

CURRICULUM VITAE

Nathan S. Pentkowski, Ph.D.

Assistant Professor
University of New Mexico
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EDUCATION

University of Hawaii at Manoa, Honolulu, HI

Ph.D. Psychology. Specialization: Behavioral Neuroscience, May 2007

University of Hawaii at Manoa, Honolulu, HI

M.A. Psychology. Specialization: Behavioral Neuroscience, December 2004

California State University, Dominguez Hills, Carson, CA

M.A. Clinical Psychology. Specialization: MFT, August 2002

Northern Arizona University, Flagstaff, AZ

B.S. Psychology. Minor Biology, May 1999

PROFESSIONAL EXPERIENCE

Research Experience

Assistant Professor, 08/2014 – current

Department of Psychology, University of New Mexico, Albuquerque, NM

Postdoctoral Research Associate, 06/2010 – 07/2014

Neisewander Drug Addiction Laboratory,
School of Life Sciences, Arizona State University, Tempe, AZ
Advisor: Janet L. Neisewander, Ph.D.

Postdoctoral Fellow, 06/2007 – 06/2010

Neisewander Drug Addiction Laboratory,
Department of Psychology, Arizona State University, Tempe, AZ
Advisor: Janet L. Neisewander, Ph.D.

Graduate Research Assistant, 08/2002 – 05/2007

Blanchard Behavioral Neuroscience Laboratory,
Department of Psychology, University of Hawaii at Manoa, Honolulu, HI
Advisors: Robert J. Blanchard, Ph.D. and D. Caroline Blanchard, Ph.D.

Clinical Experience

Graduate Assistant, Hawaii State Hospital, Kaneohe, HI (fall, 2002). Responsibilities: taught courses in psychosocial rehabilitation, including Assertiveness Training, Problem Solving and Medication Management. Supervisors: Dan Gutkind, Ph.D. and Michi Wong, Ph.D.

Group Facilitator, CSU Dominguez Hills, Carson, CA (spring, 2002). Undergraduate course:

Interpersonal and Group Processes. Responsibilities: facilitated structured group exercises and group therapy sessions. Professor: Beverly B. Palmer, Ph.D.

Intern, Psychological Services Staff, Harbor Free Clinic, San Pedro, CA (fall, 2001).
Responsibilities: intake and assessment of incoming patients; direct counseling.
Supervisors: D. Brian Murphy, Ph.D. and Nourit Korzennik, Ph.D.

Teaching and Mentoring Experience

Professor, University of New Mexico, Albuquerque, NM (fall 2014, spring 2015).
Undergraduate course: Psychopharmacology: Drugs and Behavior

Guest Lecturer, Arizona State University, Tempe, AZ (spring, 2013).
Graduate courses: Grant Writing

Guest Lecturer, Arizona State University, Tempe, AZ (spring, 2012; fall, 2012, spring 2013).
Graduate course: Neuroscience Journal club

Instructor, Arizona State University, Tempe, AZ (fall, 2011).
Graduate course: Neuroscience Journal club

Guest Lecturer, Arizona State University, Tempe, AZ (spring, 2009).
Graduate course: Neurobiology of Addiction

Guest Lecturer, Arizona State University, Tempe, AZ (fall, 2007).
Graduate course: Neuropsychopharmacology

Teaching Assistant, University of Hawaii at Manoa, Honolulu, HI (fall, 2006).
Undergraduate course: Biopsychology

Instructor, University of Hawaii at Manoa, Honolulu, HI (summer, 2004).
Undergraduate course: Behavioral Neuroscience

Instructor, University of Hawaii at Manoa, Honolulu, HI (fall, 2003).
Undergraduate course: Developmental Psychology

Instructor, University of Hawaii at Manoa, Honolulu, HI (summer, 2003).
Undergraduate course: Social Psychology

Teaching Assistant, CSU Dominguez Hills, Carson, CA (fall, 2001).
Undergraduate course: Research Methods. Professor: Silvia J. Santos, Ph.D.

Teaching Assistant, CSU Dominguez Hills, Carson, CA (spring, 2001).
Undergraduate course: Mexican-American I. Professor: Silvia J. Santos Ph.D.

Undergraduate student research training/supervision

Anthony Berger, Arizona State University, Honors Thesis (Barrett Honors College)
Samuel Brunwasser, Arizona State University, Honors Thesis (Barrett Honors College)
Chris Cuyno, University of Hawaii, Haumana Honors Program
Mark Ellis, University of Hawaii, MARK Honors Program
Coty Gonzales, University of Hawaii, Haumana Honors Program
Lanikea B. King, University of Hawaii, Haumana Honors Program
Joel Sabugo, University of Hawaii, MARK Honors Program
Amy J. Vasconcellos, University of Hawaii, Haumana Honors Program
Krishna Yanamandra, Arizona State University, Honors Thesis (Barrett Honors College)

HONORS and AWARDS

Grants

Grice Research Enhancement Faculty Award, University of New Mexico. Role of 5-HT_{1B} receptors in nicotine reward in adolescent rats, 2014 – 2015.

Health Disparities LRP recipient, National Institutes of Health. The role of ventromedial PFC 5-HT_{2C} receptors in cocaine-seeking behavior, 2010 – 2012.

Ruth L. Kirschstein NRSA recipient, National Institute on Drug Abuse, 32DA025413. The role of ventromedial PFC 5-HT_{2C} receptors in cocaine-seeking behavior, 2009 – 2012.

Travel Awards

NIDA, Young Investigator Travel Award. The 6th Annual Julius Axelrod Lecture, Society for Neuroscience Annual Meeting, New Orleans, LA (2012).

NIDA Young Investigator Travel Award. Serotonin Club Silver Anniversary Meeting, Montpellier, France (2012).

NIDA 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, Washington, DC (2011).

Press Releases

Editor's Choice, **Pentkowski, N.S.**, Harder, B.G., Brunwasser, S.J., K., Bastle, R.M., Peartree, Yanamandra, N.A., Adams, M.D. and Neisewander, J.L. (2014). Pharmacological evidence for an abstinence-induced switch in 5-HT_{1B} receptor modulation of cocaine self-administration and cocaine-seeking behavior. *ACS Chem Neurosci*, *in press*.

Hot Topics, Society for Neuroscience (2013). Oliver, R.J., Bastle, R.M., Gardiner, A.S., Wright, C., Saavedra, J.L., **Pentkowski, N.S.**, Allan, A.M., Neisewander, J.L. and Perrone-Bizzozero, N.I. miR-495, a post-transcriptional link between gene expression and the behavioral effects of cocaine.

Commentary, highlighting **Pentkowski, N.S.** et al., 2010. Cunningham, K.A., Bubar, M.J. and Anastasio, N.C. (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.

Hot Topics, Society for Neuroscience (2009). Thiel, K.J., Painter, M., Hills, D., **Pentkowski, N.S.**, Sanabria, F., Neisewander, J.L. Environmental enrichment during drug abstinence attenuates cocaine-seeking behavior.

Scholastics

Dean's List, California State University, Dominguez Hills, 2000, 2001

Dean's List, Northern Arizona University, 1998, 1999

National Dean's List, Northern Arizona University, 1998, 1999

Award for Outstanding Scholarship, Northern Arizona University, 1998, 1999

Pre-Graduate Studies Award of Merit, Northern Arizona University, 1999

PROFESSIONAL AFFILIATIONS

Arizona Imaging and Microanalysis Society (AIMS), member

College on Problems of Drug Dependence, member

International Behavioral Neuroscience Society, member

International Society for Serotonin Research, member

Society for Neuroscience, member

Society for Social Neuroscience, member

PROFESSIONAL SERVICE

Laboratory Liaison, IACUC, University of Hawaii at Manoa, Honolulu, HI (2005, 2006).

Search Committee Member, Director of the Pacific Biosciences Research Center, University of Hawaii at Manoa, Honolulu, HI (2006).

Coordinator, Defensive Behavior Satellite, International Behavioral Neuroscience Society, Key West, FL (2004).

Ad-hoc Reviewer, Addiction Biology, 2015 –

Ad-hoc Reviewer, ACS Chemical Neuroscience, 2015 –

Ad-hoc Reviewer, Behavioral Brain Research, 2008 –

Ad-hoc Reviewer, Brain Research Bulletin, 2012 –

Ad-hoc Reviewer, Brain Research, 2012 –

Ad-hoc Reviewer, Drug and Alcohol Dependence, 2009 –

Ad-hoc Reviewer, Hormones and Behavior, 2013 –

Ad-hoc Reviewer, International Journal of Neuropsychopharmacology, 2009 –

Ad-hoc Reviewer, Journal of Neuroscience, 2015 –

Ad-hoc Reviewer, Neuropsychopharmacology, 2011 –

Ad-hoc Reviewer, Physiology & Behavior, 2012 –

BIBLIOGRAPHY

As of August 27th, 2014 PubMed and Google Scholar list 24 peer-reviewed manuscripts and 2 book chapters that have been cited 653 times with an average of 27.21 citations per article; my h-index is 14.

Current Research Interests

The biology and pharmacology of drug addiction, stress, emotion, learning and defensive behaviors, including the role of serotonin receptors (e.g., 5-HT_{1B}, 5-HT_{2C}, 5-HT_{2A}), corticotropin-releasing factor and related neuropeptides, and microRNAs (e.g., miR-495, HuD).

In Preparation and Under Review

2. **Pentkowski, N.S.**, Bastle, R.M., Perrone-Bizzozero, N.I. and Neisewander, J.L. Viral-mediated expression of HuD in the nucleus accumbens shell attenuates cocaine induced locomotion and reward in rats. *In preparation*.
1. Bastle, R.M., Oliver, R.J., Gardiner, A., **Pentkowski, N.S.**, Bolognani, F., Allan, A., Neisewander, J.L. and Perrone-Bizzozero, N.I. Nucleus accumbens miR-495 post-transcriptionally regulates the expression of multiple addiction-related genes associated with motivation for cocaine. *Submitted for publication, J. Neurosci*.

Book Chapters

2. Blanchard, D.C., Litvin, Y., **Pentkowski, N.S.** and Blanchard, R.J. (2009). Aggression and Defense. In Bernston, G.G. and Cacioppo, J.T. *Handbook of Neuroscience for the Behavioral Sciences*. John Wiley & Sons Inc.
1. Litvin, Y., **Pentkowski, N.S.**, Pobbe, R.L., Blanchard, D.C. and Blanchard, R.J. (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.

Empirical Papers

21. Pockros-Burgess, L.A., **Pentkowski, N.S.**, Der-Ghazarian, T. and Neisewander, J.L. (2014). Effects of the 5-HT_{2C} receptor agonist CP809101 in the amygdala on reinstatement of cocaine-seeking behavior and anxiety-like behavior. *Int J Neuropsychoph*, 17, 1751-62.
20. **Pentkowski, N.S.**, Harder, B.G., Brunwasser, S.J., Bastle, R.M., Peartree, N.A., Yanamandra, K., Adams, M.D. and Neisewander, J.L. (2014). Pharmacological evidence for an abstinence-induced switch in 5-HT_{1B} receptor modulation of cocaine self-administration and cocaine-seeking behavior. *ACS Chem Neurosci*, 19, 168-76.
19. **Pentkowski, N.S.**, Tovote, P., Blanchard, D.C., Litvin, Y. and Blanchard, R.J. (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. *Horm Behav*, 64, 519-26.
18. Pockros, L.A., **Pentkowski, N.S.**, Conway, S.M., Ullman, T.E., Zwick, K.R. and Neisewander, J.L. (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, R.M., Kufahl, P.R., Turk, M.N., Weber, S.M., **Pentkowski, N.S.**, Thiel, K.J. and Neisewander, J.L. (2012). Novel cues reinstate cocaine-seeking behavior and Induce Fos protein expression as effectively as conditioned cues. *Neuropsychopharmacol*, 37, 2109-20.
16. **Pentkowski, N.S.**, Cheung, T.H.C., Toy, W.A., Adams, M.D., Neumaier, J.F. and Neisewander, J.L. (2012). Protracted withdrawal from cocaine self-administration flips the switch on 5-HT_{1B} receptor modulation of cocaine-abuse related behaviors. *Biol Psychiat*, 72, 396-404.
15. Thiel, K.J., Painter, M.R., **Pentkowski, N.S.**, Mitroi, D., Crawford, C.A. and Neisewander,

- J.L. (2012). Environmental enrichment counters cocaine abstinence-induced stress and brain reactivity to cocaine cues but fails to prevent the incubation effect. *Addict Biol*, 17, 365-77.
14. Peartree, N.A., Hood, L.E., Thiel, K.J., Sanabria F., **Pentkowski, N.S.**, Chandler, K.N. and Neisewander, J.L. (2011). Limited physical contact through a mesh barrier is sufficient for social reward-conditioned place preference in adolescent male rats. *Physiol Behav*, 105, 749-56.
 13. **Pentkowski, N.S.**, Painter, M.R., Thiel, K.J., Peartree, N.A., Cheung, T.H.C., Deviche, P., Adams, M., Alba, J. and Neisewander J.L. (2011). Nicotine-induced plasma corticosterone is attenuated by social interactions in male and female adolescent rats. *Pharmacol, Biochem, Behav*, 100, 1-7.
 12. Pockros, L.A., **Pentkowski, N.S.**, Swinford, S.E. and Neisewander, J.L. (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, K.J., **Pentkowski, N.S.**, Peartree, N.A., Painter, M.R. and Neisewander, J.L. (2010). Environmental living conditions introduced during forced abstinence alter cocaine-seeking behavior and Fos protein expression. *Neuroscience*, 171, 1187-96.
 10. Thiel, K.J., **Pentkowski, N.S.**, Wenzel, J. and Neisewander, J.L. (2010). Stimulation of dopamine D2/D3 but not D1 receptors in the central amygdala decreases cocaine-seeking behavior. *Behav Brain Res*, 214, 386-94.
 9. **Pentkowski, N.S.**, Duke, F.D., Weber, S.M., Pockros, L.A., Teer, A.P., Hamilton, E.C., Thiel, K.J. and Neisewander, J.L. (2010). Stimulation of medial prefrontal cortex 5-HT_{2C} receptors attenuates cocaine-seeking behavior. *Neuropsychopharmacol*, 35, 2037-48.
 8. Litvin, Y., Tovote, P., **Pentkowski, N.S.**, Spiess, J., Blanchard, D.C. and Blanchard, R.J. (2010). Maternal separation modulates short term behavioral and physiological indices of the stress response. *Horm Behav*, 58, 241-9.
 7. Thiel, K.J., Sanabria, F., **Pentkowski, N.S.** and Neisewander, J.L. (2009). Anti-craving effects of environmental enrichment. *Int J Neuropsychoph*, 12, 1151-6.
 6. **Pentkowski, N.S.**, Acosta, J., Browning, J. and Neisewander J.L. (2009). Stimulation of 5-HT_{1B} receptors enhances cocaine reinforcement yet reduces cocaine-seeking behavior. *Addict Biol*, 14, 419-30.
 5. Kufahl, P.R., **Pentkowski, N.S.**, Heintzelman, K. and Neisewander, J.L. (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. *J Neurosci Methods*, 181, 241-8.
 4. **Pentkowski, N.S.**, Litvin, Y., Blanchard, D.C., Vasconcellos, A., King, L.B. and Blanchard, R.J. (2009). Effects of acidic-astressin and ovine-CRF microinfusions into the ventral hippocampus on defensive behaviors in rats. *Horm Behav*, 56, 35-43.
 3. Litvin, Y., Blanchard, D.C., **Pentkowski, N.S.** and Blanchard, R.J. (2007). A pinch or a lesion: A reconceptualization of biting consequences in mice. *Aggress Behav*, 33, 545-51.
 2. Litvin, Y., **Pentkowski, N.S.**, Blanchard, D.C. and Blanchard, R.J. (2007). CRF type 1

receptors in the dorsal periaqueductal gray modulate anxiety-induced defensive behaviors. *Horm Behav*, 52, 244-51.

1. **Pentkowski, N.S.**, Blanchard, D.C., Lever, C., Litvin, Y. and Blanchard, R.J. (2006). Effects of lesions to the dorsal and ventral hippocampus on defensive behaviors in rats. *Eur J Neurosci*, 23, 2185-96.

Review Papers

3. Neisewander, J.L., Cheung, T.H.C. and **Pentkowski, N.S.** (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, J.L., Peartree, N.A. and **Pentkowski, N.S.** (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, D.C., Canteras, N.S., Markham, C.M., **Pentkowski, N.S.** and Blanchard, R.J. (2005). Lesions of structures showing FOS expression to cat presentation: Effects on responsivity to a cat, cat odor, and nonpredator threat. *Neurosci Biobehav Rev*, 29, 1243-53.

CONFERENCE ABSTRACTS and POSTER PRESENTATIONS

49. Garcia, R., **Pentkowski, N.S.**, Venault, J., Leslie, K., Bonadonna, J.P., Cotter, A., Campagna, A., Benson, T., Ennis, K., Olive, M.F. and Neisewander, J.L. 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).
48. Garcia, R., **Pentkowski, N.S.**, Venault, J., Leslie, K., Bonadonna, J.P., Cotter, A., Campagna, A., Olive, M.F. and Neisewander, J.L. Modulatory effects of the 5-HT_{1B} receptor agonist, CP 94,253, on methamphetamine self-administration. *Society for Neuroscience*, Chicago, IL (2015).
47. Bastle, R.M., **Pentkowski, N.S.**, Kufahl, P.R., Peartree, N.A., Chaudhury, T., Smith, C.D., Oliver, R.J., Perrone-Bizzozero, N.I. and Neisewander, J.L. Dynamic changes in nucleus accumbens miR-495 expression across cocaine self-administration, reinstatement and relapse. *Society for Neuroscience*, Chicago, IL (2015).
46. Hernandez, K., Salinas, B.J., Iniguez, S.D., **Pentkowski, N.S.** and Zavala, A.R. Nicotine-induced conditioned place preference in female and male adolescent rats: Role of conditioning session length. *Society for Neuroscience*, Chicago, IL (2015).
45. Der-Ghazarian, T., Dai, K., Brunwasser, S., Garcia, K., Stefanko, K., **Pentkowski, N.S.** and Neisewander, J.L. 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).
44. Bastle, R.M., **Pentkowski, N.S.**, Chaudhury, T., St. Peter, M., Smith, C.D., Galles, N.,

- Leslie, K.R., Oliver, R.J., Gardiner, A.S., Perrone-Bizzozero, N.I. and Neisewander, J.L. 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).
43. Garcia, R., **Pentkowski, N.S.**, Venault, J., Leslie, K., Bonadonna, J., Cotter, A., Olive, M.F. and Neisewander, J.L. Effects of the 5-HT_{1B} receptor agonist CP 94,253 on methamphetamine self-administration. *College on Problems of Drug Dependence*, Phoenix, AZ (2015).
42. Bastle, R.M., **Pentkowski, N.S.**, Smith, C.D., Chaudhury, T., Leslie, K.R., Oliver, R.J., Gardiner, A.S., Perrone-Bizzozero, N.I. and Neisewander, J.L. 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).
41. Der-Ghazarian, T., Brunwasser, S., Dai, K., **Pentkowski, N.S.** and Neisewander, J.L. Effects of a 5-HT_{1B} receptor agonist on cocaine-induced locomotion before and after abstinence I n C57BL/6 mice. *Society for Neuroscience*, Washington DC (2014).
40. Bastle, R.M., Oliver, R.J., Gardiner, A.S., **Pentkowski, N.S.**, Perrone-Bizzozero, N.I., Neisewander, J.L. 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).
39. Der-Ghazarian, T., Pockros, L., Mirando, R., Brunwasser, S., **Pentkowski, N.S.** and Neisewander, J.L. 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).
38. Bastle, R.M., **Pentkowski, N.S.**, Turk, M.N., Adams, M.D., Berger, A.L., Dado, N., Smith, K., Hammer, R.P., Perrone-Bizzozero, N.I. and Neisewander, J.L. 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).
37. Oliver, R.J., Bastle, R.M., Gardiner, A.S., Wright, C., Saavedra, J.L., **Pentkowski, N.S.**, Allan, A.M., Neisewander, J.L. and Perrone-Bizzozero, N.I. miR-495, a post-transcriptional link between gene expression and the behavioral effects of cocaine. *Society for Neuroscience*, San Diego, CA (2013).
36. **Pentkowski, N.S.**, Harder, B.G., Brunwasser, S., Yanamandra, K., Bastle, R.M., Der-Ghazarian, T.S., Adams, M.D., Alba, J. and Neisewander, J.L. 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).
35. Pockros, L.A., Der-Ghazarian, T.S., **Pentkowski, N.S.**, Conway, S.M., Zwick, K.R., Harder, B.G. and Neisewander, J.L. 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).
34. Bastle, R.M., **Pentkowski, N.S.**, Turk, M.N., Adams, M.D., Berger, A.L., Perrone-

- Bizzozero, N. and Neisewander, J.L. The role of a microRNA, miR495, in regulating target gene expression and cocaine self-administration in rats. *Society for Neuroscience*, New Orleans, LA (2012).
33. Bastle, R.M., Dickey, E.D., Thiel, K.J., **Pentkowski, N.S.**, Hammer, R.P. Jr., Neisewander, J.L. Region-specific changes in zif268 mRNA following cocaine self-administration, abstinence and extinction training. *The 4th ASU-BNI Neuroscience Symposium*, Phoenix, AZ (2012).
32. **Pentkowski, N.S.**, Cheung, T.H.C., Toy, W.A., Adams, Neumaier, J.F. and Neisewander, J.L. 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).
31. **Pentkowski, N.S.**, Cheung, T.H.C., Toy, W.A., Adams, M., Alba, J., Neumaier, J.F. and Neisewander, J.L. 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).
30. Pockros, L.A., **Pentkowski, N.S.**, Weber, S.M. and Neisewander, J.L. 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).
29. Bastle, R.M., Kufahl, P.R., Turk, M., **Pentkowski, N.S.**, Thiel, K.J., Weber, S.M. and Neisewander, J.L. Novel and conditioned stimuli reinstate extinguished reward-seeking behavior and induce similar patterns of fos expression. *Society for Neuroscience*, Washington, DC (2011).
28. **Pentkowski, N.S.**, Cheung, T.H.C., Toy, W.A., Adams, M., Jensen, A., Valles, C., Alba, J., Liu, S., Robertson, L., Neumaier, J.F. and Neisewander, J.L. 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).
27. Pockros, L.A. **Pentkowski, N.S.**, Berger, A.L. and Neisewander, J.L. 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).
26. Neisewander, J.L., Thiel, K.J., **Pentkowski, N.S.**, Painter, M.R., Peartree, N.A., Mitroi, D. and Crawford, C.A. 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).
25. Pockros, L.A., **Pentkowski, N.S.**, Swinford, S.E., Robertson, L.M., Ostos, M. and Neisewander, J.L. 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).
24. Thiel, K.J., Engelhardt, B., Hood, L.E., **Pentkowski, N.S.**, Peartree, N.A., Painter, M.R. and

- Neisewander, J.L. Preclinical examination of environmental enrichment as an anti-relapse strategy. Oral Communication, *The College on Problems of Drug Dependence*, Scottsdale, AZ (2010).
23. **Pentkowski, N.S.**, Cheung, T.H.C., Toy, W.A., Liu, S., Neumaier, J.F. and Neisewander, J.L. 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).
 22. Pockros, L.A., **Pentkowski, N.S.**, Swinford, S.E., Shepard, A.J. and Neisewander, J.L. 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).
 21. Perrone-Bizzozero, N., Nixon, S., Bolognani, F., Kufahl, P.R., **Pentkowski, N.S.** and Neisewander, J.L. Decreased expression of miR-495 in the nucleus accumbens after cocaine exposure. *Society for Neuroscience*, Chicago, IL (2009).
 20. Kufahl, P.R., Heintzelman, K., Thiel, K.J., **Pentkowski, N.S.**, Vargas, C., Hood, L and Neisewander, J.L. A novel cue reinstates extinguished cocaine-seeking behavior. *Society for Neuroscience*, Chicago, IL (2009).
 19. Thiel, K.J., Painter, M., Hills, D., **Pentkowski, N.S.**, Sanabria, F., Neisewander, J.L. Environmental enrichment during drug abstinence attenuates cocaine-seeking behavior. *Society for Neuroscience*, Chicago, IL (2009).
 18. Thiel, K.J., Painter, M., Hills, D., Crow, A., Cuhaciyani, C., Sanabria, F., **Pentkowski, N.S.** and Neisewander, J.L. Protective effects of environmental enrichment on cocaine-seeking behavior during abstinence. *The College on Problems of Drug Dependence*, Reno, NV (2009).
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8. **Pentkowski, N.S.** The good and the bad: Social influences on drug abuse. *International Behavioral Neuroscience Society*, Victoria, BC (2015).
7. **Pentkowski, N.S.** Serotonin-1B receptors: A novel target for relapse prevention? *Department of Psychology, University of New Mexico*, Albuquerque, NM (2013).
6. **Pentkowski, N.S.** and Neisewander, J.L. The influence of 5-HT_{1B} receptors on cocaine

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