Nathan S. Pentkowski, Ph.D. Department of Psychology July 2022

Educational History

2007 Ph.D. Psychology, Behavioral Neuroscience Concentration
University of Hawaii at Manoa, Honolulu, HI USA
"Effects of site-specific CRF manipulations on defensive behaviors in rats"
Advisor: Robert J. Blanchard, Ph.D.

2004 M.A. Psychology
University of Hawaii at Manoa, Honolulu, HI USA
"Effects of lesions to the dorsal and ventral hippocampus on defensive behaviors in rats"
Advisor: Robert J. Blanchard, Ph.D.

2002 M.A. Clinical Psychology
California State University, Dominguez Hills, Carson CA USA
Advisor: Beverly B. Palmer, Ph.D.

1999 B.S. Psychology, Minor in Biology
Northern Arizona University, Flagstaff, AZ USA

Employment History

2022 – current Associate Professor
Department of Psychology
University of New Mexico
Albuquerque, NM USA

2014 – 2022 Assistant Professor
Department of Psychology
University of New Mexico
Albuquerque, NM USA

2010 – 2014 Postdoctoral Research Associate
School of Life Sciences
Arizona State University
Tempe, AZ USA

2007 – 2010 Postdoctoral Fellow
Department of Psychology
Arizona State University
Tempe, AZ USA

2002 – 2007 Graduate Research Assistant
Department of Psychology
University of Hawaii at Manoa
Honolulu, HI USA

Professional Recognition and Honors

2019 Review Editor, *Frontiers in Behavioral Neuroscience*: Motivation & Reward section.

2019 SUD Grand Challenge, University of New Mexico. "Effects of the 5-HT2A receptor antagonist M100907 on behavioral and neural alterations induced by chronic methamphetamine administration" (2-year award, $15K)

2016 Grice Research Enhancement Faculty Award, University of New Mexico. "Neural basis of enhanced anxiety and memory deficits in Alzheimer's disease" (2-year award, $3K)

2014 Grice Research Enhancement Faculty Award, University of New Mexico. "Role of 5-HT_{1B} receptors in nicotine reward in adolescent rats" (2-year award, $3K)

2014 ACS Chemical Neuroscience Editor's Choice, spotlighting Pentkowski et al. "Pharmacological evidence for an abstinence-induced switch in 5-HT_{1B} receptor modulation of cocaine self-administration and cocaine-seeking behavior"

2013 Society for Neuroscience Hot Topics, spotlighting Oliver…Pentkowski et al. "miR-495, a post-transcriptional link between gene expression and the behavioral effects of cocaine"

2012 National Institute on Drug Abuse Young Investigator Travel Award, 6th annual Society for Neuroscience Julius Axelrod Lecture

2012 National Institute on Drug Abuse Young Investigator Travel Award, International Society for Serotonin Research Silver Anniversary Meeting

2011 National Institute on Drug Abuse Early Career Travel Award, NIDA, NIAAA and APA divisions 28 (Psychopharmacology and Drug Abuse) and 50 (Addictions) for the 119th Annual Convention of the American Psychological Association

2010 Commentary in *Neuropsychopharmacology* by Cunningham et al. spotlighting Pentkowski et al. "Stimulation of medial prefrontal cortex 5-HT_{2C} receptors attenuates cocaine-seeking behavior"

2010 Health Disparities LRP recipient, National Institutes of Health. "The role of ventromedial PFC 5-HT_{2C} receptors in cocaine-seeking behavior" (2-year fellowship, $40K)

2009 Society for Neuroscience Hot Topics, spotlighting Thiel…Pentkowski et al. "Environmental enrichment during drug abstinence attenuates cocaine-seeking behavior"

2009 Ruth L. Kirschstein National Research Service Award recipient, National Institute on Drug Abuse. "The role of ventromedial PFC 5-HT_{2C} receptors in cocaine-seeking behavior" (3-year fellowship, $150K)

Short Narrative Description of Research, Teaching and Service Interests

Research in my laboratory is aimed at elucidating the neurobiological mechanisms underlying drug abuse and anxiety disorders, with a particular emphasis on the critical role of chronic stress in the etiology of these highly comorbid neuropsychiatric disorders. To address these goals, I utilize animal models of predatory threat to examine anxiety- and fear-like defensive behaviors, and conditioned place preference and operant self-administration to study aspects of drug abuse. In combination with thorough behavioral assessment, my laboratory uses various neuroscience techniques to map brain circuits controlling behavioral responsivity. These methods include chemogenetic approaches to silence or excite brain cells in live behaving rodents, as well as the combined use of immediate early gene expression and receptor quantification to identify stress-induced changes in neural activity and plasticity in animals engaged in active defensive responses, or drug seeking or drug self-administration. A related goal of my research program is to identify biological markers involved in these neuropsychiatric disorders in order to evaluate potential pharmacological treatments and/or preventative measures.

My neurobiological research critically involves the work of dedicated graduate students and undergraduate research assistants. Currently, four graduate students in my laboratory are pursuing their doctoral degrees in the Psychology Department's Cognition, Brain and Behavior concentration. During my tenure at UNM, I have mentored sixteen undergraduate research assistants in my laboratory, six of which have matriculated into graduate programs in psychology or medical school.

Two of my major goals for my undergraduate and graduate teaching is to stimulate student interest in pursuing biomedical careers in psychology and neuroscience, and to recruit highly motivated students to join my research program. I regularly teach several undergraduate and graduate courses in the Department of Psychology, including *Psychopharmacology: Drugs and Behavior (PSY347 and PSY547)*, *Neurobiology of Addiction (PSY 450/650)*, *Molecular Psychiatry (PSY 450/650)* and *Biological Bases of Behavior (PSY 540)*.

I have focused my departmental service on fostering student satisfaction and success in our graduate program, disseminating diverse knowledge in psychology and neuroscience, and maximizing the productivity of our preclinical facilities. For the past seven years I have served on our departmental Faculty/Student Idea Exchange Committee, the Colloquia and PAL Committee, and the Animal Facilities and Use Committee. During the Fall 2017 semester I joined the Department of Psychology Alumni Advisory Committee to work with our distinguished alumni to help the department grow and continue to meet the needs of our graduate students and faculty. Lastly, to help support animal research at UNM, I have served on the UNM main campus Institutional Animal Care and Use Committee (IACUC) since 2019.

Articles Published in Refereed Journals

(*Contributed equally; trainees from my laboratory are underlined)

Empirical Papers

36. **Pentkowski NS**, Maestas-Olguin C, Martinez G (2022). Characterizing the effects of 2-phenylethylamine and coyote urine on unconditioned and conditioned defensive behaviors in adolescent male and female Long-Evans hooded rats. *Physiology & Behavior*, 248: 113726.

35. **Pentkowski NS**, Bouquin SJ, Maestas-Olguin CR, Villasenor ZM, Clark BJ (2022). Differential effects of chronic stress on anxiety-like behavior and contextual fear conditioning in the TgF344-AD rat model of Alzheimer's disease. *Behavioral Brain Research*, 418: 113661.

34. Madden JT, Reyna NC, Goranson EV, Gonzalez TA, Zavala AR, **Pentkowski NS** (2021). Blocking serotonin 2A (5-HT_{2A}) receptors attenuates the acquisition of methamphetamine- induced conditioned place preference in adult female rats. *Behavioural Brain Research*, 415, 113521.

33. Reyna NC, Madden JT, Thiel KJ, **Pentkowski NS** (2021). Methamphetamine and social rewards interact to produce enhanced conditioned place preference in male adolescent rats. *Pharmacology, Biochemistry and Behavior*, 201, 173091.

32. Maestas-Olguin CR, Fennelly, JW, **Pentkowski NS** (2021). Chemogenetic inhibition of ventral hippocampal CaMKIIα-expressing neurons attenuates anxiety- but not fear-like defensive behaviors in male Long-Evans hooded rats. *Neuroscience Letters,* 751, 135777.

31. Maestas-Olguin CR, Parish MM, **Pentkowski NS** (2021). Coyote urine, but not 2-phenylethylamine, induces a complete profile of unconditioned anti-predator defensive behaviors. *Physiology & Behavior*, 229, 113210.

30. Gacria R, Le T, Scott SN, Charmchi D, Sprout JML, **Pentkowski NS**, Neisewander JL (2020). Preclinical support for the therapeutic potential of zolmitriptan as a treatment for cocaine use disorders. *Translational Psychiatry*, 10(1), 266.

29. Madden JT, Reyna NC, **Pentkowski NS** (2020). Antagonizing serotonin 2A (5-HT_{2A}) receptors attenuates methamphetamine-induced reward and blocks methamphetamine-induced anxiety-like behaviors in adult male rats. *Drug and Alcohol Dependence*, 215: 108178.

28. Vigil, JM, Montera MA, **Pentkowski NS**, Diviant JP, Orozco J, Ortiz AL, Rael LJ, Westlund KN (2020). The therapeutic effectiveness of full spectrum hemp oil using a chronic neuropathic pain model. *Life (Basel),* 10(5), 69.

27. Madden JT, Thompson, SM, Magcalas CM, Wagner JL, Hamilton DA, Savage DD, **Pentkowski NS** (2020). Moderate prenatal alcohol exposure reduces parvalbumin

expressing GABAergic interneurons in the dorsal hippocampus of adult male and female rat offspring. *Neuroscience Letters*, 718, 134700.

26. **Pentkowski NS**, Litvin Y, Blanchard DC, Blanchard RJ (2018). Effects of estrus cycle stage on defensive behaviors in female Long-Evans rats. *Physiology & Behavior,* 194, 41-47.

25. **Pentkowski NS**, Berkowitz L, Olguin C, Clark BJ (2018). Anxiety-like behavior as an early endophenotype in the TgF344-AD rat model of Alzheimer's disease. *Neurobiology of Aging,* 61, 169-76.

24. Der-Ghazzarian TS, Call T, Scott SN, Dai K, Brunwasser SJ, Noudali SN, **Pentkowski NS**, Neisewander JL (2017). Effects of a 5-HT_{1B} receptor agonist on locomotion and reinstatement of cocaine-conditioned place preference after abstinence from repeated injections in mice. *Frontiers in Systems Neuroscience,* 11:73.

23. *****Bastle RM, *****Oliver RJ, Gardiner AS, **Pentkowski NS**, Bolognani F, Allan AM, Chaudhury T, St. Peter M, Galles N, Smith C, Neisewander JL, Perrone-Bizzozero NI (2017). In silico identification and in vivo validation of miR-495 as a novel regulator of motivation for cocaine that targets multiple addiction-related networks in the nucleus accumbens. *Molecular Psychiatry,* 23, 434-43.

22. Rodriguez CI, Magcalas CM, Barto D, Fink BC, Rice JP, Bird CW, Davies S, **Pentkowski NS**, Savage DD, Hamilton DA (2016). Effects of sex and housing on social, spatial, and motor behavior in adult rats exposed to moderate levels of alcohol during prenatal development. *Behavioural Brain Research*, 313, 233-43.

21. Pockros-Burgess LA, **Pentkowski NS**, Der-Ghazarian T, Neisewander JL (2014). Effects of the 5-HT_{2C} receptor agonist CP809101 in the amygdala on reinstatement of cocaine-seeking behavior and anxiety-like behavior. *International Journal of Neuropsychopharmacology*, 17, 1751-62.

20. **Pentkowski NS**, Harder BG, Brunwasser SJ, Bastle RM, Peartree NA, Yanamandra K, Adams MD, Neisewander JL (2014). Pharmacological evidence for an abstinence-induced switch in 5-HT_{1B} receptor modulation of cocaine self-administration and cocaine-seeking behavior. *ACS Chemical Neuroscience,* 19, 168-76.

19. **Pentkowski NS**, Tovote P, Blanchard DC, Litvin Y, Blanchard RJ (2013). Cortagine infused into the medial prefrontal cortex attenuates predator-induced defensive behaviors and Fos protein production in selective nuclei of the amygdala in male CD1 mice. *Hormones and Behavior,* 64, 519-26.

18. Pockros LA, **Pentkowski NS**, Conway SM, Ullman TE, Zwick KR, Neisewander JL (2012). 5-HT_{2A} receptor blockade and 5-HT_{2C} receptor activation interact to reduce cocaine hyperlocomotion and Fos protein expression in the caudate-putamen. *Synapse*, 66, 989-1001.

17. Bastle RM, Kufahl PR, Turk MN, Weber SM, **Pentkowski NS**, Thiel KJ, Neisewander JL (2012). Novel cues reinstate cocaine-seeking behavior and Induce Fos protein expression as effectively as conditioned cues. *Neuropsychopharmacology*, 37, 2109-20.

16. **Pentkowski NS**, Cheung THC, Toy WA, Adams MD, Neumaier JF, Neisewander JL (2012). Protracted withdrawal from cocaine self-administration flips the switch on 5-HT_{1B} receptor modulation of cocaine-abuse related behaviors. *Biological Psychiatry*, 72, 396-404.

15. Thiel KJ, Painter MR, **Pentkowski NS**, Mitroi D, Crawford CA, Neisewander JL (2012). Environmental enrichment counters cocaine abstinence-induced stress and brain reactivity to cocaine cues but fails to prevent the incubation effect. *Addiction Biology*, 17, 365-77.

14. Peartree NA, Hood LE, Thiel KJ, Sanabria F, **Pentkowski NS**, Chandler KN, Neisewander JL (2011). Limited physical contact through a mesh barrier is sufficient for social reward-conditioned place preference in adolescent male rats. *Physiology & Behavior*, 105, 749-56.

13. **Pentkowski NS**, Painter MR, Thiel KJ, Peartree NA, Cheung THC, Deviche P, Adams M, Alba J, Neisewander JL (2011). Nicotine-induced plasma corticosterone is attenuated by social interactions in male and female adolescent rats. *Pharmacology, Biochemistry and Behavior*, 100, 1-7.

12. Pockros LA, **Pentkowski NS**, Swinford SE, Neisewander JL (2011). Blockade of 5-HT_{2A} receptors in the medial prefrontal cortex attenuates reinstatement of cue-elicited cocaine-seeking behavior in rats. *Psychopharmacology (Berl)*, 213, 307-20.

11. Thiel KJ, **Pentkowski NS**, Peartree NA, Painter MR, Neisewander JL (2010). Environmental living conditions introduced during forced abstinence alter cocaine-seeking behavior and Fos protein expression. *Neuroscience*, 171, 1187-96.

10. Thiel KJ, **Pentkowski NS**, Wenzel J, Neisewander JL (2010). Stimulation of dopamine D2/D3 but not D1 receptors in the central amygdala decreases cocaine-seeking behavior. *Behavioural Brain Research*, 214, 386-94.

9. **Pentkowski NS,** Duke FD, Weber SM, Pockros LA, Teer AP, Hamilton EC, Thiel KJ, Neisewander JL (2010). Stimulation of medial prefrontal cortex 5-HT_{2C} receptors attenuates cocaine-seeking behavior. *Neuropsychopharmacology*, 35, 2037-48.
    Commentary: Cunningham KA, Bubar MJ, Anastasio NC (2010). The serotonin 5-HT_{2C} receptor in the medial prefrontal cortex exerts rheostatic control over the motivational salience of cocaine-associated cues: New observations from preclinical animal research. *Neuropsychopharmacology*, 35, 2319-21.

8. Litvin Y, Tovote P, **Pentkowski NS**, Spiess J, Blanchard DC, Blanchard RJ (2010). Maternal separation modulates short term behavioral and physiological indices of the stress response. *Hormones and Behavior*, 58, 241-9.

7. Thiel KJ, Sanabria F, **Pentkowski NS**, Neisewander JL (2009). Anti-craving effects of environmental enrichment. *International Journal of Neuropsychopharmacology*, 12, 1151-6.

6. **Pentkowski NS**, Acosta J, Browning J, Neisewander JL (2009). Stimulation of 5-HT_{1B} receptors enhances cocaine reinforcement yet reduces cocaine-seeking behavior. *Addiction Biology*, 14, 419-30.

5. Kufahl PR, **Pentkowski NS**, Heintzelman K, Neisewander JL (2009). Cocaine-induced Fos expression is detectable in the frontal cortex and striatum of rats under isoflurane but not α-chloralose anesthesia: implications for FMRI. *Journal of Neuroscience Methods*, 181, 241-8.

4. **Pentkowski NS**, Litvin Y, Blanchard DC, Vasconcellos A, King LB, Blanchard RJ (2009). Effects of acidic-astressin and ovine-CRF microinfusions into the ventral hippocampus on defensive behaviors in rats. *Hormones and Behavior*, 56, 35-43.

3. Litvin Y, Blanchard DC, **Pentkowski NS**, Blanchard RJ (2007). A pinch or a lesion: A reconceptualization of biting consequences in mice. *Aggressive Behavior,* 33, 545-51.

2. Litvin Y, **Pentkowski NS**, Blanchard DC, Blanchard RJ (2007). CRF type 1 receptors in the dorsal periaqueductal gray modulate anxiety-induced defensive behaviors. *Hormones and Behavior*, 52, 244-51.

1. **Pentkowski NS**, Blanchard DC, Lever C, Litvin Y, Blanchard RJ (2006). Effects of lesions to the dorsal and ventral hippocampus on defensive behaviors in rats. *European Journal of Neuroscience*, 23, 2185-96.

Review Papers

5. **Pentkowski NS**, Rogge-Obando KK, Donaldson TN, Bouquin SJ, Clark BJ (2021). Anxiety and Alzheimer's disease: Behavioral Analysis and Neural Basis in Rodent Models of Alzheimer's-Related Neuropathology. *Neuroscience Biobehavioral Reviews,* 127: 647-658.

4. *Pearson BL, *Crawley JN, ***Pentkowski NS**, *Summers CH (2017). Curiosity as an approach to ethoexperimental analysis: Behavioral neuroscience as seen by students and colleagues of Bob Blanchard. *Neuroscience and Biobehavioral Reviews*, 76, 415-22.

3. *Neisewander JL, *Cheung THC, ***Pentkowski NS** (2014). Dopamine D3 and 5-HT_{1B} receptor dysregulation as a result of psychostimulant intake and forced abstinence: Implications for medications development. *Special issue: NIDA's 40th Anniversary, Neuropharmacology,* 76 Pt B: 301-19.

2. *Neisewander JL, *Peartree NA, ***Pentkowski NS** (2012). Emotional Valence and context of social influences on drug abuse-related behavior in animal models of social stress and prosocial interaction. *Special issue: Drug Action in Social Context, Psychopharmacology (Berl),* 224, 33-56.

1. Blanchard DC, Canteras NS, Markham CM, **Pentkowski NS**, Blanchard RJ (2005). Lesions of structures showing FOS expression to cat presentation: Effects on responsivity to a cat, cat odor, and nonpredator threat. *Neuroscience and Biobehavioral Reviews*, 29, 1243-53.

Articles Appearing in Chapters in Edited Volumes

2. Blanchard DC, Litvin Y, **Pentkowski NS**, Blanchard RJ (2009). Aggression and Defense. In Bernston, G.G. and Cacioppo, J.T. *Handbook of Neuroscience for the Behavioral Sciences*. John Wiley & Sons Inc.z

1. Litvin Y, **Pentkowski NS.** Pobbe RL, Blanchard DC, Blanchard RJ (2008). Unconditioned Models of Fear and Anxiety. In Blanchard, R.J., Blanchard, D.C. and Griebel, G. *The Handbook of Anxiety and Fear*. Elsevier Inc.

Works in Progress

(Trainees from my laboratory are <u>underlined</u>)

Submitted for publication

1.

In preparation

7. <u>Reyna NC</u>, <u>Madden JT</u>, <u>Cox KB</u>, **Pentkowski NS**. Effects of blocking 5-HT_{2A} receptors on expression of methamphetamine-induced reward in the conditioned place preference in male and female rats model. *Drug Alcohol Depend, In preparation*.

6. **Pentkowski NS**, <u>Reyna NC</u>, <u>Cox K</u>, <u>Madden, JT</u>. Adolescent methamphetamine exposure in a social context enhances adult reward. *Drug Alcohol Depend, In preparation*.

5. **Pentkowski NS**, <u>Madden JT</u>, <u>Maestas-Olguin CR</u>, <u>Reyna NC</u>, <u>Cox K</u>. Psychological stress increases methamphetamine reward in rats. *Drug Alcohol Depend, In preparation*.

4. Vigil JM, Montera MA**, Pentkowski NS**, Diviant JP, Orozco J, Westlund KN. The Effect of Full Spectrum Hemp Oil on Anxiety- and Depression-Like Behaviors in Mice. *In preparation.*

3. **Pentkowski NS**, Franco D, Salinas B, Hernandez K, Zavala AR. Effects of 5-HT_{1B} agonism and antagonism on methamphetamine-induced reward in adolescent rats. *Psychopharmacology (Berl), In preparation.*

2. **Pentkowski NS**, Hernandez K, Salinas BJ, Abella AE, Iniguez SD, Zavala AR. Zolmotriptan, a 5-HT_{1B} receptor agonist, modulates the rewarding properties of nicotine in female and male adolescent rats. *Psychopharmacology (Berl), In Preparation.*

1. Maestas-Olguin C, Bouquin SJ, **Pentkowski NS**. Confined predator odor exposure as a model of PTSD. *Physiology & Behavior, In preparation.*

Invited or Refereed Abstracts and/or Presentations at Professional Meetings
(Trainees from my laboratory are underlined)

68. Madden JT, Reyna NC, Goranson EV, **Pentkowski NS**. Antagonizing serotonin 2A (5-HT_{2A}) receptors attenuates expression of methamphetamine-induced reward in adult male and female rats and blocks methamphetamine-induced anxiety-like behavior in adult male rats. *Society for Neuroscience*, Virtual (2021).

67. Garcia A, Verduzco G, Madden JT, Reyna NC, Goranson E, Gonzalez T, **Pentkowski NS**, Zavala AR. Blocking serotonin 2A (5-HT2A) receptors attenuates the acquisition of methamphetamine-induced conditioned place preference in adult female rats. *CSU Biotechnology Symposium*, Virtual (2021).

66. Reyna NC, Madden JT, Cox KB, **Pentkowski NS**. Antagonizing serotonin 2A (5-HT2A) receptors attenuates expression of methamphetamine induced conditioned place preference in female but not male rats. *Society for Neuroscience*, Virtual (2021).

65. Hernandez K, Salinas BJ, Abella AE, **Pentkowski NS**, Zavala AR. Zolmitriptan attenuates the acquisision of methamphetamine conditioned place preference in adolescent male and female rats. *CSU Biotechnology Symposium*, Virtual (2021).

64. Reyna NC, Madden JT, Thiel KJ, **Pentkowski NS**. Methamphetamine and social rewards interact to produce enhanced CPP in male adolescent rats. *National Hispanic Science Network*, Virtual (2021).

63. Madden JT, Reyna NC, **Pentkowski NS**. Antagonizing serotonin 2A (5-HT_{2A}) receptors with M100907 attenuates methamphetamine-induced reward. *Society for Neuroscience*, Chicago (2019).

62. Cabrera R, Coyne B, **Pentkowski NS**, Zavala AR. Administration of Zolmitriptan, a 5-HT_{1B} receptor agonist, on the rewarding effects of methamphetamine in male and female adolescent rats. *Society for Neuroscience*, Chicago (2019).

61. Maestas-Olguin CR, Bouquin S, Fennelly J, **Pentkowski NS**. All we have to fear: Effects of chemogenetic inhibition of the ventral hippocampus on anxiety-like defensive behaviors in male Long-Evans hooded rats. *Society for Neuroscience*, San Diego (2018).

60. Madden JT, Thompson SM, Hamilton DH, Savage DD, Clark BJ, **Pentkowski NS**. Effects of moderate prenatal alcohol exposure in rats on GABAergic interneuron expression in the dorsal hippocampus. *Society for Neuroscience,* San Diego (2018).

59. Bouquin S, Maestas-Olguin CR, Tourigny AA, Clark BJ, **Pentkowski NS**. Effects of chronic stress on anxiety- and fear-like behaviors in the TgF344-AD rat model of Alzheimer's disease. *Society for Neuroscience,* San Diego (2018).

58. Bates E, Yang Y, **Pentkowski NS**, Zavala AR. Alcohol reward in male and female periadolescent rats: Effects of fixed vs. ascending dosing. *CSU Biotechnology Symposium,* Long Beach (2017).

57. Maestas-Olguin CR, Martinez GM, Bouquin S, **Pentkowski NS.** Determining the efficacy of 2-phenylethylamine and coyote urine as chemical surrogates for eliciting unconditioned and conditioned defensive behavior. *Society for Neuroscience,* Washington DC (2017).

56. Bouquin S, Maestas-Olguin CR, Wagner J, Savage DD, **Pentkowski NS.** Effects of prenatal alcohol exposure in rats on corticotropin-releasing factor type 1 receptor expression throughout the limbic system and hypothalamus. *Society for Neuroscience,* Washington DC (2017).

55. Franco D, Salinas B, Hernandez K, **Pentkowski NS,** Cabrera RA, Zavala AR. SB224289, a 5-HT_{1B} antagonist, decreases the aversion of nicotine in male, but not female adolescent rats. *Society for Neuroscience,* Washington DC (2017).

54. Der-Ghazarian TS, Scott S, Noudali S, Call T, Dai K, Brunwasser S, Garcia R, Stefanko K, **Pentkowski NS**, Neisewander JL. Effects of a 5-HT_{1B} receptor agonist on locomotion and reinstatement of cocaine-conditioned place preference after abstinence from repeated injections in C57BL/6 mice. *International Society on Serotonin Research,* Seattle, WA (2016).

53. Neisewander JL, **Pentkowski NS**, Garcia R, Der-Ghazarian TS. Dysregulation of 5-HT_{1B} receptors and its implications for novel treatments in drug dependence. *International Society on Serotonin Research,* Seattle, WA (2016).

52. Bates EA, **Pentkowski NS**, Zavala AR. Alcohol reward in male and female periadolescent rats: Effects of fixed vs. Ascending dosing. *Society for Neuroscience,* San Diego, CA (2016).

51. Der-Ghazarian TS, Scott S, Noudali S, Call T, Dai K, Brunwasser S, Garcia R, Stefanko K, **Pentkowski NS**, Neisewander JL. Effects of a 5-HT_{1B} receptor agonist on locomotion and reinstatement of cocaine-conditioned place preference after abstinence from repeated injections in C57BL/6 mice. *Society for Neuroscience,* San Diego, CA (2016).

50. Dixon K, Wagner J, Davis S, Savage D, **Pentkowski NS.** Potential interactive effects of prenatal alcohol exposure combined with adolescent alcohol and/or nicotine exposure on vulnerability to alcohol and nicotine reward during adulthood. *Society for Neuroscience*, San Diego, CA (2016).

49. Hernandez K, Salinas BJ, Abella AE, Iniguez SD, **Pentkowski NS**, Zavala AR. Zolmotriptan, a 5-HT_{1B} receptor agonist, modulates the rewarding properties of nicotine in female and male adolescent rats. *Society for Neuroscience*, San Diego, CA (2016).

48. Garcia R, **Pentkowski NS**, Venault J, Leslie K, Bonadonna JP, Cotter A, Campagna A, Benson T, Ennis K, Olive MF, Neisewander JL. Different modulatory effects of the 5-HT_{1B} receptor agonist CP 94,253 on methamphetamine self-administration compared to cocaine self-administration. *American Psychological Association*, Toronto, Canada (2015).

47. Garcia R, **Pentkowski NS,** Venault J, Leslie K, Bonadonna JP, Cotter A, Campagna A, Olive MF, Neisewander JL. Modulatory effects of the 5-HT_{1B} receptor agonist, CP 94,253, on methamphetamine self-administration. *Society for Neuroscience*, Chicago, IL (2015).

46. Bastle RM, **Pentkowski NS**, Kufahl PR, Peartree NA, Chaudhury T, Smith CD, Oliver RJ, Perrone-Bizzozero NI, Neisewander JL. Dynamic changes in nucleus accumbens miR-495 expression acros cocaine self-administration, reinstatement and relapse. *Society for Neuroscience*, Chicago, IL (2015).

45. **Pentkowski NS.** The good and the bad: Social influences on drug abuse. *International Behavioral Neuroscience Society*, Victoria, BC (2015).

44. Hernandez K, Salinas BJ, Iniquez SD, **Pentkowski NS**, Zavala AR. Nicotine-induced conditioned place preference in female and male adolescent rats: Role of conditioning session length. *Society for Neuroscience*, Chicago, IL (2015).

43. Der-Ghazarian TS, Dai K, Brunwasser S, Garcia K, Stefanko K, **Pentkowski NS**, Neisewander JL. Contribution of stress to the effects of a 5-HT_{1B} receptor agonist on cocaine-induced locomotion before and after abstinence from repeated injections in C57BL/6 mice. *Society for Neuroscience*, Chicago, IL (2015).

42. Bastle RM, **Pentkowski NS**, Chaudhury T, St. Peter M, Smith CD, Galles N, Leslie KR, Oliver RJ, Gardiner AS, Perrone-Bizzozero NI, Neisewander JL. Viral-mediated overexpression of miR-495 in the nucleus accumbens shell reduces addiction-related gene expression and motivation for cocaine. *International Behavioral Neuroscience Society*, Victoria BC (2015).

41. Garcia R, **Pentkowski NS**, Venault J, Leslie K, Bonadonna J, Cotter A, Olive MF, Neisewander JL. Effects of the 5-HT_{1B} receptor agonist CP 94,253 on methamphetamine self-administration. *College on Problems of Drug Dependence*, Phoenix, AZ (2015).

40. Bastle RM, **Pentkowski NS**, Smith CD, Chaudhury T, Leslie KR, Oliver RJ, Gardiner AS, Perrone-Bizzozero NI, Neisewander JL. Overexpression of miR-495 in the nucleus accumbens shell reduces cocaine-taking and -seeking behavior, but not motivation for food. *Society for Neuroscience*, Washington DC (2014).

39. Der-Ghazarian TS, Brunwasser S, Dai K, **Pentkowski NS**, Neisewander JL. Effects of a 5-HT_{1B} receptor agonist on cocaine-induced locomotion before and after abstinence in C57BL/6 mice. *Society for Neuroscience*, Washington DC (2014).

38. Bastle RM, Oliver RJ, Gardiner AS, **Pentkowski NS**, Perrone-Bizzozero NI, Neisewander JL. Over-expression of the microRNA miR-495 in nucleus accumbens attenuates cocaine intake on a progressive ratio schedule of reinforcement. *College on Problems of Drug Dependence*, Puerto Rico (2014).

37. Der-Ghazarian TS, Pockros L, Mirando R, Brunwasser S, **Pentkowski NS**, Neisewander JL. 5-HT_{2A}R antagonism and 5-HT_{2C}R stimulation attenuates hyperlocomotion produced by intra-striatal cocaine infusions. Society for Neuroscience, San Diego, CA (2013).

36. Bastle RM, **Pentkowski NS,** Turk MN, Adams MD, Berger AL, Dado N, Smith K, Hammer RP, Perrone-Bizzozero NI, Neisewander JL. Regulation of plasticity-related gene expression through miR-495 as a potential mediator of cocaine reinforcement and motivation. *International Behavioral Neuroscience Society*, Malahide, Ireland (2013).

35. Oliver RJ, Bastle RM, Gardiner AS, Wright C, Saavedra JL, **Pentkowski NS,** Allan AM, Neisewander JL, Perrone-Bizzozero NI. miR-495, a post-transcriptional link between gene expression and the behavioral effects of cocaine. *Society for Neuroscience*, San Diego, CA (2013).
    Media: Hot Topics

34. **Pentkowski NS,** Harder BG, Brunwasser S, Yanamandra K, Bastle RM, Der-Ghazarian TS, Adams MD, Alba J, Neisewander JL. The effects of 5-HT_{1B} receptors on motivation for cocaine vary depending on the length of abstinence. *Society for Neuroscience*, New Orleans, LA (2012).

33. Pockros LA, Der-Ghazarian TS, **Pentkowski NS,** Conway SM, Zwick KR, Harder BG, Neisewander JL. Effects of 5-HT_{2C} receptor stimulation in the BLA on reinstatement of cocaine-seeking behavior and anxiety-like behavior in the elevated plus-maze. *Society for Neuroscience*, New Orleans, LA (2012).

32. Bastle RM, **Pentkowski NS,** Turk MN, Adams MD, Berger AL, Perrone-Bizzozero NI, Neisewander JL. The role of a microRNA, miR495, in regulating target gene expression and cocaine self-administration in rats. *Society for Neuroscience*, New Orleans, LA (2012).

31. **Pentkowski NS,** Harder B, Brunwasser S, Bastle RM, Der-Ghazarian TS, Alba J, Adams M, Neisewander JL. Stimulation of serotonin-1B receptors attenuates cocaine-abuse related behaviors following protracted withdrawal. *The College on Problems of Drug Dependence*, Palm Springs, CA (2012).

30. **Pentkowski NS,** Cheung THC, Toy WA, Adams MD, Neumaier JF, Neisewander JL. Protracted withdrawal from cocaine self-administration flips the switch on 5-HT_{1B} receptor modulation of cocaine reinforcement. *American College of Neuropsychopharmacology*, Kona, HI (2011).

29. **Pentkowski NS,** Cheung THC, Toy WA, Adams MD, Alba J, Neumaier JF, Neisewander JL. Abstinence from cocaine self-administration switches the function of 5-HT_{1B} receptors from enhancing drug reinforcement to blunting drug seeking. *Society for Neuroscience*, Washington, DC (2011).

28. Pockros LA, **Pentkowski NS,** Weber SM, Neisewander JL. Stimulation of serotonin 2C receptors in the mPFC attenuates cocaine-induced hyperlocomotion and alters Fos expression in brain regions containing dopamine neurons. *Society for Neuroscience*, Washington, DC (2011).

27. Bastle RM, Kufahl PR, Turk M, **Pentkowski NS,** Thiel KJ, Weber SM, Neisewander JL. Novel and conditioned stimuli reinstate extinguished reward-seeking behavior and induce similar patterns of fos expression. *Society for Neuroscience*, Washington, DC (2011).

26. **Pentkowski NS,** Cheung THC, Toy WA, Liu S, Neumaier JF, Neisewander JL. Elevated expression of 5-HT_{1B} receptors in the mesolimbic pathway enhances the reinforcing effects of cocaine using the self-administration model in rats. Oral Communications 2: Up Front with Drug Addiction: Role of Frontal Cortex. *The College on Problems of Drug Dependence*, Scottsdale, AZ (2010).

25. **Pentkowski NS,** Cheung THC, Toy WA, Adams MD, Jensen A, Valles C, Alba J, Liu S, Robertson L, Neumaier JF, Neisewander JL. Elevated expression of serotonin 1B (5-HT_{1B}) receptors in the mesolimbic pathway enhances the reinforcing effects of cocaine yet reduces cocaine-seeking behavior. *Society for Neuroscience*, San Diego, CA (2010).

24. Pockros LA, **Pentkowski NS,** Berger AL, Neisewander JL. Synergistic effects of 5-HT_{2A} receptor blockade and 5-HT_{2C} receptor activation on inhibition of spontaneous locomotion. *Society for Neuroscience*, San Diego, CA (2010).

23. Neisewander JL, Thiel KJ, **Pentkowski NS,** Painter MR, Peartree NA, Mitroi D, Crawford CA. Environmental enrichment during abstinence from cocaine self-administration attenuates cocaine-seeking behavior and functional brain activation in rats. *Society for Neuroscience*, San Diego, CA (2010).

22. Pockros LA, **Pentkowski NS,** Swinford SE, Robertson LM, Ostos M, Neisewander JL. Blockade of 5-HT_{2A} receptors in the medial prefrontal cortex attenuates cue-elicited

reinstatement of cocaine-seeking behavior in rats. Oral Communication, *The College on Problems of Drug Dependence*, Scottsdale, AZ (2010).

21. Thiel KJ, Engelhardt B, Hood LE, **Pentkowski NS,** Peartree NA, Painter MR, Neisewander JL. Preclinical examination of environmental enrichment as an anti-relapse strategy. Oral Communication, *The College on Problems of Drug Dependence*, Scottsdale, AZ (2010).

20. **Pentkowski NS**, Cheung THC, Toy WA, Liu S, Neumaier JF, Neisewander JL. Elevated expression of 5-HT_{1B} receptors in the mesolimbic pathway enhances the reinforcing effects of cocaine using the self-administration model in rats. *Society for Neuroscience*, Chicago, IL (2009).

19. Pockros LA, **Pentkowski NS**, Swinford SE, Shepard AJ, Neisewander JL. Blockade of 5-HT_{2A} receptors in the prefrontal cortex attenuates cue- and cocaine-primed reinstatement of cocaine-seeking behavior in rats. *Society for Neuroscience*, Chicago, IL (2009).

18. Perrone-Bizzozero N, Nixon S, Bolognani F, Kufahl PR, **Pentkowski NS**, Neisewander, JL. Decreased expression of miR-495 in the nucleus accumbens after cocaine exposure. *Society for Neuroscience*, Chicago, IL (2009).

17. Kufahl PR, Heintzelman K, Thiel KJ, **Pentkowski NS**, Vargas C, Hood L, Neisewander JL. A novel cue reinstates extinguished cocaine-seeking behavior. *Society for Neuroscience*, Chicago, IL (2009).

16. Thiel KJ, Painter M, Hills D, **Pentkowski NS**, Sanabria F, Neisewander JL. Environmental enrichment during drug abstinence attenuates cocaine-seeking behavior. *Society for Neuroscience*, Chicago, IL (2009).
    Media: Hot Topics

15. Thiel KJ, Painter M, Hills D, Crow A, Cuhaciyan C, Sanabria F, **Pentkowski NS**, Neisewander JL. Protective effects of environmental enrichment on cocaine-seeking behavior during abstinence. *The College on Problems of Drug Dependence*, Reno, NV (2009).

14. **Pentkowski NS,** Duke F, Weber SM, Hamilton EC, Pockros LA, Neisewander JL. Stimulation of medial prefrontal cortex 5-HT_{2C} attenuates cocaine-seeking, but not cocaine self-administration. Oral Communications 11: Upping the Ante, Craving Psychostimulants. *The College on Problems of Drug Dependence*, Reno, NV (2009).

13. **Pentkowski NS**, Neisewander JL. Stimulation of medial prefrontal cortex 5-HT_{2C} attenuates cocaine-seeking, but not cocaine self-administration. *American College of Neuropsychopharmacology*, Scottsdale, AZ (2008).

12. **Pentkowski NS**, Duke F, Hamilton EC, Neisewander JL. Stimulation of medial prefrontal cortex 5-HT_{2C} attenuates cocaine-seeking, but not cocaine self-administration. *Society for Neuroscience*, Washington, DC (2008).

11. Kufahl PR, **Pentkowski NS**, Routt VT, Duke F, Neisewander JL. Cocaine-induced Fos expression is detectable in the frontal cortex and striatum of rats under isoflurane but not alpha-chloralose anesthesia: Implications for fMRI. *Society for Neuroscience*, Washington, DC (2008).

10. **Pentkowski NS**, Browning J, Acosta JI, Hamilton L, Duke F, Neisewander JL. Stimulation of 5-HT_{1B} receptors enhances cocaine reinforcement yet reduces cocaine-seeking behavior. *International Behavioral Neuroscience Society*, St. Thomas, USVI (2008).

9. Litvin Y, Tovote, P, **Pentkowski NS**, Spiess J, Blanchard DC, Blanchard RJ. Maternal separation effects on adaptive fear responses, stressor-induced corticosterone secretion, and related gene expression in the hippocampus. *Society for Neuroscience*, San Diego, CA (2007).

8. **Pentkowski NS**, Vasconcellos A, Sabugo J, Blanchard DC, Blanchard RJ. Effects of ovine-CRF and acidic-astressin infusions into the ventral hippocampus on defensive behaviors in rats. *Society for Neuroscience*, Atlanta, GA (2006).

7. Litvin Y, Blanchard DC, Stocker H, **Pentkowski NS**, Blanchard RJ. Effects of selective CRF receptor agonist infusion into the dorsal periaqueductal gray on defensive behaviors in Swiss-Webster mice. *Society for Neuroscience*, Atlanta, GA (2006).

6. **Pentkowski NS**, Blanchard DC, Lever C, Blanchard RJ. Effects of lesions to the dorsal and ventral hippocampus on defensive behaviors in rats. *Society for Neuroscience*, Washington DC (2005).

5. Litvin Y, Blanchard DC, **Pentkowski NS**, Yang M, Blanchard RJ. A pinch or a lesion: Consequences of biting in mice. *Society for Neuroscience*, Washington DC (2005).

4. Markham CM, **Pentkowski NS**, Blanchard RJ, Blanchard DC. Disruption in defensive behavior toward predatory stimuli following lesions of the bed nucleus of the stria terminalis. *Society for Neuroscience*, Washington DC (2005).

3. **Pentkowski NS**, Blanchard DC, Blanchard RJ. Effects of ibotenic acid lesions of the dorsal hippocampus on defensive behaviors in rats. *Society for Neuroscience*, San Diego, CA (2004).

2. Blanchard DC, Yang M, Markham CM, Farrokhi CF, **Pentkowski NS**, Blanchard RJ, Griebel G. Diazepam and buspirone effects in C57/BL/6J mice in the rat exposure test. *Society for Neuroscience*, San Diego, CA (2004).

1. **Pentkowski NS**, Blanchard DC, Blanchard RJ. Effects of ibotenic acid lesions of the dorsal hippocampus on defensive behaviors in rats. *International Behavioral Neuroscience Society*, Key West, FL (2004).

Contributed (un-refereed) Abstracts and/or Oral Presentations at Professional Meetings

24. **Pentkowski NS**. A career in behavioral neuroscience: My journey exploring the neurobiology of addiction & emotion. *Senior Honors Seminar*, University of New Mexico, Albuquerque, NM (2021).

23. **Pentkowski NS.** Animal models of anxiety and addiction. *Senior Honors Seminar*, University of New Mexico, Albuquerque, NM (2020).

22. **Pentkowski NS**. Neurobiology of psychostimulant addiction: Focus on serotonin. Psychology Seminar Series, California state University, Long Beach, Long Beach, CA (2019).

21. **Pentkowski NS**. Neurobiology of anxiety and addiction. *Biology Seminar Series*, Northern New Mexico College, Espanola, NM (2019).

20. **Pentkowski NS.** Neurobiology of fear- and anxiety-like defensive behaviors: Focus on stress and the hippocampus. *Psychology Colloquia Series*, University of New Mexico, Albuquerque, NM (2017).

19. **Pentkowski NS.** Behavioral genetics. *Obsessive-Compulsive Spectrum Disorders Seminar*, University of New Mexico, Albuquerque, NM (2017).

18. **Pentkowski NS.** Genetic applications to neuropsychiatric disorders. *Developmental Neuroscience Laboratory*, University of New Mexico, Albuquerque, NM (2017).

17. **Pentkowski NS.** Animal models of neuropsychiatric disorders. *Psychology Junior Honors Seminar*, University of New Mexico, Albuquerque, NM (2017).

16. Bates E, Yang Y, **Pentkowski NS**, Zavala AR. Alcohol reward in male and female periadolescent rats: Effects of fixed vs. ascending dosing. *The 29th Annual CSU Biotechnology Symposium*, Santa Clara, CA (2017).

15. **Pentkowski NS.** Serotonin 1B and 2C receptor subtypes as novel targets for treating psychostimulant addiction. *HSC Neuroscience* Symposium, University of New Mexico, Albuquerque, NM (2017).

14. **Pentkowski NS.** A transgenic rat model of Alzheimer's disease. *Psychology Junior Honors Seminar*, University of New Mexico, Albuquerque, NM (2016).

13. **Pentkowski NS.** 5-HT_{1B} receptors: A cause and a cure for cocaine addiction? Cavanaugh Cognitive Rhythms and Computation Lab, University of New Mexico, Albuquerque, NM (2016).

12. **Pentkowski NS.** Neurobiology of defensive and addictive behaviors. *Psychology Junior Honors Seminar*, University of New Mexico, Albuquerque, NM (2015).

11. **Pentkowski NS.** Neurobiology of addiction. *Psychology Addiction Seminar*, University of New Mexico, Albuquerque, NM (2015).

10. **Pentkowski NS.** Serotonin-1B receptors: A novel target for relapse prevention? *Department of Psychology, University of New Mexico*, Albuquerque, NM (2013).

9. **Pentkowski NS**, Neisewander JL. The influence of 5-HT_{1B} receptors on cocaine abuse-related behaviors. *4th ASU-BNI Neuroscience Symposium*, Phoenix, AZ (2012).

8. Bastle RM, Dickey ED, Thiel KJ, **Pentkowski NS,** Hammer RP Jr., Neisewander JL. Region-specific changes in zif268 mRNA following cocaine self-administration, abstinence and extinction training. *The 4th ASU-BNI Neuroscience Symposium*, Phoenix, AZ (2012).

7. **Pentkowski NS.** Neural mechanisms of unconditioned and conditioned defense. *Behavioral Neuroscience Colloquium*, Arizona State University, Tempe, AZ (2008).

6. **Pentkowski NS.** mPFC CRF_1 activation: Effects on defensive behavior. *Specialized Neuroscience Research Program Colloquium*, University of Hawaii, Honolulu, HI (2007).

5. Herrera E, **Pentkowski NS**, Dowds D. The importance of intimacy, communication, and commitment in relationship satisfaction. *Western Psychological Association*, Irvine, CA (2002).

4. Santos SJ, **Pentkowski NS**, Lirios N, Dowds D. Barriers to bicultural competence in young adults. *Western Psychological Association*, Irvine, CA (2002).

3. Santos SJ, **Pentkowski NS**, Lirios N, Dowds D. The Development of biculturalism in young adults. *Western Psychological Association*, Irvine, CA (2002).

2. Palmer BB, Dowling R, **Pentkowski NS.** Decision-making in heterogeneous versus homogeneous groups. *Malaysian Psychological Association* (2001).

1. Henschel D, Gritney K, Reigadas E, **Pentkowski NS.** Personality and presidential choices. *American Psychological Society*, Toronto, Canada (2001).

Research

Research Funding

Title: Effects of the 5-HT_{2A} receptor antagonist M100907 on behavioral and neural alterations induced by chronic methamphetamine administration.
Award: SUD Grand Challenge
Principal investigator: NS Pentkowski
Funding organization: University of New Mexico
Funding period: 2019 – 2022
Total costs: $15,000
Role: PI

Title: Neural basis of enhanced anxiety and memory deficits in Alzheimer's disease.
Award: Grice Foundation
Principal investigator: NS Pentkowski
Funding organization: University of New Mexico
Funding period: 2016 – 2017
Total costs: $3,000
Role: PI

Title: Role of 5-HT_{1B} receptors in nicotine reward in adolescent rats.
Award: Grice Foundation
Principal investigator: NS Pentkowski
Funding organization: University of New Mexico
Funding period: 2014 – 2015
Total costs: $2,820
Role: PI

Title: Role of 5-HT_{1B} receptors in nicotine reward during adolescence.
Award: BUILD RSG
Principal investigator: AR Zavala
Funding organization: California State University, Long Beach
Funding period: 2016 – 2017
Total costs: $10,000
Role: Co-I

Title: The role of ventromedial PFC 5-HT_{2C} receptors in cocaine-seeking behavior.
Award: F32 DA025413
Principal investigator: NS Pentkowski
Funding organization: National Institute on Drug Abuse
Funding period: 2009 – 2012
Total costs: $150,726
Role: PI

Pending Research Funding

Title: CRF_1 receptors: A potential target for treating anxiety in early stages of Alzheimer's disease.
Award: Standard Award Program in Alzheimer's Disease Research
Principal investigator: Pentkowski NS
Funding organization: BrightFocus Foundation
Funding period: 2022 – 2025
Total costs: $300,00
Role: PI
Status: Pending review

Title: Anxiety and stress-related risk factors for early Alzheimer's disease: Targeting Ventral hippocampal CRF_1 receptors.
Award: CBBR Pilot Grant
Principal investigator: Pentkowski NS
Funding organization: University of New Mexico, School of Medicine
Funding period: 2022 – 2023
Total costs: $29,000
Role: Co-PI
Status: Pending review

Title: Anxiety and stress-related risk factors for early Alzheimer's disease: Targeting ventral hippocampal CRF_1 receptors.
Award: Convergence Science Research Award
Principal investigator: Pentkowski, NS
Funding organization: Department of Defense
Funding period: 2022 – 2025
Total costs: $500,000
Role: PI
Status: Pending review

Title: Effects of the 5-HT_{2A} receptor antagonist M100907 on behavioral and neural alterations induced by chronic methamphetamine administration.
Award: U18
Principal investigator: NS Pentkowski
Funding organization: National Institute on Drug Abuse
Funding period: 2022 – 2025
Total costs: $150,000
Role: PI
Status: Pending review

Title: Assessment of Pimavanserin in a rat model of chronic stress: Significance for treating anxiety and depression.
Award: Industry contract
Principal investigator: NS Pentkowski
Funding organization: Acadia Pharmaceuticals Inc.
Funding period: 2021 – 2023

Total costs: $43,363
Role: PI
Status: Pending UNM Legal Approval. See the negotiated contract in dossier.

Title: Effects of chronic stress on behavioral and neural markers in the TgF344-AD transgenic rat model of Alzheimer's disease.
Award: R03
Principal investigator: NS Pentkowski and BJ Clark
Funding organization: National Institute on Aging
Funding period: Pending
Total Costs: $150,000
Role: Co-PI
Status: Collecting data for resubmission. See reviews in dossier.

Title: The effects of chronic social subordination stress on cocaine abuse-related behaviors.
Award: R03 DA040010
Principal investigator: NS Pentkowski
Funding organization: National Institute on Drug Abuse
Funding period: Pending
Total costs: $113,625
Role: PI
Status: Collecting data for resubmission. See reviews in dossier.

Teaching

Masters Thesis Advisement (Chair)

Kyle Dixon, Completed in April 2017. The modulation of reward to nicotine and ethanol by sex and stage of exposure.

Carlos Olguin, Completed in April 2019. Determining the efficacy of novel predatory odors as chemical surrogates for natural predator odor in contextual fear conditioning.

Samuel Bouquin, Completed in December 2020. Effects of chronic stress on anxiety- and fear-like behaviors in a rat transgenic model of Alzheimer's disease.

John Madden, Completed in May 2020. Effects of 5-HT_{1B} receptors on methamphetamine-induced reward and markers of plasticity.

Nicole Reyna, Expected in May 2022. Effects of methamphetamine and social rewards on cFos expression.

Kayla Cox, Expected in May 2022. Effects of moderate prenatal alcohol exposure on cholinergic neuronal expression.

Bachelor's Honors Advisement

Tamara Zera, B.S., Completed May 2017. Do CRF_1 receptors in the hippocampus and prefrontal cortex mediate anxiety in a genetic model of Alzheimer's disease?

Nicole Reyna, B.S., Completed in May 2020. Social facilitation of methamphetamine reward.

Anthony Lisignoli, B.S., Completed in May 2020. Effects of chronic stress on CRF_1 expression in the TgF344-AD model of Alzheimer's disease.

Skylar Nicholson, B.S., Expected May 2022. Effects of predator odor exposure on cFos expression in the limbic system.

Undergraduate and Graduate Student Mentoring

Andrienne Swindle, 2019 – current.	Independent research study (PSY 499).
Madeline Parish, 2019 – 2021.	Independent research study (PSY 499).
Kimberley Barnhart, 2019 – 2020.	Independent research study (PSY 499).
Emerald Goranson, 2019 – current.	Independent research study (PSY 499).
Kevin Forte, 2018 – 2019.	Independent research study (PSY 499).
Amanda Luna, 2017 – 2018.	Research assistant (volunteer).
Alexis Conte, 2017 – 2019.	Research assistant (volunteer)
Sarina Ochoa, 2017 – 2018.	Research assistant (volunteer).
John Fennelly, 2017 – 2019.	Independent research study (PSY 499).
Andrew Tourigny, 2017 – 2018.	Independent research study (PSY 499).

Anastasia Marjenhoff, 2017 – 2018.	Independent research study (PSY 499).
Lilliana Sanchez, 2016 – 2020.	Independent research study (PSY 551).
Chelsie Padilla, 2016 – 2017.	Research assistant (volunteer).
Gabriela Martinez, 2015 – 2017.	Independent research study (PSY 499).
Carlos Olguin, 2014 – 2016.	Independent research study (PSY 499).
Mallory Kruse, 2014 – 2016.	Independent research study (PSY 499 & 551).
Jennifer Espinosa, 2014 – 2016.	Independent research study (PSY 499 & 551).

Classroom Teaching

2021; Neurobiology of Addiction; PSY 450/650; 35 students (online).
2021; Fall; Psychopharmacology, Drugs & Behavior; PSY 347; 50 students (online).
2021; Summer; Psychopharmacology, Drugs & Behavior; PSY 347; 40 students (online).
2021; Spring; Psychopharmacology, Drugs & Behavior; PSY 347; 100 students (online).
2021; Spring; Psychopharmacology, Drugs & Behavior; PSY 347; 50 students (online).
2021; Spring; Seminar in Cognition, Brain & Behavior; PSY 641; 24 students.
2020; Fall; Psychopharmacology, Drugs & Behavior; PSY 347; 80 students (online)
2020; Fall; Neurobiology of Addiction; PSY 450/650; 12 students (online).
2020; Summer; Psychopharmacology, Drugs & Behavior; PSY 347; 40 students.
2020; Spring; Neurobiology of Addiction; PSY 450/650; 20 students.
2020; Spring; Biological Bases of Behavior; PSY 540; 26 students.
2019; Summer; Psychopharmacology, Drugs & Behavior; PSY 347; 39 students (online).
2019; Spring; Psychopharmacology, Drugs & Behavior; PSY 347; 100 students.
2019; Spring; Seminar in Cognition, Brain & Behavior; PSY 641; 17 students.
2018; Fall; Psychopharmacology, Drugs & Behavior; PSY 347; 100 students.
2018; Fall; Neurobiology of Addiction; PSY 450/650; 20 students.
2018; Summer; Psychopharmacology, Drugs & Behavior; PSY 347; 39 students (online).
2018; Spring; Biological Bases of Behavior; PSY 540; 18 students.
2018; Spring; Neurobiology of Addiction; PSY 450/650; 20 students.
2017; Fall; Psychopharmacology, Drugs & Behavior; PSY 347; 100 students.
2017; Fall; Neurobiology of Addiction; PSY 450/650; 11 students.
2017; Summer; Psychopharmacology, Drugs & Behavior; PSY 347; 39 students (online).
2017; Spring; Seminar in Cognition, Brain & Behavior; PSY 641; 21 students.
2017; Spring; Molecular Psychiatry; PSY 450/650; 9 students.
2016; Fall; Neurobiology of Addiction; PSY 450/650; 16 students
2016; Fall; Psychopharmacology, Drugs & Behavior; PSY 347; 96 students.
2015; Fall; Psychopharmacology, Drugs & Behavior; PSY 547; 9 students.
2015; Fall; Psychopharmacology, Drugs & Behavior; PSY 347; 79 students.
2015; Spring; Psychopharmacology, Drugs & Behavior; PSY 347; 93 students.
2014; Fall; Psychopharmacology, Drugs & Behavior; PSY 347; 48 students.

Service

Manuscript Review
(39 total reviews)

ACS Chemical Neuroscience, 2015 – current
Addiction Biology, 2015 – current
Behavioural Brain Research, 2008 – current
Brain Research Bulletin, 2012 – current
Brain Research, 2012 – current
Drug and Alcohol Dependence, 2009 – current
Frontiers in Pharmacology, 2019 – current
Hormones and Behavior, 2013 – current
International Journal of Neuropsychopharmacology, 2009 – current
Journal of Neuroscience, 2015 – current
Life Sciences, 2022 – current
Neuropsychopharmacology, 2011 – current
Neural Plasticity, 2019 – current
Neurochemistry International, 2022 – current
Neuroscience Letters, 2021 – current
Neuroscience & Biobehavioral Reviews, 2016 – current
Physiology & Behavior, 2012 – current
Psychological Science, 2018 – current
Psychopharmacology, 2015 – current

Departmental Committees

2017 – current, Alumni Advisory Committee
2014 – current, Animal Facilities and Use Committee
2014 – 2017, Colloquia and PAL Committee
2014 – current, Faculty/Student Idea Exchange Committee
2014 – 2020, PCNC Committee

M.A. Thesis & Ph.D. Dissertation Examination Committees

2021 – current, Tia Donaldson (PhD) Department of Psychology
2020 – current, Joaquin Orozco (MA) Department of Psychology
2020 – completed, Breannan Howell (PhD) Department of Psychology
2020 – current, Ethan Campell (MA) Department of Psychology
2020 – completed, Julia Swan, (MA), Department of Psychology
2020 – current, Jegason Phosphorus Diviant, (MA), Department of Psychology
2018 – completed, Lilliana Sanchez, (MA), Department of Psychology
2016 – completed, Christy Magcalas, (PhD), Department of Psychology
2016 – completed, Ryan Harvey, (MA), Department of Psychology

Graduate Comprehensive Examination Committees

2020 – completed, Julia Swan, Department of Psychology

2020 – completed, Trevor Jackson, Department of Psychology
2020 – completed, Tia Donaldson, Department of Psychology
2019 – completed, Laura Berkowitz, Department of Psychology
2019 – completed, Ryan Harvey, Department of Psychology
2017 – completed, Danielle Rudder, Department of Psychology
2016 – completed, Carlos Rodriguez, Department of Psychology

Teaching Observations

2021, Ryan Ross, Department of Psychology
2020, Allen Butt, Department of Psychology
2020, John Pinner, Department of Psychology
2019, Trevor Jackson, Department of Psychology
2018, Ruth Sarafin, Department of Psychology
2017, Carlos Rodriguez, Department of Psychology

University Service

2017 – 2018, Poster Judge, University of New Mexico Psychology Research Day
2019 – current, Member, Main Campus IACUC, University of New Mexico