

Curriculum Vitae

1. Personal Information

- a. **Roesch, Matthew Ryan**, University of Maryland, Department of Psychology and Program in Neuroscience and Cognitive Science, College Park, MD, 20742
- b. Current Academic Appointment: *Professor*, University of Maryland, Department of Psychology and Program in Neuroscience and Cognitive Science, College Park, MD, 20742, 2018-present
- c. Other Academic Appointments while at UMD:
 - i. *Director*, Neuroscience and Cognitive Science Program (NACS), University of Maryland, College Park, USA, 2020-present
 - ii. Affiliate Professor in the Department of Biology
- d. Education
 - Ph.D. in Neuroscience, Department of Neuroscience and the Center for the Neural Basis of Cognition at the University of Pittsburgh, Pittsburgh, PA, 2004
 - B.S. with Honors in Neuroscience, Cum Laude, University of Pittsburgh, Pittsburgh, PA, 1997
- e. Employment Background
 - i. Associate Professor, University of Maryland, Department of Psychology and Program in Neuroscience and Cognitive Science, College Park, MD, 20742, 2013-2018
 - ii. Assistant Professor, University of Maryland, Department of Psychology and Program in Neuroscience and Cognitive Science, College Park, MD, 20742, 2009-2013
 - iii. Assistant Professor, University of Maryland School of Medicine, Department of Anatomy and Neurobiology, Baltimore, MD, 21201, 2007-2009
 - iv. Post-Doctoral Fellow, University of Maryland School of Medicine, Department of Anatomy and Neurobiology, Baltimore, MD, 21201, 2004-2007

2. Research, Scholarly and Creative Activities

Peer-Reviewed Articles (Google Scholar: 8104 citations; h-index = 42)

a.1. Book Editor

Brockett AT, Amarante LM, Laubach M, **Roesch MR**. What does medial frontal cortex signal during behavior? Insights from behavioral neurophysiology. *Int Rev Neurobiol.* 2021;158:xv-xviii. doi: 10.1016/S0074-7742(21)00032-5.

a.2. Book Chapters

Brockett AT, **Roesch MR**. Anterior cingulate cortex and adaptive control of brain and behavior. *Int Rev Neurobiol*. 2021;158:283-309. doi: 10.1016/bs.irm.2020.11.013. Epub 2020 Dec 15. PMID: 33785148

Bissonette GB, **Roesch MR**. (2015) Neurophysiology of Reward-Guided Behavior: Correlates Related to Predictions, Value, Motivation, Errors, Attention, and Action. *Curr Top Behav Neurosci*. 2015 Aug 15. Edited by Eleanor Simpson and Peter Balsam.

Schoenbaum, G., **Roesch, M.R.**, Stalnaker, T.A., and Takahashi, Y. (2011) The orbitofrontal cortex and outcome expectancies: optimizing behavior and sensory perception. In: *The Neurobiology of Sensation and Reward*. Edited by J.A. Gottfried.

Roesch, M.R. and Schoenbaum, G (2011) Dissociating encoding of attention, errors and value in outcome-related neural activity. In: *Attention and Performance XXIII*. Edited by M. Delgado, E. Phelps and T.W. Robbins.

Roesch, M.R. and Schoenbaum, G. (2006) From Associations to Expectancies: Orbitofrontal Cortex as Gateway Between the Limbic System and Representational Memory In: *The Orbitofrontal Cortex*. Edited by D.H. Zald and S.L. Rauch.

b. Articles in Journals

Adam T Brockett, Weijian Xue, David King, Chun-Lin Deng, Canjia Zhai, Michael Shuster, Shivangi Rastogi, Volker Briken, **Matthew R Roesch**, Lyle Isaacs. Pillar [6] MaxQ: A potent supramolecular host for in vivo sequestration of methamphetamine and fentanyl. *Chem* Volume 9, Issue 4, Pages 881-900, April 13th, 2023

Vázquez D, Schneider KN, **Roesch MR**. Neural signals implicated in the processing of appetitive and aversive events in social and non-social contexts. *Front Syst Neurosci*. 2022 Aug 3;16:926388. doi: 10.3389/fnsys.2022.926388. eCollection 2022.PMID: 35993086

Brockett AT, Tennyson SS, deBettencourt CA, Kallmyer M, **Roesch MR**. Medial prefrontal cortex lesions disrupt prepotent action selection signals in dorsomedial striatum. *Curr Biol*. 2022 Aug 8;32(15):3276-3287.e3. doi: 10.1016/j.cub.2022.06.025. Epub 2022 Jul 7.PMID: 35803273

Song M, Takahashi YK, Burton AC, **Roesch MR**, Schoenbaum G, Niv Y, Langdon AJ. Minimal cross-trial generalization in learning the representation of an odor-guided choice task. *.PLoS Comput Biol*. 2022 Mar 25;18(3):e1009897. doi: 10.1371/journal.pcbi.1009897. eCollection 2022 Mar.

Pribut HJ, Sciarillo XA, **Roesch MR**. Insula lesions reduce stimulus-driven control of behavior during odor-guided decision-making and autoshaping. *Brain Res*. 2022 Jun 15;1785:147885. doi: 10.1016/j.brainres.2022.147885. Epub 2022 Mar 17.PMID: 35307330

DiMaggio D, Brockett AT, Shuster M, Murkli S, Zhai C, King D, O'Dowd B, Cheng M, Brady K, Briken V, **Roesch MR**, Isaacs L. Anthracene-Walled Acyclic CB[n] Receptors: in vitro and in

vivo Binding Properties toward Drugs of Abuse. *ChemMedChem*. 2022 May 8;17(10):e202200046. doi: 10.1002/cmdc.202200046. Epub 2022 Mar 15. PMID: 35238177

Pribut HJ, Vázquez D, Wei AD, Tennyson SS, Davis IR, **Roesch MR**, Li X.J. Overexpressing Histone Deacetylase 5 in Rat Dorsal Striatum Alters Reward-Guided Decision-Making and Associated Neural Encoding. *Journal of Neurosci*. 2021 Dec 8;41(49):10080-10090. doi: 10.1523/JNEUROSCI.0916-21.2021. Epub 2021 Oct 29. PMID: 34716230

Brockett AT, Deng C, Shuster M, Perera S, DiMaggio D, Cheng M, Murkli S, Briken V, **Roesch MR**, Isaacs L. In Vitro and In Vivo Sequestration of Methamphetamine by a Sulfated Acyclic CB[n]-Type Receptor. *Chemistry*. 2021 Dec 9;27(69):17476-17486. doi: 10.1002/chem.202102919. Epub 2021 Oct 27. PMID: 34613641

Schuweiler DR, Rao M, Pribut HJ, **Roesch MR**. Rats delay gratification during a time-based diminishing returns task. *J Exp Psychol Anim Learn Cogn*. 2021 Oct;47(4):420-428. doi: 10.1037/xan0000305. Epub 2021 Sep 2. PMID: 34472950

Brockett AT, **Roesch MR**. Reactive and Proactive Adaptation of Cognitive and Motor Neural Signals during Performance of a Stop-Change Task. *Brain Sci*. 2021 May 11;11(5):617. doi: 10.3390/brainsci11050617. PMID: 34064876. Review.

Murkli S, Klemm J, Brockett AT, Shuster M, Briken V, **Roesch MR**, Isaacs L. In Vitro and In Vivo Sequestration of Phencyclidine by Me₄ Cucurbit[8]uril*. *Chemistry*. 2021 Feb 10;27(9):3098-3105. doi: 10.1002/chem.202004380. Epub 2021 Jan 19. PMID: 33206421

Alipio JB*, Brockett AT*, Fox ME, Tennyson SS, deBettencourt CA, El-Metwally D, Francis NA, Kanold PO, Lobo MK, **Roesch MR**, Keller A. Enduring consequences of perinatal fentanyl exposure in mice. *Addict Biol*. 2021 Mar 18:e12895. doi: 10.1111/adb.12895.

Brockett AT, **Roesch MR**. The ever-changing OFC landscape: What neural signals in OFC can tell us about inhibitory control. *Behav Neurosci*. 2021 Sep 10. doi: 10.1037/bne0000412. PMID: 32914996

Pribut HJ, Vázquez D, Brockett AT, Wei AD, Tennyson SS, **Roesch MR**. Prior cocaine exposure increases firing to immediate reward while attenuating cue and context signals related to reward value in the insula. *J Neurosci*. 2021 Apr 12;JN-RM-3025-20. doi: 10.1523/JNEUROSCI.3025-20.2021. PMID: 33849944

Brockett AT, Vázquez D, **Roesch MR**. Prediction errors and valence: From single units to multidimensional encoding in the amygdala. *Behav Brain Res*. 2021 Apr 23;404:113176. doi: 10.1016/j.bbr.2021.113176. Epub 2021 Feb 14. PubMed PMID: 33596433; PubMed Central PMCID: PMC7946750.

Schneider KN, Sciarillo XA, Nudelman JL, Cheer JF, **Roesch MR**. Anterior Cingulate Cortex Signals Attention in a Social Paradigm that Manipulates Reward and Shock. *Curr Biol*. 2020 Oct 5;30(19):3724-3735.e2. doi: 10.1016/j.cub.2020.07.039. Epub 2020 Aug 6. PMID: 32763169

Brockett AT, Tennyson SS, deBettencourt CA, Gaye F, **Roesch MR**. Anterior cingulate cortex is necessary for adaptation of action plans. *Proc Natl Acad Sci U S A*. 2020 Mar 17;117(11):6196-6204. doi: 10.1073/pnas.1919303117. Epub 2020 Mar 4.

Vázquez D, Pribut HJ, Burton AC, Tennyson SS, Roesch MR. Prior cocaine self-administration impairs attention signals in anterior cingulate cortex. *Neuropsychopharmacology*. 2020 Apr;45(5):833-841. doi: 10.1038/s41386-019-0578-2. Epub 2019 Nov 27.

Brockett AT, Hricz NW, Tennyson SS, Bryden DW, **Roesch MR**. Neural Signals in Red Nucleus during Reactive and Proactive Adjustments in Behavior. *J Neurosci*. 2020 Jun 10;40(24):4715-4726. doi: 10.1523/JNEUROSCI.2775-19.2020. Epub 2020 May 6. PubMed PMID: 32376779; PubMed Central PMCID: PMC7294803.

Cinotti F, Marchand AR, **Roesch MR**, Girard B, Khamassi M. Impacts of inter-trial interval duration on a computational model of sign-tracking vs. goal-tracking behaviour. *Psychopharmacology (Berl)*. 2019 Aug;236(8):2373-2388. doi: 10.1007/s00213-019-05323-y. Epub 2019 Jul 31.

Bryden DW, Brockett AT, Blume E, Heatley K, Zhao A, and **Roesch MR**. Single neurons in anterior cingulate cortex signal the need to change action during performance of a stop-change task that induces response competition. *Cerebral Cortex* (2019). *Cereb Cortex*. 2019 Mar 1;29(3):1020-1031. doi: 10.1093/cercor/bhy008

Gentry RN, Schuweiler DR, **Roesch MR**. (2019). Dopamine signals related to appetitive and aversive events in paradigms that manipulate reward and avoidability. *Brain Res*. 2019 Jun 15;1713:80-90. doi: 10.1016/j.brainres.2018.10.008. Epub 2018 Oct 6.

Frederick Verbruggen, Adam R Aron, Guido PH Band, Christian Beste, Patrick G Bissett, Adam T Brockett, Joshua W Brown, Samuel R Chamberlain, Christopher D Chambers, Hans Colonius, Lorenza S Colzato, Brian D Corneil, James P Coxon, Annie Dupuis, Dawn M Eagle, Hugh Garavan, Ian Greenhouse, Andrew Heathcote, René J Huster, Sara Jahfari, J Leon Kenemans, Inge Leunissen, Chiang-Shan R Li, Gordon D Logan, Dora Matzke, Sharon Morein-Zamir, Aditya Murthy, Martin Paré, Russell A Poldrack, K Richard Ridderinkhof, Trevor W Robbins, **Matthew Roesch**, Katya Rubia, Russell J Schachar, Jeffrey D Schall, Ann-Kathrin Stock, Nicole C Swann, Katharine N Thakkar, Maurits W van der Molen, Luc Vermeulen, Matthijs Vink, Jan R Wessel, Robert Whelan, Bram B Zandbelt, C Nico Boehler. A consensus guide to capturing the ability to inhibit actions and impulsive behaviors in the stop-signal task (2019). *Elife* 8, e46323

Lichtenberg NT, Lee B, Kashtelyan V, Chappa BS, Girma HT, Green EA, Kantor S, Lagowala DA, Myers MA, Potemri D, Pecukonis MG, Tesfay RT, Walters MS, Zhao AC, Blair RJR, Cheer JF, **Roesch MR** (2018). Rat behavior and dopamine release are modulated by conspecific distress. *Elife*. 2018 Nov 28;7. pii: e38090. doi: 10.7554/eLife.38090.

Lee B, Gentry RN, Bissonette GB, Herman RJ, Mallon JJ, Bryden DW, Calu DJ, Schoenbaum G, Coutureau E, Marchand AR, Khamassi M, **Roesch MR**. Manipulating the revision of reward value during the intertrial interval increases sign tracking and dopamine release. *PLoS Biol*. 2018 Sep 26;16(9):e2004015. doi: 10.1371/journal.pbio.2004015. eCollection 2018 Sep. PMID: 30256785

Brockett, A. T., Pribut, H. J., Vazquez, D., & **Roesch, M. R.** (2018). The impact of drugs of abuse on executive function: characterizing long-term changes in neural correlates following chronic drug exposure and withdrawal in rats. *Learn Mem*, 25(9), 461-473. doi: 10.1101/lm.047001.117

Burton, A. C., Bissonette, G. B., Vazquez, D., Blume, E. M., Donnelly, M., Heatley, K. C., **Roesch, M. R.** (2018). Previous cocaine self-administration disrupts reward expectancy encoding in ventral striatum. *Neuropsychopharmacology*. doi: 10.1038/s41386-018-0058-0

Gentry, R. N., & **Roesch, M. R.** (2018). Neural Activity in Ventral Medial Prefrontal Cortex Is Modulated More Before Approach Than Avoidance During Reinforced and Extinction Trial Blocks. *J Neurosci*, 38(19), 4584-4597. doi: 10.1523/JNEUROSCI.2579-17.2018

Tennyson, S. S., Brockett, A. T., Hricz, N. W., Bryden, D. W., & **Roesch, M. R.** (2018). Firing of Putative Dopamine Neurons in Ventral Tegmental Area Is Modulated by Probability of Success during Performance of a Stop-Change Task. *eNeuro*, 5(2). doi: 10.1523/ENEURO.0007-18.2018

Burton AC, Bissonette GB, Zhao AC, Patel PK and **Roesch MR**. Prior cocaine self-administration increases response-outcome encoding that is divorced from actions selected in dorsal striatum. *Journal of Neuroscience*, 2017, 0897-17 [Mentored grad student: Burton; Mentored undergrads: Pate and Zhao]

Takahashi Y, Stalnaker TA, **Roesch MR**, and Schoenbaum G. Effects of inference on dopaminergic prediction errors depend on orbitofrontal processing. *Behavioral Neuroscience* 131 (2), 127. 2017

Bissonette GB, **Roesch MR**. Neurophysiology of rule switching in the corticostriatal circuit. *Neuroscience*. 2017, 345, 64-76

Gentry R, Lee B, **Roesch, MR**. Phasic dopamine release in the rat nucleus accumbens predicts approach and avoidance performance. *Nature Communications*. 7; 2016 [Mentored grad student: Gentry]

Bissonette GB, **Roesch MR**. Editorial: Neural Circuitry of Behavioral Flexibility: Dopamine and Related Systems. *Front Behav Neurosci*. 2016 Jan 28;10:6. doi: 10.3389/fnbeh.2016.00006.

Bissonette GB, **Roesch MR**. Development and function of the midbrain dopamine system: what we know and what we need to. *Genes Brain Behav*. 2016 15(1), 62-73

Bryden DW, Burton AC, Barnett BR, Cohen VJ, Hearn TN, Jones EA, Kariyil RJ, Kunin A, In Kwak S, Lee J, Lubinski BL, Rao GK, Zhan A, **Roesch MR**. Prenatal Nicotine Exposure Impairs Executive Control Signals in Medial Prefrontal Cortex. *Neuropsychopharmacology*. 2016 Feb;41(3):716-25. [Mentored grad students: Burton and Bryden. Mentored Gemstone Team]

Bissonette GB, **Roesch MR**. Neural correlates of rules and conflict in medial prefrontal cortex during decision and feedback epochs. *Front Behav Neurosci*. 2015 Oct 6;9:266.

Bissonette GB, **Roesch MR**. Rule encoding in dorsal striatum impacts action selection. *Eur J Neurosci*. 2015 Oct;42(8):2555-67.

A Hernandez, AC Burton, P O'Donnell, G Schoenbaum, **MR Roesch**. Altered Basolateral Amygdala Encoding in an Animal Model of Schizophrenia. *J Neuro*, 35 (16), 6394-6400 (2015) [Mentored grad student: Burton]

Bryden DW and **Roesch MR**. Executive control signals in orbitofrontal cortex during response inhibition. *J Neuro*, 35 (16), 6394-6400; (2015) [Mentored grad student: Bryden]

Bissonette GB, Schoenbaum G, **Roesch MR**, and Powell EM. Interneurons are necessary for coordinated activity during reversal learning in orbitofrontal cortex. *Biological Psychiatry* (2015; 77(5), 454-464)

Kashtelyan V, Lichtenberg NT, Chen ML, Cheer JF, and **Roesch MR**. Observation of reward delivery to a conspecific modulates dopamine release in ventral striatum. *Current Biology*; 2014; 24 (21), 2564-2568

Bissonette GB, Bryden DW, and **Roesch MR**. You won't regret reading this. *Nature Neuroscience* 17(7):892-3. (2014) [Mentored grad student: Bryden]

Burton AC, Nakamura K, **Roesch MR**. From ventral-medial to dorsal-lateral striatum: Neural correlates of reward-guided decision-making. *Neurobiol Learn Mem*. 2015 117, 51-59. [Mentored grad student: Burton]

Bissonette, GB, Gentry RN, Padmala S, Pessoa L, **Roesch MR**. Impact of appetitive and aversive outcomes on brain responses: linking the animal and human literatures. *Frontiers in Systems Neuroscience*. *Front Syst Neurosci*. 2014 Mar 4;8:24. [Mentored grad student: Gentry]

Lichtenberg NT, Kashtelyan V, Burton AC, Bissonette GB, **Roesch MR**. Nucleus Accumbens Core lesions enhance two-way active avoidance. *Neuroscience*. 2014, Jan 31. [Mentored grad student: Burton]

Burton, A.C., Bissonette, G.B., Lichtenberg, N.T., Kashtelyan, V. & **Roesch, M.R.** (2014) Ventral Striatum Lesions Enhance Stimulus and Response Encoding in Dorsal Striatum. *Biological psychiatry*. [Mentored grad student: Burton]

Bissonette, G.B., Burton, A.C., Gentry, R.N., Goldstein, B.L., Hearn, T.N., Barnett, B.R., Kashtelyan, V. & **Roesch, M.R.** (2013) Separate populations of neurons in ventral striatum encode value and motivation. *PLoS One*, 8, e64673. [Mentored grad student: Burton]

Bissonette, G.B., Powell, E.M. & **Roesch, M.R.** (2013) Neural structures underlying set-shifting: roles of medial prefrontal cortex and anterior cingulate cortex. *Behavioural brain research*, 250, 91-101.

Burton, A.C., Kashtelyan, V., Bryden, D.W. & **Roesch, M.R.** (2013) Increased Firing to Cues That Predict Low-Value Reward in the Medial Orbitofrontal Cortex. *Cerebral cortex*. [Mentored grad student: Burton and Bryden]

Roesch MR, Esber GR, Bryden DW, Cerri DH, Haney ZR, Schoenbaum G. Normal aging alters learning and attention-related teaching signals in basolateral amygdala. *J Neurosci*. 2012 Sep 19;32(38):13137-44. [Mentored grad student: Bryden]

Bryden DW, Burton AC, Kashtelyan V, Barnett BR, **Roesch MR**. Response inhibition signals and miscoding of direction in dorsomedial striatum. *Front Integr Neurosci*. 2012;6:69. [Mentored grad student: Bryden and Burton; Mentored undergrad student: Barnett]

Roesch MR*, Esber GR*, Bali S, Trageser J, Bissonette GB, Puche A, Holland PC, and Schoenbaum G. Attention-related Pearce-Kay-Hall signals in basolateral amygdala require the midbrain dopaminergic system. *Biol Psychiatry*. 2012 Dec 15;72(12):1012-9.

Stalnaker TA, Calhoon G, Ogawa M, **Roesch MR** and Schoenbaum G. Reward prediction error signaling in dorsomedial striatum is action-specific. *J Neurosci*. 2012 Jul 25;32(30):10296-305.

Roesch MR, Bryden DW, Cerri DH, Haney ZR and Schoenbaum G. Willingness to wait and the encoding of time-discounted reward in the orbitofrontal cortex of aged rats. (*J Neurosci*. 2012 Apr 18;32(16):5525-33) [Mentored grad student: Bryden]

Roesch MR, Esber GR, Li J, Daw ND and Schoenbaum. Surprise! Neural correlates of Pearce-Hall and Rescorla-Wagner coexist in the brain. *Eur J Neurosci* (2012 Apr;35(7):1190-200) Invited Review.

Goldstein BL, Barnett BR, Vasquez G, Tobia SC, Kashtelyan V, Burton AC, Bryden DW, **Roesch MR**. Ventral striatum encodes past and predicted value independent of motor contingencies. *J Neurosci*. 2012 Feb 8;32(6):2027-36. [Mentored undergrad students: Goldstein, Barnett and Kashtelyan; Mentored grad students: Bryden and Burton]

Kashtelyan V, Tobia SC, Burton AC, Bryden DW, **Roesch MR**. Basolateral amygdala encodes upcoming errors but not response conflict. *Eur J Neurosci*. 2012 Feb 22. [Mentored undergrad students: Kashtelyan; Mentored grad students: Bryden and Burton]

Bryden DW, Johnson EE, Tobia SC, Kashtelyan V, **Roesch MR**. Attention for learning signals in anterior cingulate cortex. *J Neurosci*. 2011 Dec 14;31(50):18266-74. [Mentored undergrad students: Johnson and Kashtelyan; Mentored grad student: Bryden]

Takahashi YK, **Roesch MR**, Wilkson RC, Toreson K, O'Donnell P, Niv Y, and Schoenbaum G. Expectancy-related changes in firing of dopamine neurons depend on orbitofrontal cortex. *Nat Neurosci*. 2011 Oct 30;14(12):1590-7.

Roesch, MR and Bryden, DW., Impact of time-discounted reward on neural activity in the rat limbic corticostriatal system, *Front Neurosci*. 2011;5:130 Invited Review. [Mentored grad student: Bryden]

Bryden DW, Johnson EE, Diao E and **Roesch MR**, Impact of expected value on neural activity in rat substantia nigra pars reticulata. (2011) *European Journal of Neuroscience* Jun;33(12):2308-17. [Mentored undergrad students: Johnson and Diao; Mentored grad student: Bryden]

Gruber, A.J., Calhoon, G.G., Shusterman, I., Schoenbaum, G., **Roesch, M.R.**, and O'Donnell, P. (2010) More is less: a disinhibited prefrontal cortex impairs cognitive flexibility. *Journal of Neuroscience*. 30:17102-17110.

Calu DJ, **Roesch MR**, Haney RZ, Holland PC, Schoenbaum G. Neural correlates of variations in event processing during learning in central nucleus of amygdala. *Neuron* 2010 Dec 9;68(5):991-1001. [Mentored grad student: Calu]

Roesch MR, Calu DJ, Esber GR, Schoenbaum G. All that glitters ... dissociating attention and outcome expectancy from prediction errors signals. *J Neurophysiol.* 2010 Aug;104(2):587-95. Epub 2010 Jun 16. Invited Review

Stalnaker TA, Calhoon GG, Ogawa M, **Roesch MR**, Schoenbaum G. Neural correlates of stimulus-response and response-outcome associations in dorsolateral versus dorsomedial striatum. *Front Integr Neurosci.* 2010 May 19;4:12.

Roesch MR, Calu DJ, Esber GR, Schoenbaum G. Neural correlates of variations in event processing during learning in basolateral amygdala. *J Neurosci.* 2010 Feb 17;30(7):2464-71. [Mentored grad student: Calu]

Schoenbaum G, **Roesch MR**, Stalnaker TA, Takahashi YK. A new perspective on the role of the orbitofrontal cortex in adaptive behaviour. *Nat Rev Neurosci.* 2009 Nov 11.

Roesch MR, Singh T, Brown PL, Mullins SE, Schoenbaum G. Ventral striatal neurons encode the value of the chosen action in rats deciding between differently delayed or sized rewards. *J Neurosci.* 2009 Oct 21;29(42):13365-76. [Mentored grad student: Singh]

Roesch, M.R. *, Yuji K. Takahashi*, Thomas A Stalnaker, Richard Z Haney, Donna J Calu, Adam R Taylor, Kathryn A Burke, and Geoffrey Schoenbaum. (2009) The orbitofrontal cortex is necessary for *learning!* *Neuron.* Apr 30;62(2):269-80.

Stalnaker, T.A., Takahashi, Y., **Roesch, M.R.**, and Schoenbaum, G. (2008) Neural substrates of cognitive inflexibility after chronic cocaine exposure. *Neuropharmacology.* 2008 Jul 22.

Roesch, M.R.,* Takahashi Y*, Stalnaker T.A., and Schoenbaum, G. (2007) Cocaine shifts balance of cue-evoked firing from ventral to dorsal striatum. *Front Integr Neurosci.* 2007 Dec;1(11)

Roesch*, M.R., Calu*, D.J. and Schoenbaum G., (2007) Dopamine neurons in rat ventral tegmental area encode the more valuable option when deciding between differently sized and delayed rewards. *Nat Neurosci:* Dec;10(12):1615-24. [Mentored grad student: Calu]

Roesch, M.R. and Olson C.R. (2007) Neural activity related to anticipated reward: Does it represent value or reflect motivation? *Ann N Y Acad Sci* Invited Review

Stalnaker, T.A., **Roesch, M.R.**, Franz, T.M., Calu, D.J., Burke K.A., Singh T. and Schoenbaum, G. (2007) Cocaine-induced decision-making deficits are mediated by miscoding in basolateral amygdala. *Nat Neurosci* 10, 949-51.

Stalnaker, T.A., **Roesch M.R.**, Calu, D.J., Burke K.A., Singh T. and Schoenbaum, G. (2007) Neural correlates of inflexible behavior in the orbitofrontal-amygdalar circuit after cocaine exposure. *Ann N Y Acad Sci* May;1104:21-34.

Roesch, M.R., Takahashi, Y., Gugs, N., Bissonette, G.B. & Schoenbaum, G. Previous cocaine exposure makes rats hypersensitive to both delay and reward magnitude. *J Neurosci.* 27, 245-50 (2007).

Roesch, M.R., Calu D.J., Burke K.A. & Schoenbaum G (2007). Should I stay or should I go? Transformation of time-discounted rewards in orbitofrontal cortex and associated brain circuits. *Ann N Y Acad Sci*, 1104:21-34 Invited Review.

Calu, D.J., **Roesch, M.R.**, Stalnaker, T.A. & Schoenbaum, G. (2007) Associative Encoding in Posterior Piriform Cortex during Odor Discrimination and Reversal Learning. *Cereb Cortex* Jun;17(6):1342-9. Epub 2006 Aug 1

Roesch, M.R., Stalnaker, T.A. & Schoenbaum, G. (2007) Associative Encoding in Anterior Piriform Cortex versus Orbitofrontal Cortex during Odor Discrimination and Reversal Learning. *Cereb Cortex* Mar;17(3):643-52. Epub 2006 May 12

Stalnaker, T.A., **Roesch, M.R.**, Franz, T.M., Burke, K.A. & Schoenbaum, G. (2006) Abnormal associative encoding in orbitofrontal neurons in cocaine-experienced rats during decision-making. *Eur J Neurosci* 24, 2643-53.

Roesch, M.R., Taylor, A.R. & Schoenbaum, G. (2006) Encoding of time-discounted rewards in orbitofrontal cortex is independent of value representation. *Neuron* 51, 509-20.

Schoenbaum, G., **Roesch, M.R.** & Stalnaker, T.A. Orbitofrontal cortex, decision-making and drug addiction. *Trends Neurosci* 29, 116-24 (2006). Invited Review

Schoenbaum, G., and **Roesch M.**, (2005) Orbitofrontal cortex, associative learning, and expectancies. *Neuron* 47(5):633-636.

Roesch, M.R. and Olson, C.R. (2005) Neuronal activity in primate orbitofrontal cortex reflects the value of time. *J Neurophysiol* 94, 2457-71.

Roesch, M.R. and Olson, C.R. (2005) Neuronal Activity Dependent on Anticipated and Elapsed Delay in Macaque Prefrontal Cortex, Frontal and Supplementary Eye Fields and Premotor Cortex. *J Neurophysiol.* (2):1469-97

Nakamura K, **Roesch, M.R.** and Olson C.R. (2005) Neuronal activity in macaque SEF and ACC during performance of tasks involving conflict. *J Neurophysiol.* Feb;93(2):884-908.

Roesch, M.R. and Olson, C.R. (2004) Neuronal Activity Related to Reward Value and Motivation in Primate Frontal Cortex. *Science.* Apr 9;304(5668):307-10.

Roesch, M.R. and Olson, C.R. (2003) Neuronal Activity Related to Magnitude of Predicted Reward in Macaque Prefrontal Cortex, Frontal and Supplementary Eye Fields and Premotor Cortex. *J. Neurophysiol.* 90: 1766-1789

Rinaman, L., **Roesch, M.R.** and Card, J.P. (1999) Retrograde Transynaptic Pseudorabies Virus Infection of Central Autonomic Circuits in Neonatal Rats. *Developmental Brain Research* 114: 207-216.

* indicates joint first authors.

c. Invited talks

Frontal Cortex Gordon Conference, Discussion Leader, Ventura CA, 2022
The Society for the Quantitative Analysis of Behavior, 2020
Workshop Computational Properties of the Prefrontal Cortex, Nashville, 2018
Monitoring Molecules in Neuroscience meeting at Oxford, 2018
National Institute on Drug Abuse (NIDA) IRP, Baltimore, 2018
Winter Conference on Brain Research, Big Sky, 2017
Pavlovian Society Conference, Jersey City, 2016
Roots of Compassion, UMD, College Park, 2016
National Institute of Health, ANGST meeting, Bethesda, 2016
Center for Behavioral Neuroscience at American University, Washington DC, 2015
Center for the Neural Basis of Cognition, Carnegie Mellon & Pitt, Pittsburgh, 2015
Scientific Research Center on Decision Neuroscience and Aging, Florida, 2015
Center for the Neural Basis of Cognition, 20 Anniversary speaker, Pittsburgh, 2014
Workshop on Computational Properties of Prefrontal Cortex, Whistler, 2014
Scientific Research Center on Decision Neuroscience and Aging, Florida, 2014
NIDA Behavioral Branch, Baltimore, 2012
Brain awareness week, McDaniel College, 2011
Maryland Psi Chi Honor Society, 2011
Winter Brain Conference, 2008, 2009
Neural Basis of Flexible Associate Learning, SFN, 2008
Mechanism of Brain and Mind, Japan, 2008
Lab visit, Dr. Minuro Kimura, Japan 2008
Brain, Mind, and Society seminar series, Caltech, 2008
Neural Circuits and Decision Making in Rodents, Janelia Farm, 2008
Program in Neuroscience Retreat, University of Maryland, 2008
European Brain and Behavior Society, Italy, 2007
National Eye Institute, Laboratory of Sensorimotor Research, 2007
Linking Affect to Action: Critical Contribution of Orbitofrontal Cortex, 2007

f. Colloquia and Research Presentations

Kang N, Pribut H, **Roesch MR**. Do rats that have previously self-administered cocaine delay gratification? *Society for Neuroscience 2022*

Ashton SE, Sharalla P, Kang N, Brockett AT, **Roesch MR**, McCarthy MM. Characterization of social and cognitive behaviors across the lifespan in a “two-hit” rat model of neuropsychiatric developmental disorders. *Society for Neuroscience 2022*

Vazquez D, Stalnaker TA, Solway A, **Roesch MR**. Optogenetic inhibition of the anterior cingulate cortex impairs task engagement during complex reward-guided decision-making. *Society for Neuroscience 2022*

Vazquez D, **Roesch MR**. Lesions of the anterior cingulate cortex impairs task engagement and ensemble encoding in dorsomedial striatum during reward-guided decision-making, with minimal impact on single-unit firing. *Society for Neuroscience 2021*

Brockett AT, Tennyson SS, Debettencourt CA, Kallmyer MA, **Roesch MR**. Response signals in dorsal medial striatum and behavior are dependent on medial prefrontal cortex. *Society for Neuroscience 2019*

Pribut HJ, Vazquez DA, We AD, Tennyson, SS, Davis IR, **Roesch MR**, Li X. Neural correlates of dorsolateral striatum under HDAC5 overexpression during a decision-making task. *Society for Neuroscience 2019*

Schneider KN, Sciarillo X, Nudelman JF, Cheer JF, **Roesch MR**. Learning vicariously - Role of anterior cingulate cortex in social cognition. *Society for Neuroscience 2019*

Schuweiler DR, Vazquez MR, **Roesch MR**. A modified actor-critic learning model suggests anterior cingulate cortex maintains eligibility traces for learning. *Society for Neuroscience 2019*

Anna Li and **Matthew Roesch**. Role of epigenetic mechanisms in striatum in neuronal encoding of decision-making during incubation of methamphetamine (Meth) craving. *BBI symposium 2018*

Heather J Pribut, Daniela Vazquez, Alice D Wei, Stephen S Tennyson, Ian R Davis, **Matthew R Roesch**, & Xuan Li, Neural correlates of dorsolateral striatum under HDAC5 overexpression during a decision-making task. *BBI symposium 2018*

Heather Pribut, Adam Brockett, Daniela Vazquez, Elaine Alvarez, and **Matthew Roesch** 419.02. Neural activity of anterior insula during a size-delay task is enhanced after cocaine exposure. *Society for Neuroscience 2018*

Daniela Vazquez, Amanda Burton, Heather Pribut, Stephen Tennyson, and **Matthew Roesch**. Modulatory effects of cocaine intake and escalation on anterior cingulate encoding during reward-guided decision-making. *Society for Neuroscience 2018*

Adam Brockett, Stephen Tennyson, Fatou Gaye, and **Matthew Roesch**. Establishing a role for ACC in the modulation of directionally selective neurons in DMS in rats performing a stop-change task. *Society for Neuroscience 2018*

Angela Langdon, Yuji Takahashi, **Matthew Roesch**, Geoffrey Schoenbaum, Yael Niv. Dynamic neural representation of reward predictions in rat ventral striatum during learning. *Society for Neuroscience 2017*

Brian Lee, Ronny Gentry, Gregory B Bissonette, Rae J Herman, John J Mallon, Daniel W Bryden, Donna J Calu, Geoffrey Schoenbaum, Etienne Coutureau, Alain R Marchand, Mehdi Khamassi, and **Matthew R Roesch**. Lengthening the intertrial interval increases sign tracking and dopamine release to conditioned and unconditioned stimuli. *Society for Neuroscience 2017*

Stephen Tennyson, Daniel W Bryden, Nick Woytowitz, Nick W Hricz, and **Matthew R. Roesch**. Modulation of putative dopamine neuron firing in rat ventral tegmental area during performance of a stop-change task. *Society for Neuroscience 2017*

Daniela Vázquez, Amanda C Burton, Stephen S Tennyson, **Matthew R Roesch**. Impact of cocaine self-administration on anterior cingulate encoding in rats performing a reward-guided decision-making task. *Society for Neuroscience 2017*

Marchand A, Gentry R, Khamassi M, Calu D, **Roesch, MR**, and Coutureau E, Dopaminergic control of individual differences in appetitive learning. *European Brain and Behavior Society* 2017

Marchand, A.R., Gentry, R., Khamassi, M., Calu, D., **Roesch, M.R.**, Coutureau, E. Neurobehavioral determinants of individual differences in appetitive learning. *NeuroFrance* 2017

Gentry, R.N. and Roesch, M.R., The role of infralimbic prefrontal cortex during behaviors guided by reward and punishment avoidance. *NeuroFrance* 2017

Langdon A, Takahashi T, **Roesch MR**, Schoenbaum G, Niv Y. "Dynamic neural representation of reward predictions in rat ventral striatum during learning" (#502) Computational and Systems Neuroscience 2017 (COSYNE2017):

Roesch M R, Lee B, Myers MA, Chappa BS, Walters MS, Kantor S, Pecukonis MG, Green EA, Potemri D, Lagowala DA, Mellinger EG, Girma RT. 66.13. Subsecond dopamine signaling of reward and punishment is modulated by social context. *SfN* 2016

Burton AC, Bissonette GB, Heatley KC, Blume EM, Donnelly ML, **Roesch MR**. 349.07. The impact of cocaine self-administration on value signals in ventral striatum. *SfN* 2016

Gentry RN and **Roesch MR**. 818.10. The role of infralimbic prefrontal cortex during behaviors guided by reward and punishment avoidance. *SfN* 2016

Manchand AR, Coutureau E, Khamassi M, and **Roesch MR**. Neurobehavioral assessment of a computational model of reward learning (STGT) *CRCNS conference* 2016 (Paris)

A. C. Burton, G. B. Bissonette, A. C. Zhao, P. K. Patel, M. R. **Roesch**. Cocaine self-administration enhances response-outcome encoding in dorsal striatum. 537.03/BB56, *SFN* 2015

Dooling RJ, Roesch MR, and Manabe K. Interval timing in Zebrafish (*Danio rerio*). *ABAI's 41st Annual Convention*, May 22–26, 2015

Barnett BR, Cohen VJ, Hearn TN, Jones EA, Kariyil RJ, Kunin A, Kwak S, Lee J, Lubinski BL, Rao GK, Zhan A, Bryden DW, Burton AC, and **Roesch MR**. Impact of prenatal nicotine exposure on impulsivity and neural activity in medial prefrontal cortex (Workshop on Computational Properties of Prefrontal Cortex 2014)

Bissonette G, Butts DA, **Roesch MR**; Examination of neural encoding in Medial Dorsal Striatum during rule shifting. *SFN* 2014

Gentry RN, **Roesch MR**; Neural firing in the bed nucleus of the stria terminalis (BNST): Cue and reward modulation during reversals. *SFN* 2014

Bryden DW, Burton A, **Roesch MR**; Impact of response inhibition on activity in frontal cortex and dorsal striatum. *SFN* 2014

Savory N, Burton A, Bissonette G, **Roesch MR**. Impact of Cocaine Self-administration on Escape-avoidance. Annual Biomedical Research Conference for Minority Students (ABRCMS 2014)

Bissonette GB, **Roesch MR**, and Powell EM. Genetic variations lead to differential trajectories of interneuron ontogeny, behavior and physiological correlates (GABAergic Signaling in Health and Disease; Neuropharmacology Conference 2014)

Gentry RN, Kashtelyan V, Lichtenberg NT, Sayed N, Lee B, **Roesch MR**. Yin and yang: How expected reward and punishment modulate behavior and its corresponding neural signals (BRIDGES, University of Maryland, 2013)

Burton AC, Bissonette GB, Lichtenberg N, Kashtelyan V, and **Roesch MR**. Ventral striatum lesions enhance stimulus and response encoding in dorsal striatum (BRIDGES, University of Maryland, 2013)

Bryden DW, **Roesch MR**. The role of medial and lateral orbitofrontal cortex in response inhibition (BRIDGES, University of Maryland, 2013)

Gentry RN, Kashtelyan V, Lichtenberg NT, Sayed N, Lee B, **Roesch MR**. Yin and yang: How expected reward and punishment modulate behavior and its corresponding neural signals (SFN 2013)

Burton AC, Bissonette GB, Lichtenberg N, Kashtelyan V, and **Roesch MR**. Ventral striatum lesions enhance stimulus and response encoding in dorsal striatum (SFN 2013)

Bissonette GB, **Roesch MR**. Neural and behavioral examination of Medial Dorsal Striatal function during rule shifting (SFN 2013)

Barnett BR, Cohen VJ, Hearn TN, Jones EA, Kariyil RJ, Kunin A, Kwak S, Lee J, Lubinski BL, Rao GK, Zhan A, Bryden DW, Burton AC, and **Roesch MR**. Impact of prenatal nicotine exposure on impulsivity and neural activity in medial prefrontal cortex (SFN 2013)

Kashtelyan V, Lichtenberg, NT, Chen, ML, Cheer JF, **Roesch MR**. Observation of reward delivery to a conspecific promotes dopamine release in ventral striatum (SFN 2013)

Bryden DW, **Roesch MR**. The role of medial and lateral orbitofrontal cortex in response inhibition (SFN 2013)

J Bellot, O Sigaud, **MR Roesch**, G Schoenbaum, B Girard, M Khamassi. Dopamine neurons activity in a multi-choice task: reward prediction error or value function? Proceedings of the French Computational Neuroscience NeuroComp/ KEOps 2012

Bryden DW, Burton AC, Kashtelyan V, Barnett BR, and **Roesch MR**. Response inhibition signals and miscoding of direction in dorsomedial striatum (SFN 2012)

Bissonette GB, Goldstein BL, Burton AC, Kashtelyan V and **Roesch MR**. Increased firing in ventral striatum associated with reward and punishment (SFN 2012)

Burton AC, Kashtelyan V, Bryden DW and **Roesch MR**. Increased firing to cues that predict low value reward in medial orbitofrontal cortex (SFN 2012)

Roesch MR, Goldstein G, Vasquez SC, Tobia SC. Burton A, and Bryden DW. Independent and integrated representations of action and outcome in ventral striatum (SFN 2011)

Bryden DW, Tobia SC, Kashtelyan V, **Roesch, MR**. Activity in anterior cingulate cortex increases on behavioral trials after reward contingencies unexpectedly change (SFN 2011)

Stalnaker TA, Calhoon GG, Ogawa M, **Roesch MR** and Schoenbaum G. Signaling of reward prediction errors by fast-spiking interneurons in dorsomedial striatum is specific for the action that produced them (SFN 2011)

Bryden DW and **Roesch MR**. Neurons in substantia nigra pars reticulata encode expected outcome and response bias in rats deciding between differently valued rewards. (2010) Society for Neuroscience abstracts.

Takahashi, Y.K., **Roesch, M.R.**, Wilson, R., Niv, Y., Toreson, K., O'Donnell, P., and Schoenbaum, G. (2010) Orbitofrontal cortex is required for expectancy-related changes in phasic firing of midbrain dopamine neurons. Critical Contributions of the Orbitofrontal Cortex to Behavior. A NYAS Meeting, NYC.

Wilson, R., Takahashi, Y.K., **Roesch, M.R.**, Schoenbaum, G., and Niv, Y. (2010) A computational model of the role of orbitofrontal cortex and ventral striatum in signaling reward expectancy in reinforcement learning. Neuroscience Abstracts.

Calhoon, G.G., Shusterman, I., Gruber, A., **Roesch, M.**, Schoenbaum, G., and O'Donnell, P. (2010) Cognitive flexibility in rats with a neonatal ventral hippocampal lesion is associated with a disinhibited prefrontal cortex. Neuroscience Abstracts.

Takahashi, Y.K., **Roesch, M.R.**, Wilson, R., Niv, Y., Toreson, K., O'Donnell, P., and Schoenbaum, G. (2010) Orbitofrontal cortex is required for expectancy-related changes in phasic firing of midbrain dopamine neurons. Neuroscience Abstracts.

Esber, G.R., **Roesch, M.R.**, Bissonette, G., Puche, A., Holland, P.C., and Schoenbaum, G. (2010) Attention-related teaching signals in basolateral amygdala do not require input from midbrain dopamine neurons. Neuroscience Abstracts.

Cerri, D.H., Haney, R.Z., Bryden, D.W., **Roesch, M.R.**, and Schoenbaum, G. (2010) Delayed reward is discounted less in the orbitofrontal cortex of aged rats. Neuroscience Abstracts.

Calu, D.J., **Roesch, M.R.**, Haney, R.Z., Holland, P.C., and Schoenbaum, G. (2010) Neural correlates of variations in event processing during learning in central nucleus of amygdala. Neuroscience Abstracts.

Calu, D.J., **Roesch, M.R.**, and Schoenbaum, G. (2010) Neural activity in central nucleus of amygdala drives increased CS and US processing in response to decrements, but not increments, in reward value. Winter Conference on Brain Research. Breckenridge, CO.

Takahashi, Y.K., **Roesch, M.R.**, Trageser, J.C., and Schoenbaum, G. (2010) Ipsilateral orbitofrontal lesions alter signaling of reward prediction errors by dopamine neurons in ventral tegmental area. Winter Conference on Brain Research. Breckenridge, CO.

Stalnaker, TA, Calhoon, G, Ogawa, M, **Roesch, MR**, Schoenbaum, G. (2009) Neural correlates of stimulus-response and response-outcome associations in dorsolateral versus dorsomedial striatum. Neuroscience Abstracts.

- Gruber, AJ, **Roesch**, MR, Shusterman, I, Schoenbaum, G, and O'Donnell, P. (2009) Systemically administered mGluR 2/3 agonist attenuates impairments of value-based decision making in the neonatal hippocampal lesion model of schizophrenia. Neuroscience Abstracts.
- Roesch, M.R.**, Calu, D.C., and Schoenbaum, G. (2008) Changes in reward-related signaling in the basolateral amygdala – attention or error signaling? Society for Neuroscience
- T. Singh, P.L Brown, S.E. Mullins, G. Schoenbaum, & **M.R. Roesch**. (2008) Decision-related activity in ventral striatum reflects value and direction. Society for Neuroscience
- A.J. Gruber, P. O'Donnell, G. Schoenbaum, and **M.R. Roesch**. (2008) Altered behavior and cortical neural activity during an economic decision making task in a developmental rodent model of schizophrenia. Society for Neuroscience
- Stalnaker T.A., Singh, T., Calu, D.J., **Roesch, M.R.** and Schoenbaum, G. (2007) Lesions of basolateral amygdala eliminate the reversal impairment caused by cocaine exposure. Society for Neuroscience
- Roesch, M.R.**, Calu, D.J. and Schoenbaum, G. (2007) Dopamine neurons in rat ventral tegmental area encode the more valuable option when deciding between immediate versus delayed rewards. Society for Neuroscience
- Takahashi, Y.K., **Roesch, M.R.**, Stalnaker, T.A. and Schoenbaum, G. (2007) Cocaine shifts the balance of associative encoding during decision-making from ventral to dorsolateral striatum. Society for Neuroscience
- Calu, DJ, **Roesch**, MR, and Schoenbaum, G. (2007) A comparison of reward-related activity during learning in VTA and OFC. Linking Affect to Action: Critical Contributions of the Orbitofrontal Cortex. A NYAS Meeting, NYC.
- Calu D.J., **Roesch, M.R.** and Schoenbaum, G. (2007) Orbitofrontal cortex does not signal reward prediction errors. Society for Neuroscience
- Roesch M.R.**, Takahashi Y, Gugs N, Bissonette, G.B. and Schoenbaum G. (2006) Previous cocaine exposure makes rats hypersensitive to reward size and delay length. Society for Neuroscience
- Calu D.J., **Roesch M.R.**, Stalnaker, T.A. and Schoenbaum G. (2006) Associative encoding in posterior piriform cortex during odor discrimination and reversal learning. Society for Neuroscience
- Stalnaker, T.A., **Roesch, M.R.**, Franz, T., Burke, K.A., and Schoenbaum, G. (2005) Orbitofrontal cortex fails to represent bad outcomes after cocaine exposure. CPDD. Orlando, FL.
- Calu D.J., Stalnaker T.A., **Roesch M.R.**, Franz T.M. and Schoenbaum, G. (2005). Basolateral amygdala generates abnormally persistent presentations of predicted outcomes and cue value after cocaine exposure. Society for Neuroscience

Schoenbaum G, Stalnaker T.A., **Roesch M.R.** (2005) Associative encoding in anterior piriform cortex versus orbitofrontal cortex during odor discrimination and reversal learning. Society for Neuroscience

Stalnaker, T.A., **Roesch, M.R.**, Franz, T., Burke, K.A., and Schoenbaum, G. (2005) Orbitofrontal cortex fails to represent bad outcomes after cocaine exposure. CPDD.

Roesch M.R. and Olson C.R., (2003). Distinguishing Reward Representation from Motivational Modulation in Primate Frontal Cortex. Society for Neuroscience

Sather B.L., **Roesch M.R.**, and Olson C.R., (2003). Unilateral Reversible Inactivation of Macaque FEF Produces an Impairment of Saccadic Target Selection as Distinct from a Contralateral Neglect. Society for Neuroscience

Nakamura K., **Roesch M.R.** and Olson C.R., (2002), Error Signals in Macaque Medial Frontal Cortex during Performance of an Oculomotor Task with Conflict. Society for Neuroscience: 464.7

Roesch M.R. and Olson C.R., (2001). Neurons in monkey supplementary eye field and prefrontal cortex exhibit different patterns of dependence on expected reward and delay. Society for Neuroscience: 59.4

Nakamura K., **Roesch M.R.**, Arai, K and Olson C.R., (2001), Effect of conflict on distinct classes of neurons in the supplementary eye field and prefrontal cortex. Society for Neuroscience: 59.5

Arai K., **Roesch M.R.**, Nakamura, K. and Olson C.R., (2001) Classification of supplementary eye field and prefrontal neurons into categories based on temporal pattern of activity. Society for Neuroscience: 59.6

Roesch M.R., Nakamura K and Olson C.R., (2000). Performance of Monkeys on Oculomotor Tasks Involving Stimulus-Response Incompatibility. Society for Neuroscience: 362.6

Roesch M.R. and Olson C.R. (1999). Neuronal Activity Related to Expected Reward and Expected Delay in Macaque Prefrontal Cortex. Society for Neuroscience: 355.2.

g. Sponsored Research: Grants

Principal Investigator, R01: Restoration and Further assessment of the Actor-Critic and Connected Areas After Cocaine Self-Administration. 2011-2027. Amount: \$1,796,081 (NIDA 2 R01 DA031695-06).

Co-Investigator, R25: Mid-Atlantic Neuroscience Diversity Scholars (MiNDS) program grant (NIH) award to Temple, which is a 5-year program to bolster the number of underrepresented minority students within the neurosciences at Temple, Lincoln and University of Maryland. 2021-2025

Principal Investigator (Co-PI: Joe Cheer), R01: Neural Mechanisms of Decisions Made in the Context of Social Distress. 2017-2022. Amount: \$2,097,895 (NIMH R01MH112504-01).

Co-Investigator (Isaacs PI, Briken and Roesch Co-I), R01: Cucurbituril Type Receptors as Sequestration Agents for Drugs of Abuse. 2019 – 2024. Amount: \$111,627 (R01GM132345)

Principal Investigator (France Co-PIs: Marchand, Khamassi, Coutureau), R01 10/01/2015– 9/30/2018. CRCNS: US-Fr Research: Neurobehavioral Assessment of a Reward Learning Model. Amount: (R01DA040993-01; NIDA \$413,000; ANR: 229,770 €)

Principal Investigator (Co-PI: Anna Li). Role of epigenetic mechanisms in striatum in neuronal encoding of decision-making during incubation of methamphetamine craving PIs: Drs. Li and Roesch Funding: Brain and Behavior Initiative (BBI) \$47,500. June 2018 – 30 May 2019

Principal Investigator (Co-PI: Jens Herberholz). 2018 DRI L2 Award. Neurobehavioral investigation of socially-mediated mechanisms underlying alcohol addiction" has been awarded \$13,110. 2018-2019

Co-Investigator, University of Maryland, (PIs: Keller; Wish) Opioid Use Disorders 2017-2019 (\$172,500)

Co-Investigator R01 MH071589 (Pessoa: PI) 12/01/2014 – 11/30/2019. "Interaction of Emotional Perception and Visual Attention" Amount: 2,515,097

Principle Investigator, R21 (Co-I: Cheer): Neural mechanism underlying social recognition of reward. 2014-2016. Amount: \$405,347 (NIMH R21 MH103806)

Principal Investigator, R01: Impact of cocaine on the Actor/Critic circuit, 2011-2016, Amount: \$1,762,372 (NIDA R01DA031695).

Principal Investigator, K01, Orbitofrontal-Accumbens Interactions, Dopamine Modulation and Impulsive Choice, 2007-2012, Amount: \$833,500 (NIDA K01 DA021609-01A1)

Co-PI, UMD ADVANCE (Advancing Women, transforming the University, investing in a culture of inclusive excellence) Interdisciplinary and Engaged Research Seed Grant, 2014, Amount \$20,000, PIs: Erica Glasper and Matthew Roesch

Co-PI, University of Maryland Seed Grant, The role of dopamine in signaling prediction errors during observational learning in normal rats and in rat models of autism, 2011-2012, Amount \$74,891, PIs: Matthew Roesch and Joe Cheer

Co-PI, Tier 2 drif incentive, Center for Integrative Study of Reward Processes, 2011, Amount: \$59,985, PIs: Carl Lejuez, Jens Herberholz, Laura MacPherson, Matthew Roesch, Richard Yi, Catalina Kopetz.

3. Teaching, Mentoring and Advising.

a. Courses, Lectures and Course Development

“Behavioral Neurobiology”; PSYC 407; (24 students; 2020-present)

Cognitive and Neural Systems (CNS) Seminar; 2017-present

“Neurophysiology of Reward, Decision-Making and Executive Function”: PSYC798X; NACS728L; 2014; 5 students

“Fundamentals of Learning and Behavior”: PSYC 302, Spring semesters; 2010-present (~50 students)

Gemstone Instructor: GEMS; Fall and spring semesters; Team RITALIN (11 students; 2011-2014)

Gemstone Instructor: GEMS; Fall and spring semesters; Team STRIDE: (11 students; 2014-2017)

Lab Credit and Honors Undergraduates: 2-3 Students per semester. PSYC499H; PSYC479; BSCI399;

Guest lectures at UM: “Prefrontal Cortex” (Fritz, Boldger); “Translational Neuroscience” (Kanold); “Disorders of the Nervous System” (Singer, Gaudry); “NACS graduate readings course” (Moss); “Temperament and personality” (Shackman)

Instructor for medical neuroscience small groups session (2 weeks), “Drug addiction and decision-making”, University of Maryland School of Medicine, 2008

b. Advising: Research Direction

i. *Post-doc:*

Greg Bissonette: Post-doc, 2011-2016

Daniel Bryden: Post-doc, 2015-2016

Adam Brockett: Post-doc, 2017-present

Doug Schuweiler: Post-doc, 2017-2019

ii. *Doctoral:*

a. *Sydney Ashton-Cromwell*: Visiting Grad student, 2022-2024

i. Visiting Fellow in Neuroscience (McCarthy Lab)

b. *Daniela Vazquez*: Graduate Student, NACS, 2019-present

c. *Heather Pribut*: Graduate Student, NACS, 2017-present

i. Summer Fellowship Award

ii. Wylie Dissertation Award

d. *Kevin Schneider*: Graduate Student, NACS, 2017-present

i. Hodos Dissertation Award

e. *Ronny Gentry*: Graduate Student, NACS, 2012-2017

i. Dissertation Award

ii. NACS travel fellowship (5months in France)

iii. NSF honorable mention

f. *Amanda Burton*: Graduate Student, NACS, 2012-2017

i. Ann Wylie Dissertation Award

ii. Summer Fellowship Award

- iii. NSF honorable mention
 - g. *Daniel Bryden*: Graduate Student, NACS, 2009-2015
 - i. UMD Distinguished Dissertation Award, 2016
 - ii. UMD Graduate Poster Award
 - iii. NSF honorable mention
 - h. *Tara Augenstein*: Graduate Student, T32 Co-Advisor, PYSC, 2014-2015
- iii. *Undergraduate*:
 - a. *Naru Kang*, Mid-Atlantic Neuroscience Diversity Scholar (MiNDS)
 - b. *Neeraj Kumar*; Scholars program
 - c. *Coreylyn deBettencourt*, Integrated Life Sciences (ILS) Honors Program, Living and learning Program 2018 – 2020; Winston Award winner 2020
 - d. *Fatou Gaye*, Summer Research Initiative in BSOS, 2018
 - e. *Rae Herman*, Individual Studies Program Neuroscience Major, 2015 –2018
 - i. *HHMI fellowship*
 - ii. *Fulbright Award*
 - iii. *Silver Award winner at Psyc research fair*
 - f. *Nick Hricz*, Integrated Life Sciences (ILS) Honors Program, 2016 –2019
 - g. *Janet Adeola*, Honors Biology Student, 2015-2017
 - h. *Gemstone, Team STRIDE*: 10 undergraduate students, 2014-2017
 - i. *Nishell Savory*, Summer Research Initiative in BSOS, 2014
 - j. *Brian Lee*, McNair Internship Experience and Harper Travel Award winner, 2013
 - k. *Gemstone, Team RITILAN*: 11 undergraduate students, 2011-2014
 - l. *Brandon Goldstein*: Undergraduate honors student, Psychology, 2010-2012
 - m. *Hannah Kleiman*: Summer intern; College Park Scholars program
 - n. *Emily Johnson*: Undergraduate honors student, Psychology, 2009-2011
 - o. *Psi Chi mentor*: Veronica Fox, Xavier Diao, and Amanda Burton
 - p. *Paid undergrad interns*: Brian Barnett, Taylor Hearn, Emily Jones, Mindy Chen
 - q. *Lab Credit/Lab volunteers*: ~2-3 Students per semester: Amanda Burton, Brian Barnett, Ryan Mannion, Gloria Vasquez, Taylor Fedechko, Nowshin Sayed, Brandon Goldstein, Xavier Diao, Emily Johnson, Mindy Chen, Pooja Patel, Sarah Haughwout, Shannon Morrow, Steven Tobia, Vadim Kashtelyan, Nina Lichtenberg, Jheeyae Ahn, Shannon Morrow, Adam Zhao, Brian Lee, Nick Brown, Maria Donelly, Abhishek Induja, Kendall Heatly, Elyse Bloom, Janet Adeola, Rachel Herman, Nick Woytowitz, Nick Hricz, John Mallon, Manaahel Rao, Elaine Alvarez, Coreylyn deBettencourt, Alice Wei, Maddie Kalmayer, Jacob Nudelman, Xavier Sciarillo, Fatou Gaye, Rachel Robin, Neeraj Kumar, Bailey Sanford, Laura Fanch, Jennifer Houston, Clarissa Xia, Kiana Yeganeh, Dylan Sarubin, Skylar Sauma, Daniel Mosyak
- iv. *High School*:
 - a. *Connor Fantasia*: Eleanor Roosevelt High School Science and Technology Internship Program, 2018-2019
 - b. *Joshua Franklin*: Eleanor Roosevelt High School Science and Technology Internship Program, 2013-2014
 - c. *Yvonne-Crystal Monterrosa*: Poolesville High school Science, Math and Computer Science Internship Program, Summer 2012
 - d. *Priya Kavalam*: Eleanor Roosevelt High School Science and Technology Internship Program, 2011-2012
 - e. *Renuka Tripu*: Poolesville High school Science, Math and Computer Science Internship Program, Summer 2010

- f. *Gloria Vasquez*: Eleanor Roosevelt High School Science and Technology Internship Program, 2010-2011

4. Service

a. Editorships, Editorial Boards, Reviewing and Other Activities

- i. *Brain Research Editorial Board* (2021-2027)
- ii. *BBI seed grant reviewer* (2021)
- iii. *NIDA Guest Researcher* (2018-2019)
- iv. *Letter writer for Governors Research Chair nomination*, U Lethbridge (2017)
- v. *NIH Study Section*: (NMB; 2016)
- vi. *Letter writer for tenure and promotion for various universities*: 2016, 2019, 2022, 2023.
- vii. *Associate Editor* for Journal of Neuroscience, 2012-2018
- viii. *NIH Study Section*: Sensory, Perceptual and Cognitive (SPC; 2015)
- ix. *Handling Editor* for Frontiers: Neural circuitry of behavioral flexibility
- x. *Review Editor* for Frontiers in Behavioral Neuroscience
- xi. *NIDA reviewer* for Cutting-Edge Basic Research Awards (CEBRA; R21)
- xii. *NIDA reviewer* for (EUREKA; R01)
- xiii. *The Wellcome Trust reviewer* Sir Henry Dale Fellowship (2013)
- xiv. *Ad hoc Journal Reviewer*: Journal of Neuroscience, Neuroscience (Top reviewer 2011), Neuron, Nature Neuroscience, Nature Reviews Neuroscience, Science, Nature Communications, Journal of Neuroscience Methods, Current Biology, PNAS, European Journal of Neuroscience, Trends in Cognitive Neuroscience, Progress in Neurobiology, Behavioral Pharmacology, Neuroscience letters, Neuropsychopharmacology, Frontiers in Decision Neuroscience, Journal of Neurophysiology, Cognitive, Affective, and Behavioral Science, Learning and Memory, Neurobiology of Aging, Cerebral Cortex, PLOS one, PLOS Biology, Schizophrenia Bulletin, Neuropsychologia, Scientific Reports, Progress in Neuro-Psychopharmacology and Biological Psychiatry, Neurobiology of Learning and Memory, eLife, eNeuro, F1000prime, Frontiers in Aging Research, Science Advances, Developmental Cognitive Neuroscience, Neuroscience and Biobehavioral Reviews, Behavioral Neuroscience and Journal of Experimental Psychology: Animal Learning and Cognition.

b. Campus Service

Director of the Neuroscience and Cognitive Science Program (NACS), 2020 – **present**
 Mid-Atlantic Neuroscience Diversity Scholars Steering Committee 2021- **present**
 UMD Animal Planning and Advisory Committee, 2020 – **present**
 NEUR Curriculum Committee, 2020 – **present**
 CEBH Steering Committee, 2022 – **present**
 Chair BBI/ PSYC Faculty Hire, 2021, 2022
 Graduate Dean Search, 2023
 DST Awards Reviewer, 2023
 BSOS Awards Reviewer, 2022
 Yager Emeritus Committee, 2022
 APT Committee Chair 2022
 NACS seminar host, 2021
 Associate Director of NACS, 2017-2020
 NACS Graduate Admissions Director, 2014-2020

Cognitive and Neural Systems Area Head for Psychology, 2017-*present*
 NACS Executive Committee, 2014-*present*
 Psychology Executive Committee, 2015-*present*
 U Maryland Institutional Animal Care and Use Committee (IACUC), 2015-*present*
 Psychology hiring committee 2019-2022
 NACS seminar host, 2020
 Ad Hoc Clinical Search Committee, 2020
 Faculty Teaching Host (PSYC302) for Office of China Affairs 2020
 PTK APT 2019-*present*
 Hiring Committee 2019
 Post-tenure review 2019
 Junior Faculty Mentor 2018 – *present*
 Glasper Tenure Committee 2018
 Maryland Neuroscience Society, Faculty Advisor, 2014-2020
 Addictions Workshop Committee, UMCP-UMB, 2017
 NACS Director Search Committee, 2016-2017
 Neuroscience Search Committee 2016-2017
 Univ. of Maryland Laboratory Operations and Safety Committee (LOSC), 2016-2019
 Psychology Merit Review Committee 2016-2018
 Graduate Student Probation committee 2016
 NACS seminar host, 2016
 Reviewer for NACS fellowships (Dissertation, Wylie, and Hodos), 2014-2020
 Mind, Brain, and Behavior co-leader for retreat preparation (2014)
 BRB annex committee (2013)
 BSOS College Council Psychology Representative (2013-2015)
 Renovations committee (2013-2015)
 Biological and Chemical Hygiene (BACH) committee, 2011-2013.
 NACS Graduate Admissions Committee, 2011-present
 Ad hoc role for hiring committee in psychology (2011)
 Announcer at psychology commencement ceremony (2010-2011)

c. Thesis committees:

Graduate

Jackie Minehart, Masters, Neuroscience and Cognitive Science
Jiachen Liu, Masters, Neuroscience and Cognitive Science
David King, PhD student, Chemistry and Biochemistry, UMD, Dean's Rep
Sydney Ashton-Cromell, PhD student, Program in Neuroscience, U Maryland SOM
Laura Castillo, PhD student, Neuroscience and Cognitive Science
Matthew Coon, PhD student, Neuroscience and Cognitive Science
Kristine Hodgson-Torres, PhD student, Neuroscience and Cognitive Science
Anne Tootell, PhD student, Psychology, UMD
Tawen Ho, PhD student, Neuroscience and Cognitive Science
Steve Murkli, PhD student, Chemistry and Biochemistry, UMD, Dean's Rep
Jimmi Gmaz, PhD student, Psychological and Brain Sciences, Dartmouth
Craig Taswell, PhD student, Neuroscience and Cognitive Science
Yuqing Lei, MA student, Neuroscience and Cognitive Science
Samuel Bacharach, PhD student, Program in Neuroscience, U Maryland SOM
Deepali (Clare) Sengupta, PhD student, Neuroscience and Cognitive Science, Dean's Rep
Dunstin Moraczewski, PhD student, Neuroscience and Cognitive Science.
Kelson Shilling-Scrivo, PhD student, Program in Neuroscience, U Maryland SOM

Ji Liu, PhD student, BISI
Molly Hyer, PhD student, Neuroscience and Cognitive Science
Krystyna Solarana, PhD student, Neuroscience and Cognitive Science, Dean's Rep
Aminah Sheikh, PhD student, Neuroscience and Cognitive Science, Dean's Rep
Andrew Venezia, PhD student, Neuroscience and Cognitive Science, Dean's Rep
Srikanth Padmala, PhD student, Neuroscience and Cognitive Science
Matthew Swierzbinski, PhD student, Neuroscience and Cognitive Science
Claire Kaplan, Masters student, Psychology
Richard Smith, PhD student, BISI-PSYS; Dean's Representative
Moon Choi, Graduate student, Neuroscience and Cognitive Science
Sarada Viswanathan, Graduate student, BISI-PSYS; Dean's Representative
Heather Wied, MD/PhD student, Program in Neuroscience, U Maryland SOM
Daniel Bryden, Graduate student, Neuroscience and Cognitive Science
Ronny Gentry, Graduate student, Neuroscience and Cognitive Science
Amanda Burton, Graduate student, Neuroscience and Cognitive Science
Yu Gu, Graduate student, Neuroscience and Cognitive Science; Dean's Representative
Gerry Carter, Graduate student, Biology
Karen Montey, Graduate student, Biology
Alexia Nunez Parra, Graduate student, Neuroscience and Cognitive Science
Kevin Donaldson, Graduate student, Neuroscience and Cognitive Science
Teghi Singh, Graduate student, Program in Neuroscience, U Maryland SOM

Undergraduate

Christian Capozzoli, Undergraduate honors thesis, Biology
Adam Wright, Undergraduate honors thesis, Biology
Vedavilli Govindan, Undergraduate honors thesis, Psychology
Taj Keshav, Undergraduate honors theses, Biology
Vishnupriya Karedy, Undergraduate honors theses, Biology
Team BRAIN BLAST, Undergraduate Gemstone Honors defense
Team PANCREAS, Undergraduate Gemstone Honors defense
Meghan Murphy, Undergraduate honors thesis, Psychology
Cecelia Kim, Undergraduate honors theses defense, Biology
Rob Maurer, Undergraduate honors theses defense, Biology
Alexandra Houston-Ludlam, Undergraduate honors thesis, Psychology
Ka Yang, Undergraduate honors thesis defense, Biology
Sanmet Singh, Undergraduate honors thesis defense, Biology
Awais Mailik, Undergraduate honors thesis defense, Biology
Emily Johnson, Undergraduate honors thesis defense, Psychology
Laurene Dampare, Undergraduate honors thesis defense, Psychology
Juan F. Duque, Undergraduate honors thesis defense, Psychology

d. Examination and Student Committees

Graduate

Matthew Coon, PhD student, Neuroscience and Cognitive Science
Kristine Hodgson-Torres, PhD student, Neuroscience and Cognitive Science
Yuqing Lei, PhD student, Cognitive Neural Systems, PSYC
Devin Butler, PhD student, Cognitive Neural Systems, PSYC
Gloria Kim, PhD student, Neuroscience and Cognitive Science

Gregory Perin, Graduate student, Neuroscience and Cognitive Science
Tawen Ho, Graduate student, Neuroscience and Cognitive Science
Heather Pribut, Graduate student, Neuroscience and Cognitive Science
Matthew Coon, Graduate student, Neuroscience and Cognitive Science
Schneider Kevin, Graduate student, Neuroscience and Cognitive Science
Ruilong Hu, Graduate student, Neuroscience and Cognitive Science
Moon Choi, Graduate student, Neuroscience and Cognitive Science
Rachel Adler, Graduate student, Neuroscience and Cognitive Science
Vanessa Medley, Graduate student, Psychology
Gerry Carter, Graduate student, Biology
Graham Marquart, Graduate student, Neuroscience and Cognitive Science
Yu Gu, Graduate student, Neuroscience and Cognitive Science
Molly Hyer, Graduate student, Neuroscience and Cognitive Science
Dan Bryden, Graduate student, Neuroscience and Cognitive Science
Ronny Gentry, Graduate student, Neuroscience and Cognitive Science
Amanda Burton, Graduate student, Neuroscience and Cognitive Science

e. Community

Mentor for high school students performing research in my lab as part of their Science Internship Program (Poolesville and Eleanor Roosevelt)

5. Awards and Honors

Distinguished Scholar-Teacher Award, UMD 2022
Brain Research Editorial Board, 2021
Behavioral and Social Sciences Excellence in Research Award, UMD 2018
Outstanding Gemstone Mentor Award, Honors College, U Maryland 2017
Mentor of the Year, Gemstone, Honors College, U Maryland, 2013
Nominated by Psychology for Teacher and Mentor award from BSOS, 2013
Nominated by UMCP to submit for Searle Scholar fellowship 2010
Winter brain conference travel award 2009
Frontiers in Addiction Research 2008 Travel Award
Cellular and Integrative Neuroscience Post-Doctoral Training Grant, 2005-2007
National Science Foundation IGERT (Integrative Graduate Education and Research Training) fellowship, 2003-2004
National Institutes of Health predoctoral fellowship, 1999-2000
James E. Bradler Award for Excellence in Research, Department of Neuroscience, University of Pittsburgh, 1996
Center for Neuroscience at the University of Pittsburgh (CNUP) undergraduate fellowship, 1996