American Society for Pharmacology and Experimental Therapeutics Annual Meeting. Postdoctoral Scientist Competition. San Diego, CA. 4/23/2018.
- “Functional partnership between mGlu₃ and mGlu₅ receptors in neurons.” 9th International Meeting on Metabotropic Glutamate Receptors. Taormina, Italy. 10/1/2017.

GRANTS

Active

K99, NIAAA, K99AA027806 6/2/20 – 5/31/22
Sex differences in fast-spiking interneurons promote AUD-related PFC dysfunction
This proposal is designed to test the hypothesis that sex differences in drinking are modulated by mGlu receptors on specific neuronal subpopulations in the PFC.

Completed

PhRMA Postdoctoral Fellowship in Pharmacology/Toxicology 6/1/17 – 5/31/19
Modulation of prefrontal cortex function by mGlu₃ in rodent models of Major Depressive Disorder
This proposal was designed to test the hypothesis that an mGlu₃ NAM will ameliorate stress-induced impairments in motivation through actions on excitatory transmission in the PFC

CNS Drug Discovery Research Training Grant, 5T32MH093366-05 6/1/16 – 5/31/17