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Michael A. McDannald

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Education

2008 PhD, Johns Hopkins University, Baltimore, MD
2003 BA, University of Illinois at Urbana-Champaign, Urbana, IL

Positions

2014- Assistant Professor, Boston College, Department of Psychology, Chestnut Hill, MA
2011-2014 Postdoctoral Fellow, National Institute on Drug Abuse, Baltimore, MD
2008-2011 Postdoctoral Fellow, University of Maryland Baltimore, Baltimore, MD
2003-2008 Graduate Student, Johns Hopkins University, Baltimore, MD

Active Grants

2014-2017 NIDA R00-DA034010, *Neural encoding of reward and safety.*
Role: PI

Scored Grants

Nov 2016 NIMH R21-MH113053, *Retrorubral field control of fear.*
(Impact Score: 22, Percentile: 5.0). Council Meeting, January 2017.
Role: PI

Nov 2016 NICHD R01-HD091227, *Early Life Stress Reprograms a Raphe-Amygdala Circuit for Threat Estimation.* (Impact Score: 30, Percentile: 22.0). Resubmit, March 2017.
Role: PI

Submitted Grants

Oct 2016 NIMH R01-MH113931, *Adolescent to adult trajectory of dorsal raphe transcriptome/function in threat assessment: disruption by early life stress.*
Scientific Review, February 2017.
Role: PI

Completed Grants

2012-2014 NIDA K99-DA034010, *Neural encoding of reward and safety*
Role: PI

2008-2011 NINDS T32-NS07375, *Cellular and Integrative Neuroscience*
Role: Postdoctoral Trainee

2005-2008 NIMH F31-MH075302, *Functional anatomy of appetitive and aversive conditioning*
Role: PI

Awards & Activities

2013 Grant Reviewer, French National Research Agency
2012 Outstanding Poster, NIDA-IRP 2012 Awards/Poster Session
2008-pres Undergrad/Grad Mentor

2004-pres Society for Neuroscience Member

Peer Reviewer

Journal of Neuroscience	Translational Psychiatry	Genes, Brains and Behavior
Behavioral Neuroscience	Biological Psychiatry	JEP: General
Neuroscience	Molecular Psychiatry	Current Biology
Neuropsychopharmacology	Learning & Memory	

Teaching

2017 Spring	Behavioral Neuroscience (Undergraduate Survey Course)
2016 Spring	Behavioral Neuroscience (Undergraduate Survey Course)
2015 Spring	Behavioral Neuroscience (Undergraduate Survey Course)
2015 Fall	Cellular Perspectives on Motivated Behavior (Graduate Course)

Publications

DiLeo A, Wright KM and **McDannald MA** (2016). "Sub-second fear discrimination in rats: Adult impairment in adolescent heavy alcohol drinkers." *Learning & Memory* 23: 618-622.

Lopatina N, **McDannald MA**, Steyer CV, Peterson J, Sadacca BF, Cheer JF and Schoenbaum G (2016). "Medial orbitofrontal neurons preferentially signal cues predicting changes in reward during unblocking." *Journal of Neuroscience* 36(32): 8416-8424.

Lopatina N, **McDannald MA**, Steyer CV, Sadacca BF, Cheer JF and Schoenbaum G (2015). "Lateral orbitofrontal neurons acquire responses to upshifted, downshifted, or blocked cues during Pavlovian unblocking." *eLife* 10.7554/eLife.11299.

Wright KM, DiLeo A and **McDannald MA** (2015). "Early adversity disrupts the adult use of aversive prediction errors to reduce fear in uncertainty." *Frontiers in Behavioral Neuroscience* 9:277.

DiLeo A, Wright KM, Mangone E, **McDannald MA** (2015). "Alcohol gains access to appetitive learning through adolescent heavy drinking." *Behavioral Neuroscience* 129(4): 371-9.

Cooch N, Stalnaker TA, Chaudry S, **McDannald MA**, Liu TZ, Wied H, Schoenbaum G (2015). "Orbitofrontal lesions eliminate signaling of biological significance in cue-responsive ventral striatal neurons." *Nature Communications* 6: 7195.

McDannald MA (2015). "Serotonin: Waiting but Not Rewarding." *Current Biology* 25(3): R103-104.

McDannald MA, Esber GR, Wegener MA, Wied H, Liu TL, Stalnaker TA, Jones JL, Trageser J and Schoenbaum G (2014). "Orbitofrontal neurons acquire responses to 'valueless' Pavlovian cues during unblocking." *eLife* 10.7554/eLife.02653.

Berg BA, Schoenbaum G and **McDannald MA** (2014). "The dorsal raphe nucleus is integral to negative prediction errors in Pavlovian fear." *European Journal of Neuroscience* 40: 3096-3101.

Stalnaker TA, Cooch NK, **McDannald MA**, Liu T, Wied H and Schoenbaum G (2014). "Orbitofrontal neurons infer the value and identity of predicted outcomes." *Nature Communications* 5: 3926.

McDannald MA, Jones JL, Takahashi Y and Schoenbaum G (2014). "Learning theory: a driving force in understanding orbitofrontal function." *Neurobiology of Learning and Memory* 108: 22-27.

McDannald MA, Setlow B and Holland PC (2013). "Effects of ventral striatal lesions on first- and second-order appetitive conditioning." *European Journal of Neuroscience* 38: 2589-2599.

Jones JL, Esber GR, **McDannald MA**, Gruber AJ, Hernandez A, Mirenzi A, Schoenbaum G (2012). "Orbitofrontal Cortex Supports Behavior and Learning Using Inferred but not Cached Values." *Science* 338(6109): 953-956.

McDannald MA, Takahashi Y, Lopatina N, Pietras B, Jones JL and Schoenbaum G (2012). "Model-based learning and the contribution of the orbitofrontal cortex to the model-free world." *European Journal of Neuroscience* 35: 991-996.

Chang SE, **McDannald MA**, Wheeler DS, Holland PC (2012). "The effects of basolateral amygdala lesions on unblocking." *Behavioral Neuroscience* 126 (2): 279-289.

Purgert RJ, Wheeler DS, **McDannald MA**, Holland PC (2012). "Role of amygdala central nucleus in aversive learning produced by shock or by unexpected omission of food." *Journal of Neuroscience* 32 (7): 2461-2472.

Schoenbaum G, Liu TL, Takahashi Y, **McDannald MA** (2011). "Does the orbitofrontal cortex signal value?" *Annals of the New York Academy of Sciences.* 1239(1): 87-99.

McDannald MA, Whitt JP, Calhoon GG, Piantadosi PT, Karlsson RM, P O'Donnell and Schoenbaum G (2011). "Impaired reality testing in an animal model of schizophrenia." *Biological Psychiatry* 70 (12): 1122-1126.

Singh T*, Jones JL*, **McDannald MA**, Haney RZ, Cerri DH and Schoenbaum G (2011). "Normal aging does not impair orbitofrontal-dependent reinforcer devaluation effects." *Frontiers in Aging Neuroscience* 3 (4).

McDannald MA, Lucantonio F, Burke KA, Niv Y, and Schoenbaum G (2011). "Ventral striatum and orbitofrontal cortex are both required for model-based, but not model-free, reinforcement learning." *Journal of Neuroscience* 31(7): 2700-2705.

McDannald MA and Galarce EM (2011). "Measuring Pavlovian fear with conditioned freezing and conditioned suppression reveals different roles for the basolateral amygdala." *Brain Research* 1374: 82-89.

Singh T, **McDannald MA**, Takahashi YK, Haney RZ, Kooch NK, Lucantonio F, Schoenbaum G (2011). "The role of the nucleus accumbens in knowing when to respond." *Learning & Memory* 18 (2): 85-87.

Singh T, **McDannald MA**, Haney RZ, Cerri DH, Schoenbaum G (2010). "Nucleus accumbens core and shell are necessary for reinforcer devaluation effects on Pavlovian conditioned responding." *Frontiers in Integrative Neuroscience* 4(126): 1-7.

McDannald MA (2010). "Contributions of the amygdala central nucleus and ventrolateral periaqueductal grey to freezing and instrumental suppression in Pavlovian fear conditioning." *Behavioural Brain Research* 211(1): 111-117.

Galarce EM, **McDannald MA**, and Holland PC (2010). "The basolateral amygdala mediates the effects of cues associated with meal interruption on feeding behavior." *Brain Research* 1350: 112-122.

McDannald MA and Schoenbaum G (2009). "Towards a model of impaired reality testing in rats." *Schizophrenia Bulletin* 35(4) 664-667.

McDannald MA, Saddoris M, Gallagher M, and Holland PC (2005). "Lesions of orbitofrontal cortex impair rats' differential outcome expectancy learning but not CS-potentiated feeding." *Journal of Neuroscience* 25 (18): 4626-4632.

McDannald M, Kerfoot E, Gallagher M and Holland PC (2004). "Amygdala central nucleus function is necessary for learning but not expression of conditioned visual orienting." *European Journal of Neuroscience* 20 (1): 240-8.

Changizi MA, **McDannald MA** and Widders D (2002). "Scaling of differentiation in networks: Nervous systems, organisms, ant colonies, ecosystems, businesses, universities, cities, electronic circuits, and legos." *Journal of Theoretical Biology* 218 (2): 215-237.

Presentations

McDannald MA, Wright KM, DiLeo A. “Sub-second fear discrimination in rats: Adult impairment in adolescent heavy alcohol drinkers.” 2016 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2016. Online.

Wright KM and **McDannald MA**. “The retrorubral field is necessary for accurate fear discrimination in Pavlovian conditioning.” 2016 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2016. Online.

Zacharias RA and **McDannald MA**. “A causal role for the ventrolateral periaqueductal gray in aversive prediction error signaling.” 2016 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2016. Online.

Wright KM, DiLeo A, **McDannald MA**. “Early adversity disrupts the adult use of prediction errors to reduce fear in uncertainty.” 2015 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2015. Online.

Lopatina N, **McDannald MA**, Sadacca BF, Schoenbaum G. “Signaling prediction for size versus value of rewards in rodent orbitofrontal cortex during Pavlovian unblocking.” 2014 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2014. Online.

McDannald MA, Schoenbaum G and Berg BA. “The dorsal raphe nucleus is integral to negative prediction errors in Pavlovian fear.” 2014 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2014. Online.

Galarce EM, Lin WC, **McDannald MA**, Wilbrecht L. “Early life food insecurity decreases flexibility in multiple choice reversal learning in adulthood.” Flux Congress 2014, Hollywood, CA.

McDannald MA, Wegener M, Lucantonio F, Burke KA, Niv Y, Trageser J and Schoenbaum G. “Different critical roles for ventral striatum and orbitofrontal cortex in learning driven by changes in value versus identity.” National Institute on Drug Abuse 2012 Awards/Poster Session. Poster #23.

McDannald MA, Wegener M, Wied H, Liu TL, Stalnaker TA, Jones JL, Esber GR, Trageser J, Schoenbaum G. “Signaling reward prediction for value and identity in rodent orbitofrontal cortex during Pavlovian unblocking.” 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online.

Chang SE, Wheeler DS, **McDannald MA**, Setlow B and Holland PC. “Comparing the effects of nucleus accumbens lesions on various measures of incentive.” 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online.

McDannald MA, Lucantonio F, Burke KA, Niv Y, and Schoenbaum G. “Different critical roles for ventral striatum and orbitofrontal cortex in learning driven by changes in value versus identity.” 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online.

Chang SE, Wheeler DS, **McDannald MA**, Holland PC. “The effects of basolateral amygdala lesions on unblocking.” 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online.

Whitt JP, **McDannald MA**, Calhoon G, Karlsson R, O’Donnell P, Schoenbaum G. “Impaired reality testing in an animal model of schizophrenia.” 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online.

Singh T, **McDannald MA**, Haney RZ, Cerri DH, Schoenbaum G. “An essential role for nucleus accumbens core in behaviors guided by outcome expectancies.” 2010 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online.

McDannald MA, Holland PC. “Conditioned suppression can be mediated by conditioned freezing or conditioned anxiety: Evidence from central amygdala and ventrolateral periaqueductal grey lesions.” Program No. 191.4. 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.

Galarce EM, **McDannald MA**, Holland PC. “BLA but not CEA is involved in the control of meal interruption cues on feeding behavior.” Program No. 943.2. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

McDannald MA, Galarce EM, Johnson J, Crombag HS, Holland PC. “Effects of cues associated with surprising meal interruption on food consumption in mice.” Program No. 934.24. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

Saddoris M, **McDannald MA**, Holland PC, Gallagher M. “Gustatory cortex and basolateral amygdala show different patterns of expression for the representations of rewarding taste outcomes using the immediate early genes Arc and Homer1a.” Program No. 934.29. 2007 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2007. Online.

McDannald MA, Lee JH, Petrovich GD, Haberman RP, Gallagher M, Holland PC. “Distinct Populations of Basolateral Amygdala Neurons are Activated by Appetitive and Aversive Stimuli.” Poster No. 7. Bethesda, MD: National Institute of Mental Health Predoctoral Research Festival, 2006.

Saddoris MP, **McDannald M**, Gallagher M, Holland PC. “Lesions of orbitofrontal cortex interfere with differential-outcome expectancy learning but not CS-potentiated feeding of rats.” Program No. 771.9. 2004 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2004. Online.

McDannald M, Groshek F, Holland PC. “The amygdala and dopaminergic modulation of conditioned orienting in rats.” Program No. 206.9. 2004 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2004. Online.

Invited Talks

2016 May	“The dorsal raphe, early life stress and fear reduction via prediction errors”. Le Centre de recherche en neurosciences de l’Université du Québec à Montréal, Montreal, Quebec, Canada.
2016 March	“Alcohol gains access to appetitive learning through adolescent heavy drinking.” Symposium on Reward Seeking. Eastern Psychological Association 2016 Meeting. New York City, New York, USA.
2015 August	“The dorsal raphe, early adversity and fear reduction via prediction errors”. Computational Neuroscience Program, Brandeis University, Waltham, Massachusetts, USA.
2015 June	“The dorsal raphe, early adversity and fear reduction via prediction errors”. The Center for Depression, Anxiety and Stress Research, McLean Hospital, Belmont, Massachusetts, USA.
2014 November	“A central role for the dorsal raphe nucleus in overcoming fear”. Psychology Department, University of California – Berkeley, Berkeley, California, USA.

Dissertation Committee Member

2016 June	Morgan Freret, Program in Neuroscience, Harvard Medical School