

CURRICULUM VITAE RUSSELL W. BROWN

Departmental Address:

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Current Position:

Professor, Department of Biomedical Sciences
James H. Quillen College of Medicine
East Tennessee State University

Undergraduate Education:

Department of Psychology
University of Oklahoma
Norman, OK

1992

B. S., Psychology; Minor in Chemistry

Graduate Education:

Department of Psychology
University of Kentucky
Lexington, KY

1995

M. S. in Experimental Psychology

1998

Ph. D. in Experimental Psychology

Post-graduate education:

December, 1998 to
August, 2000

Alberta Heritage Foundation for Medical Research
Postdoctoral fellow, University of Lethbridge
Lethbridge, Alberta, Canada
Advisor: Drs. Bryan Kolb, Ian Wishaw

Professional Experience:

August, 2000 to
July, 2006

Assistant Professor, Department of Psychology
East Tennessee State University

July, 2006 to
July, 2011

Associate Professor, Department of Psychology
East Tennessee State University

July 2011 to
Present

Professor, Department of Psychology
East Tennessee State University

July 2015 to
Present

Professor, Department of Biomedical Sciences
James H. Quillen College of Medicine
East Tennessee State University

Professional Editorial Boards and Memberships:

Editorial Board, *Developmental Neuroscience* 2012-2014
Editorial Board, *Journal of Schizophrenia Research* 2014-2017
Editorial Board, *Neurotransmitter* 2014-2017
President, Appalachian Society for Neuroscience since 2003
Society for Neuroscience
Midwestern Psychological Association
International Society for Behavioral Neuroscience
Psi Chi
Society for Research on Nicotine and Tobacco

Professional Activities/Awards:

1993 Second place presentation, Kentucky Academy of Sciences
1998 Alberta Heritage Foundation Postdoctoral Fellowship (B. Kolb, sponsor)
1999 to present: Reviewer for several scholarly journals, including Behavioral Neuroscience, Behavioural Brain Research, Neuroscience Letters, Neurotoxicology Research, Pharmacology, Biochemistry and Behavior, Developmental Psychobiology, Synapse, European Journal of Pharmacology, Canadian Journal of Neurological Sciences, Neuroscience, Psychoneuroendocrinology, Progress in Neuropsychology and Biological Psychiatry, Psychopharmacology, Developmental Neuroscience
2003 Elected President of the Appalachian Chapter of the Society for Neuroscience
2006-2007 Distinguished Research Award, College of Arts and Sciences, East Tennessee State University
2008-2012 Member of NIH study section FO3A: “Neurodevelopment, Synaptic Plasticity, and Neurodegeneration” for National Research Service Awards for pre- and postdoctoral fellowships (F31, F32 mechanism)
2012: Served as Associate Editor for Special Issue to *Developmental Neuroscience*: “Animal Models of Neurological and Cognitive Disorders with Developmental Onset”
2011 – 2014: Member, Program Committee, Midwestern Psychological Association
2013: Served on NIH Special Emphasis Panel for NIDA RFA DA-14-0015 “Substance Use Disorders and Molecular Regulation of Brain Metabolism”
2012 – present: Editorial Board Member, *Developmental Neuroscience*
2014-present: Editorial Board Member, *Biomed Hub*
2014-present: Editorial Board Member, *Neurotransmitter*

University Committee Service:

University-wide committees:

Member, University Committee on Animal Care (UCAC), 2003-present. Elected Vice Chair, 2005-2006.
Member, Special Projects Review Committee, Ronald McNair Fellowship Program 2002-2007.

Member, Appalachian Student Research Forum Committee, Spring, 2003 – Spring 2007.
Coordinator of judges for student presentations for Appalachian Student Research Forum, April, 2004 and April, 2005.

Member, Search Committee, Vice Provost for Research and Sponsored Programs; 2007-2008 school year.

Chair, Silent Committee on University Awards, 2011 and 2012.

Member, Athletics Task Force, Committee for 125; 2012-2013

Member, Research Steering Committee, Committee for 125; 2012 - present

Member, Net Revenue Generators sub-committee for Academic Services Review Committee; 2014-15

College committees:

Elected Committee Member (3-year term), Faculty Council, College of Arts and Sciences 2004-2007

Departmental Committees:

Chair, Undergraduate student advising task force, Department of Psychology, Spring 2004-2010

Chair, Search Committee for Cognitive Psychologist, 2005-2007

Member, Academic Quality Initiative Committee, Fall, 2004-2010

Member, Search Committee for Chair of the Psychology Department, Spring, 2003.

Member, Search Committee for Clinical Psychologist, 2005-2006

Member, Search Committee for Social Psychologist, 2006-2007

Member, Search Committee for Quantitative Psychologist, 2006-2007

Member, Tenure and Promotion Committee 2006-present

Chair, Tenure and Promotion Committee, 2009, 2010.

Member, Search Committee for Behavioral Neuroscientist, 2011-12

Administrative service:

Coordinator, Graduate Program (Terminal Master's) in General Psychology, 2003-2010.

Invited addresses:

10/2000: University of Kentucky, Lexington, KY. "Nicotine eliminates cognitive deficits produced by frontal cortex and fornix lesions in rats tested on the Morris water task."

5/2001: Tri-Cities Brain Injury Recovery Group, Johnson City, TN. "Evidence for the therapeutic potential of nicotine in traumatic brain injury."

4/2002: University of South Carolina, Columbia, SC. "Nicotine alleviates cognitive deficits in a rodent model of brain injury and schizophrenia."

1/2003: Augustana College, Rock Island, IL. "Nicotine alleviation of cognitive and motor deficits in a rodent model of schizophrenia: Underlying mechanisms."

1/2004: East Tennessee State University, Dept. of Internal Medicine, Quillen College of Medicine, Johnson City, TN: "Behavioral deficits in a rodent model of psychosis."

3/2004: Wake Forest University, Winston-Salem, NC: "The development of cognitive deficits in a rodent model of schizophrenia."

8/2005: East Tennessee State University, Quillen College of Medicine, Dept. of Psychiatry, Johnson City, TN, Psychiatry Grand Rounds. "Animal models of neuropathological disease."

5/2008: Midwestern Psychological Association, Chicago, IL. "Observations on a rodent model of psychosis."

5/2009: Midwestern Psychological Association, Chicago IL. “Sex differences in the adolescent response to nicotine in rats neonatally treated with quinpirole.”

Brown, R. W. (2010, October). “Neurobiology of Attention Deficit Hyperactivity Disorder.” Safety Phar

10/2012 Public Defender Conference, Kingsport, TN. “The neurobiological mechanisms of bath salts (Mephedrone, MDPV) and methamphetamine.”

1/2013 Florida State University College of Medicine, Tallahassee, FL. “The complex profile of Methylphenidate: Sex differences and brain plasticity.”

5/2013 East Tennessee State University, Dept. of Internal Medicine, Quillen College of Medicine, Johnson City, TN. “An analysis of Ritalin addiction in a rodent model: The fast and the furious.”

Research grants, Extramural mechanisms funded, current:

Principal Investigator. National Institutes of Health (NIDA) R15 mechanism NIH 1R15DA 034912-01. “Nicotine sensitization in a model of schizophrenia: Roles of Nicotinic Receptors.”. Collaborator:, Matthew I. Palmatier, Department of Psychology, East Tennessee State University Total: \$408,000. 2013-2016 (No cost extension).

Co-Investigator National Institutes of Health (NIDA) R15 mechanism. “The effects of menthol on the rewarding and incentive effects of nicotine.” Principal Investigator Matthew I. Plamatier, PhD, Department of Psychology, East Tennessee State University. \$403,500.

Research grants, external mechanisms, pending.

Principal Investigator National Institutes of Health (NIDA; NIMH) R15 mechanism “Effects of adenosine A(2A) receptor activation on the behavioral and plasticity response to nicotine in a rodent model of schizophrenia.” Co-Investigatior Matthew I. Palmatier, Department of Psychology, East Tennessee State University \$405,630.

Co-Investigator National Institutes of Health (NIMH) R15 mechanism. “Genetic manipulation to restore noradrenergic function in the brain of aged rats.” Principal Investigator, Meng-Yang Zhu, PhD, Biomedical Sciences, Quillen College of Medicine. \$375,000. Initial Score: 30.

Co-Investigator National Institutes of Health (NIDA) R15 mechanism. “The role of ciliary neurotrophic factor (CNTF) in the response to stress in male and female mice.” Primary Investigator, Cuihong Jia, PhD, Department of Biomedical Sciences, East Tennessee State University \$410,000

Research grants and subcontracts awarded, External Mechanisms, Complete:

Principal Investigator, minority supplement to support Daniel J. Peterson NIH 3R15DA034912 from February 1, 2015 to June 30, 2016. \$36,000

Principal Investigator. Ardane Therapeutics, Providence, RI "Effect of AT010 on behavioral recovery from cerebral ischemia in the mouse.". Collaborator: Chanfu Li, Dept of Surgery, Quillen College of Medicine, East Tennessee State University. \$17,000. 2013-2014

Consultant. US Department of Defense. Marni White "TBI Neuroimmune Dysregulation as a Prodrome to Alzheimer's Disease." E. Harris-White, UCLA Dept. of Medicine, Principal Investigator, Russell W. Brown, Consultant (5% effort). I am serving as a consultant for behavioral testing for this proposal. 2012-2015. \$564,000

Collaborator Michael J. Fox Foundation. "A genetic strategy to restore impaired noradrenergic function by increasing expression of noradrenergic phenotypes in the locus coeruleus in Parkinson's disease model mice." Principal Investigator Meng-Yang Zhu, Department of Biomedical Sciences, Quillen College of Medicine, East TN State University. 2012-2014. \$75,000.

Principal Investigator. Effect of substance A & B on locomotor activity in rats treated neonatally with 6-OHDA: A model of ADHD. Co-principal investigator with Dr. Richard Kostrzewa. Total costs: \$26,351.

Principal Investigator. "Amphetamine sensitization in a rodent model of schizophrenia." (\$215,560). Co-investigator: Richard M. Kostrzewa. National Institutes of Health R15 grant. 1 R15 DA020481-01

Completed: Supplement to R15 submission (Awarded). "Amphetamine sensitization in a rodent model of schizophrenia." We received a \$9,000 supplement to my funded NIH grant to support an undergraduate student in the summer for research. The student was Mack Hightower, III from Texas A&M University. 3 R15 DA020481-01A1S2.

Completed: Supplement to R15 submission (Awarded). "Amphetamine sensitization in a rodent model of schizophrenia." We received a \$9,000 supplement to my funded NIH grant to support an undergraduate student in the summer for research. The student was Aden Weldegiworgis from Pitzer College in California. 3 R15 DA020481-01A1S1

Completed: Co-principal investigator: "Mechanism of Eszopiclone Facilitation of the Antidepressant Efficacy of Fluoxetine," Co-principal investigator: Gregory A. Ordway, Chair, Pharmacology Department, Quillen College of Medicine. Sepracor Pharmaceuticals, Inc. Amount: \$104,500.

User (co-Investigator): NIH equipment grant "Laser Capture Microdissection System: 1S10RR21194-01 Principal Investigator, John B. Schweitzer, Chair, Department of Pathology, Quillen College of Medicine, East Tennessee State University. \$210,561.

Principal Investigator: Eli Lilly investigator-initiated study (\$39,500). "The effects of adulthood olanzapine on behavior and genetic expression of choline acetyltransferase and neurotrophins in a rodent model of schizophrenia." January, 2005 – January, 2007.

Principal Investigator: "Nicotine: Potential therapies and possible pitfalls." Organized satellite symposium to International Behavioral Neuroscience Society conference in Key West, FL, June 16, 2004 (\$25,000). Co-investigator: Michael L. Woodruff. NIH 1R13 DA0181142-01.

Principal Investigator: Eli Lilly investigator-initiated study. (\$36,062). "The effects of olanzapine on behavior, acetylcholine, and neuroprotection in a rodent model of schizophrenia." July, 2003- July, 2005.

Principal Investigator, NIH Subcontract (\$5,000) University of Cincinnati, Children's Medical Research Foundation: "Morphological effects of prenatal methamphetamine exposure (2000-2001 school year). Michael T. Williams, PI, KO1 NIH grant.

Principal Investigator, NIH Subcontract (\$5,500) University of Kentucky: "Morphological changes produced by environmental enrichment." Michael T. Bardo, PI, RO1 NIH grant.

Manuscripts under review:

Brown RW, Schlitt MA, Owens AS, De Preter CC, Cummins ED, Kirby SL, Gill WD, Burgess KC. (*under review, Developmental Neuroscience*). Effects of environmental enrichment on nicotine sensitization in rats neonatally treated with quinpirole: Analyses of Glial Cell-line Derived Neurotrophic Factor and implications towards schizophrenia

Publications (Total of 59):

1. **Brown RW**, Kirby SL, Denton AR, Dose JM, Cummins ED, Gill WD, Burgess KC. (2017). An analysis of the rewarding and associative properties of nicotine in the neonatal quinpirole model: Effects on glial cell-line derived neurotrophic factor (GDNF). (In press, Schizophrenia Research). PubMed PMID: 28314679
2. Cummins ED, Leedy KK, Dose JM, Peterson DJ, Kirby SL, Hernandez LJ, **Brown RW**. The effects of adolescent methylphenidate exposure on the behavioral and brain-derived neurotrophic factor response to nicotine. J Psychopharmacol. 2017 Jan;31(1):75-85. PubMed PMID: 27940499.
3. Peterson DJ, Gill WD, Dose JM, Hoover DB, Pauly JR, Cummins ED, Burgess KC, **Brown RW**. (2017). The effects of nicotine in the neonatal quinpirole rodent model of psychosis: Neural plasticity mechanisms and nicotinic receptor changes. Behav Brain Res. PubMed PMID: 28235586.
4. Szebeni A, Szebeni K, DiPeri TP, Johnson LA, Stockmeier CA, Crawford JD,

Chandley MJ, Hernandez LJ, Burgess KC, **Brown RW**, Ordway GA. (2016). Elevated DNA Oxidation and DNA Repair Enzyme Expression in Brain White Matter in Major Depressive Disorder. *Int J Neuropsychopharmacol*. PMID: 28034960.

5. Lacy RT, Brown RW, Morgan AJ, Mactutus CF, Harrod SB. Intravenous Prenatal Nicotine Exposure Alters METH-Induced Hyperactivity, Conditioned Hyperactivity, and BDNF in Adult Rat Offspring. *Dev Neurosci*. 2016;38(3):171-185. PubMed PMID: 27287203.

6. Kostrzewa RM, Nowak P, Brus R, **Brown RW**. (2016). Perinatal Treatments with the Dopamine D2-Receptor Agonist Quinpirole Produces Permanent D2-Receptor Supersensitization: a Model of Schizophrenia. *Neurochem Res*. 41:183-92.

7. **Brown RW**, Peterson DJ. (2015). Applications of the Neonatal Quinpirole Model to Psychosis and Convergence upon the Dopamine D(2) Receptor. *Curr Top Behav Neurosci*. 2015 Oct 16. [Epub ahead of print] PubMed PMID: 26472551.

8. Maple AM, Smith KJ, Perna MK, **Brown RW**. (2015). Neonatal quinpirole treatment produces prepulse inhibition, *Pharmacol Biochem Behav*. 2137:93-100. PMID:26296939

9. Danysz W, Fink, G., McCreary, A., Tober, C., Dimpfel, W., Bizot, J. C., Kostrzewa, R. M., **Brown, R. W.**, Jetzke, C. C., Greco, S., Jensen, A. K., Parsons, C. G. (2015). Effects of sarizotan in animal models of ADHD – challenging PK-PD relationship. *Journal of Neural Transmission*, 122(9):1221-38. PMID: 25796190

10. Bentley J, Snyder F, Brown SD, **Brown RW**, Pond BB. (2015) Sex differences in the kinetic profiles of d- and l- methylphenidate in the brains of adult rats. *Eur Rev Med Pharmacol Sci*. 19(13): 2514-9.

11. Palmatier, M. I., Kellicut, M. R., Sheppard, A. B., **Brown, R. W.**, Robinson, D. L. (2014). The incentive amplifying effects of nicotine are reduced by selective and non-selective dopamine antagonists in rats. *Pharm Biochem Behav* 126:50-62.

12. Williams, M. T., Skelton, M. R., Longacre, I. D., Huggins, K. N., Maple, A. M., Vorhees, C. V., **Brown, R. W.** (2014). Neuronal reorganization in adult rats neonatally exposed to (±)-3,4-methylenedioxymethamphetamine. *Toxicol Rep*. 1:699-706.

13. Roeding, R. L., Perna, M. K., Cummins, E. D., Peterson, D. J., Palmatier, M. I., **Brown, R. W.** (2014). Sex Differences in Adolescent Methylphenidate Sensitization: Effects on Glial Cell-Derived Neurotrophic Factor and Brain-Derived Neurotrophic Factor. *Behav Brain Res*. 273:139-43.

14. Cummins, E. D., Griffin, S. B., Duty, C. M., Peterson, D. J., Burgess, K. C., **Brown, R. W.** (2014). The Role of Dopamine D(1) and D(2) Receptors in Adolescent Methylphenidate Conditioned Place Preference: Sex Differences and Brain-Derived Neurotrophic Factor. *Dev Neurosci*. 36: 277-86.

15. Cummins, E. D., Griffin, S. B., Burgess, K. C., Peterson, D. J., Watson, B. D., Buendia, M. A., Stanwood, G. D., **Brown, R. W.** (2014). Methylphenidate Place Conditioning in Adolescent Rats: An Analysis of Sex Differences and the Dopamine Transporter. In press, *Behav Brain Res*. 257:215-23.

16. Fan, Y., Chen, P., Noel, D.M., Cummins, E.D., Peterson, D.J., **Brown, R.W.**, Zhu, M. Y. (2013). Corticosterone administration upregulated expression of norepinephrine transporter and dopamine β-hydroxylase in rat brains. *J Neurochem*

128:445-58.

17. Perna MK, **Brown RW**. (2013). Adolescent nicotine sensitization and effects of nicotine on accumbal dopamine release in a rodent model of increased dopamine D2 receptor sensitivity. *Behav Brain Res*, 242:102-9.

18. **Brown RW**, Maple AM, Perna MK, Sheppard AB, Cope ZA, Kostrzewa RM. (2012). Schizophrenia and substance abuse comorbidity: nicotine addiction and the neonatal quinpirole model. *Dev Neurosci*. 34:140-51

19. **Brown, R. W.**, Hughes, B. A., Hughes, A. B., Sheppard, A. B., Perna, M. K., Ragsdale, W. L., Roeding, R. L., Pond, B. B. (2012) Sex and dose-related differences in methylphenidate adolescent locomotor sensitization and effects on BDNF. *J Psychopharm*. 26:1480-8.

20. **Brown, R. W.**, Maple, A. M., Perna, M. K., Sheppard, A. B., Cope, Z. A. Kostrzewa, R. M. (2012). Schizophrenia and substance abuse comorbidity: Nicotine addiction and the neonatal quinpirole model. *Dev Neurosci*. 34:140-51.

21. Harrod S. B., Lacy R. T., Zhu, J., Hughes, B. A., Perna, M. K. **Brown, R. W.** (2011). Gestational IV nicotine produces elevated BDNF in the mesocorticolimbic dopamine system of adolescent rat offspring. *Synapse*. 65(12):1382-92

22. **Brown, R. W.**, Noel, D. M., Smith, J. J., Smith, M. L., Huggins, K. N., Ordway, G. A. (2011) Eszopiclone facilitation of the antidepressant efficacy using a social defeat stress model. *Pharm Biochem Behav*. 99(4):648-58.

23. **Brown, R. W.**, Perna, M. K., Noel, D. M., Whittemore, J. D., Lehmann, J., Smith, M. L. (2011). Amphetamine locomotor sensitization and conditioned place preference in adolescent male and female rats neonatally treated with quinpirole. *Behav Pharm*. 22 (4):374-78.

24. Perna, M. K., Henderson, Y. O., Bruner, C. L., **Brown, R. W.** (2011). An analysis of nicotine conditioned place conditioning in early postweanling and adolescent rats neonatally treated with quinpirole. *Behav Brain Res*. 220(1):254-61.

25. Cope, Z. A., Huggins, K. N., Sheppard, A. B., Zackary A. Cope, Noel, D. M., Roane, D. S., **Brown, R. W.** (2010). Neonatal quinpirole treatment enhances locomotor activation and dopamine release in the nucleus accumbens core in response to amphetamine treatment in adulthood. *Synapse*. 64(4):289-300.

26. Sheppard, A. B. Lehmann, J., Cope, Z. A., **Brown, R. W.** (2009). Sex differences in nicotine sensitization and Conditioned Hyperactivity in Adolescent Rats Neonatally Treated With Quinpirole: Role of D2 and D3 Receptor Subtypes. *Behav Neurosci*. 123(6):1296-308.

27. Correll, J. A., Noel, D. M., Sheppard, A. B., Thompson, K. N., Li Y., Yin D., **Brown R. W.** (2009). Nicotine sensitization and analysis of brain-derived neurotrophic factor in adolescent β arrestin-2 knockout mice. *Synapse*, 63(6):510-9.

28. Fitsanakis, V. A., Thompson, K. N., Deery, S. E., Milatovic, D., Aschner, M., **Brown, R. W.** (2009). Chronic Iron-Deficient/High-Manganese Diet in Rodents Results in Increased Brain Oxidative Stress and Behavioral Deficits in the Morris Water Maze. *Neurotox Res*. 15(2):167-78.

29. Kostrzewa R. M., Kostrzewa J. P., **Brown R. W.**, Nowak P., Brus R. (2008). Dopamine receptor supersensitivity: development, mechanisms, presentation, and clinical applicability. *Neurotox Res*. 14(2-3):121-8.

30. Perna, M. K., Cope, Z. A., Maple, A. M., Longacre, I. D., Correll, J. A., **Brown R. W.** (2008). Nicotine sensitization in adult male and female rats quinpirole-primed as neonates. *Psychopharmacology* 199:67-75.
31. **Brown, R. W.**, Perna, M. K., Wilson, T. D., Miller, B. E. (2008). Adulthood olanzapine treatment fails to alleviate decreases in . ChAT and BDNF RNA expression in rats quinpirole-primed as neonates. *Brain Res.* 1200C: 66-77
32. Maple, A. M., Perna, M. K., Parlamen, J. P., Stanwood, G. D., **Brown, R. W.** (2007). Neonatal quinpirole treatment produces long-lasting decreases in the expression of Rgs9, but increases Rgs17 in the striatum, nucleus accumbens, and frontal cortex. *Eur J Neurosci.* 26: 2532-2538.
33. Thacker, S. K., Perna, M. K., Ward, J. J., Schaefer, T. L., Williams, M. T., **Brown, R. W.** (2006). The effects of olanzapine on cognitive performance and neurotrophic factor content in male and female rats neonatally treated with quinpirole. *Eur. J Neurosci.* 24:2075-83.
34. **Brown, R. W.**, Perna, M. K., Schaefer, T. L., Williams, M. T. (2006) The effects of nicotine on D2-mediated behaviors and neurotrophins of rats neonatally treated with quinpirole. *Synapse* 59:253-9.
35. **Brown, R. W.**, Click, I. R., Best, R. A. C., Thacker, S. K., Thompson, K. N., Perna, M. K. (2005). The effects of eticlopride on Morris water task performance in male and female rats neonatally treated with quinpirole. *Psychopharmacology*, 180: 234-40
36. **Brown, R. W.**, Flanigan, T. J., Thompson, K. N., Thacker, S. K., Schaefer, T. L., & Williams, M. T. (2004). Neonatal quinpirole treatment impairs Morris water task performance in early postweanling rats: Relationship to increases in corticosterone and decreases in neurotrophic factors. *Biological Psychiatry*, 56: 161-168.
37. Williams M. T.*, **Brown R. W.***, Vorhees C. V. (2004). Neonatal methamphetamine administration induces region-specific long-term neuronal morphological changes in the rat hippocampus, nucleus accumbens and parietal cortex. *Eur J Neurosci.* 19: 3165-70. *Contributed equally to this work.
38. **Brown, R. W.**, Thompson, K. D., Thompson, K. L., Thacker, S. K., Ward, J. J., Woodruff, M. L., & Kostrzewa, R. M. (2004). Nicotine treated in adulthood alleviates cognitive and motor deficits produced by early developmental quinpirole treatment: Interaction of D2 receptor supersensitization, acetylcholine function, and neurotrophic factor expression. *Eur J Neurosci* 19: 1634-1642.
39. Green, T. A., **Brown, R. W.**, Phillips, S. B., Dwoskin, L. P. and Bardo, M. T. (2002). Locomotor stimulant effects of nornicotine: Role of dopamine. *Pharmacology, Biochemistry, and Behavior*, 74: 87-94.
40. **Brown, R. W.**, Beale, K. S., Frye, G. D. (2002). Mecamylamine blocks reference memory, but not working memory enhancement produced by post-training injections of nicotine in rats tested on the radial arm maze. *Behavioural Brain Research*, 134: 259-265.
41. **Brown, R. W.**, Gass, J. T., & Kostrzewa, R. M. (2002). Ontogenetic quinpirole treatments produce spatial memory deficits and enhance skilled reaching in adult rats. *Pharmacology, Biochemistry, & Behavior*, 72: 591-600
42. Kolb, B., **Brown, R. W.**, Witt-Lajeunesse, A., & Gibb, R. (2001). Neural compensation after lesions of the cerebral cortex. *Neural Plasticity*, 8: 1-16.

43. **Brown, R. W.** & Kolb, B. (2001). Nicotine sensitization increases dendritic length and spine density in the nucleus accumbens and cingulate cortex. *Brain Research*, 899, 94-100.
44. **Brown, R. W.**, Gonzalez, C. L. R., Whishaw, I. Q., & Kolb, B. (2001). Nicotine improvement of Morris water task performance after fimbria-fornix lesions is blocked by mecamylamine. *Behavioural Brain Research*, 119, 185-192.
45. **Brown, R. W.**, Gonzalez, C. L. R., & Kolb, B. (2000). Nicotine improves Morris water task performance in rats given medial frontal cortex lesions. *Pharmacology, Biochemistry, & Behavior*, 67, 473-478.
46. **Brown, R. W.** & Whishaw, I. Q. (2000). Similarities and differences in place versus cue learning in preweanling rats trained in a swimming pool. *Developmental Psychobiology* 37, 238-45.
47. **Brown, R. W.**, Bardo, M. T., Mace, D. D., Phillips, S. B., & Kraemer, P. J. (2000). D-amphetamine facilitation of Morris water task performance is blocked by eticlopride and correlated with increased dopamine turnover in the prefrontal cortex. *Behavioural Brain Research*, 114, 135-143.
48. Hicks, R. R., Boggs, A., Scheff, S. W., Kraemer, P., **Brown, R. W.**, Zhang, L., & Seroogy, K. B. (1998). Effects of exercise following lateral fluid percussion brain injury in rats. *Restorative Neurology and Neuroscience*, 12, 41-47.
49. Bruce-Keller, A. J., Li Y. J., Lovell, M. A., Kraemer, P. J., Gary, D. S., **Brown, R. W.**, Markesberry, W. R., Mattson, M. P. (1998). 4-hydroxynonenal, a product of lipid peroxidation, damages cholinergic neurons and impairs visuospatial memory in rats. *Journal of Neuropathology and Experimental Neurology*, 57(3), 257-267.
50. Kraemer, P. J., Randall, C. K., Dose, J. M., & **Brown, R. W.** (1997). The impact of D-amphetamine on temporal estimation in pigeons tested with a production procedure. *Pharmacology, Biochemistry, & Behavior*, 58, 323-327.
51. Scheff, S. W., Baldwin, S. A., **Brown, R. W.**, & Kraemer, P. J. (1997). Morris water maze deficits in rats following traumatic brain injury: Lateral controlled cortical impact. *Journal of Neurotrauma*, 14, 615-627.
52. **Brown, R. W.** & Kraemer, P. J. (1997). Ontogenetic differences in retention of spatial learning tested with the Morris water maze. *Developmental Psychobiology*, 30, 329- 341.
53. Kraemer, P. J., Randall, C. K., & **Brown, R. W.** (1997). The influence of stimulus attributes on duration matching-to-sample in pigeons. *Animal Learning & Behavior*, 25, 148-157.
54. Smith-Swintosky, V. L., Kraemer, P. J., Bruce, A. J., McCants, N., Maki, A., **Brown, R. W.**, Alcala, M., Goodman, Y., Slevin, J. T., & Mattson, M. P. (1996). Bacterial alkaloids mitigate seizure-induced hippocampal damage and spatial memory deficits. *Experimental Neurology*, 141, 287-296.
55. Kraemer, P. J., **Brown, R. W.**, Baldwin, S. A. & Scheff, S. W. (1995). Validation of a single-day Morris water maze procedure used to assess cognitive deficits associated with brain damage. *Brain Research Bulletin*, 39, 17-22.
56. Kraemer, P. J., **Brown, R. W.** & Randall, C. K. (1995). Signal

intensity and duration estimation in rats. *Behavioural Processes*, 34, 265-268.

57. H. Cremer, R. Lange, A. Christoph, M. Plomann, G. Vopper, J. Roes, **R. Brown**, S. Baldwin, P. Kraemer, S. Scheff, D. Barthels, K. Rajewsky, & W. Wille. (1994). Inactivation of the N-CAM gene in mice results in size reduction of the olfactory bulb and deficits in spatial learning. *Nature*, 367, 455-459.

58. Devenport, L. D., Doughty, D., Burton, D., Heiberger, B., **Brown, R.** & Stith, R. (1993). Exercise endurance in rats: The role of type I and type II corticosteroid receptors. *Physiology and Behavior*, 53, 1171-1175.

Peer-reviewed book chapter:

59. **Brown, R. W.** (2004). Adolescence. In Behaviour of the Laboratory Rat. B. Kolb, I. Q. Whishaw, Eds. Oxford University Press: New York. p. 278-286.

Presentations since 2006.

2016

Society for Neuroscience, San Diego, CA

De Preter C. C., Hernandez L. J., Kirby, S. L., Campbell, R. B., Beaumont, E., Bradley, C. A., Palmatier, M. I., Brown, R. W. Adolescent methylphenidate exposure alters nicotine self-administration and the accumbal firing response to nicotine.

Denton, A. R., Kirby, S. L., Kaestner, C., Dose, J. M., Burgess, K. C., Brown, R. W. Behavioral and plasticity mechanisms of the associative effects of nicotine in the neonatal quinpirole model of schizophrenia.

Gill, W. D. Wherry, J. D., Burgess, K. C. Brown, R. W. Prepulse inhibition deficits in the neonatal quinpirole model of schizophrenia: Epigenetic evidence and sex differences.

Hernandez, L. J., Burgess, K. C., Wherry, J. D., Szebeni, A., Ordway, G. A., Brown, R. W. A double hit stress rodent model of Major Depressive Disorder.

Kirby, S. L., Burgess, K. C., Beuttel, L. A., Dean, S., Bradley, C. A., Palmatier, M. I., Zhu M-Y., Brown, R. W. Nucleus accumbens BDNF overexpression alters the behavioral response to nicotine.

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Kirby, S., Cummins, E. D., Peterson, D. J., Kassem, G. L., Brown, R. W. A test of the rewarding versus aversive effects of nicotine in rats neonatally treated with quinpirole.

Peterson, D. J., Bardo, C. M., Cummins, E. D., Brown, R. W. The role of the alpha7 and alpha4 beta2 nicotinic receptors in nicotine sensitization and neural plasticity in rats neonatally treated with quinpirole.

2014

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Schlitt, M. A., Peterson, D. J., Cummins, E. D., Brown, R. W. The effects of environmental enrichment on adolescent nicotine sensitization in a rodent model of schizophrenia.

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Schlitt, M. A., Peterson, D. J., Cummins, E. D., Brown, R. W. The effects of environmental enrichment on adolescent nicotine sensitization in a rodent model of schizophrenia.

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2013

Midwestern Psychological Association, May, 2013, Chicago, IL

Cummins, E. D., Griffin, S. B., Burgess, K. C., Peterson, D. J., Watson, B. D., Buendia, M. A., Stanwood, G. D., Brown, R. W. Methylphenidate conditioned place preference and effects on the dopamine transporter.

Peterson, D. J., Cummins, E. D., Griffin, S. B., Brown, R. W. Methylphenidate conditioned place preference: Role of D1 receptors and brain-derived neurotrophic factor.

Society for Neuroscience, October, 2013, San Diego, CA

Cummins, E. D., Griffin, S. B., Duty, C. M., Burgess, K. C., Brown, R. W. The role of dopamine D1 and D2 receptors in adolescent methylphenidate conditioned preference: Sex differences and BDNF

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2012

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Roeding, R. L., Brown, R. W. Sex differences in initiation and expression of methylphenidate sensitization in adolescent rats: Analysis of accumbal and striatal BDNF.

Cummins, E. D., Brown, R. W. Methylphenidate conditioned place preference in adolescent male and female rats.

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Roeding, R. L., Perna, M. K., Griffin, S. B., Becker, R., Brown, R. W. Sex differences in induction and expression of methylphenidate sensitization and brain-derived neurotrophic factor (BDNF) in adolescent rats.

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2011

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Perna, M. K. Nicotine sensitization and its effects on dopamine overflow in a rodent model of schizophrenia.

Roeding, R. L. Hughes, B. A., Hughes, A. B., Sheppard, A. B., Perna, M. K., Ragsdale, W. L., Pond, B. B., Brown, R. W. Methylphenidate locomotor sensitization and brain plasticity in adolescent rats.

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Perna, M. K., Roeding, R. L., Roberts, A., Brown, R. W. An analysis of the effects of nicotine on behavioral sensitization, dopamine overflow, BDNF, and CREB in a neonatal quinpirole rodent model of psychosis,

Roeding, R. L., Perna, M. K., Minnigh, J. D., Noel, D. M., Brown, R. W. Sex differences in initiation and expression of methylphenidate sensitization in adolescent rats: Analysis of accumbal and striatal BDNF.

2010

Midwestern Psychological Association, May 2009, Chicago, IL.

Brown, R. W., Perna, M. K., Lacy, R., Harrod, S. B. The effects of IV gestational nicotine exposure on adolescent methamphetamine sensitization and brain-derived neurotrophic factor (BDNF).

Smith, J. J., Smith, M. L., Noel, D. M., Ordway, G. A., Brown, R. W. Eszopiclone facilitation of fluoxetine and comparisons to nicotine in mouse social defeat stress.

Smith, M. L. Smith, J. J., Brown, R. W. Age and sex differences in amphetamine sensitization and accumbal dopamine overflow in a rodent model of psychosis. Meredith L. Smith

Hanchak, E. A., Smith, M. L., Smith, J. J., Perna, M. K., Brown, R. W. A dose-response analysis of nicotine sensitization in adolescent rats D2-primed as neonates.

Noel D. M., Sluder, T. J., Lehmann, J., Whittemore, J. L., Brown, R. W. Adolescent amphetamine conditioned place preference in a rodent model of psychosis.

Invited address, Safety Pharmacology Society, September 20, 2010.

Brown, R. W. "Neurobiology of Attention Deficit Hyperactivity Disorder."

Society for Neuroscience, November, 2010, San Diego, CA.

Noel, D. M., Brown, R. W. An age comparison of social defeat stress in mice

Perna, M. K., Smith, M. L., Smith, J. J., Brown, R. W. A dose-response analysis of nicotine sensitization and accumbal dopamine overflow in adolescent rats neonatally treated with quinpirole

Ragsdale, W. L., Hughes, B. A., Hughes, A. B., Sheppard, A. B., Perna, M. K., Pond, B. B., Ordway, G. A., Brown, R. W. Locomotor sensitization to methylphenidate in rats: sex differences and effects on BDNF

2009

SYNAPSE Conference, March 2009, College of Charleston, Charleston, S. C.

Lehmann, J., Sheppard, A. B., Amine, L., Baisden, R. H., Brown, R. W. The role of dopamine D² and D³ receptor in adolescent nicotine sensitization and conditioned hyperactivity in rats D²-receptor primed as neonates.

Sluder, T. J., Smith, M. L., Smith, J. J., Brown, R. W. A dose-response analysis of nicotine sensitization in adolescent rats D2-primed as neonates.

Whittemore, J. D., Smith, M. L., Smith, J. J., Brown, R. W. Neonatal quinpirole induces amphetamine conditioned place preference in adolescent rats.

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Smith M. L., Smith, J. J., Brown, R. W. Adolescent amphetamine sensitization in a rodent model of psychosis.

Smith, J. J., Noel, D. M., Hughes, B. A., Sheppard, A. B., Ordway, G. A., Brown, R. W. Eszopiclone facilitation of the antidepressant efficacy of fluoxetine using a social defeat stress model in the mouse.

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Huggins, K. N., Cope, Z. A., Sheppard, A. B., Roane, D. S., Brown, R. W. Dopamine D₂ receptor priming enhances locomotor activation and dopamine overflow in the nucleus accumbens core in response to amphetamine: Role of D₁ and D₂ receptors. A dose-response analysis of methylphenidate sensitization in adolescent rats: sex differences in locomotor activation.

Smith, J. J., Noel, D. M., Smith, M. L., Sheppard, A. B., Baisden, R. H., Brown, R. W. A detailed behavioral analysis of social defeat stress responding in the mouse.

Smith, M. L., Smith, J. J., Roane, D. S., Brown, R. W. Adolescent amphetamine sensitization in a rodent model of psychosis: changes in accumbal dopamine using microdialysis.

2008

SYNAPSE Conference, March 2008, College of Charleston, Charleston, S. C.

Lehmann J., Sheppard A. B., Amine L., Brown R.W. Nicotine-conditioned hyperactivity in adolescent male and female D2-primed rats, roles of D2 and D3 receptors.

Noel D. M., Correll J. A., Thompson K. N., Longacre I.D., Yin D., Brown R. W. Nicotine sensitization in adolescent Beta Arrestin-2 knockout mice: Correlations with BDNF.

Whittemore J. D., Cope Z. A., Sheppard A. B., Longacre I. D., Perna M. K., Thompson K. N., , Roane D.S., Brown R.W. Amphetamine sensitization in a rodent model of psychosis: Increases in dopamine activity in the nucleus accumbens.

Hughes, B.A., Hughes, A.B., Sheppard, A.B., Baisden, R.H., Brown, R. W. Methylphenidate sensitization in adolescence: Sex Differences.

Invited address: Midwestern Psychological Association, May 2008, Chicago IL.

Brown, R. W. "Observations from a rodent model of psychosis"

Society for Neuroscience, November 2008, Washington, D. C.

Hughes, B. A., Hughes, A. B., Sheppard, A. B., Pond, B. B., Woodruff, M. L. Brown, R. W. A dose-response analysis of methylphenidate sensitization in adolescent rats: sex differences in locomotor activation.

Lehmann, J., Sheppard, A. B., Baisden, R. H., Brown, R. W. The role of dopamine D² and D³ receptor in adolescent nicotine sensitization and conditioned

hyperactivity in rats D²-receptor primed as neonates.

Noel, D. M., Hughes, B. A., Sheppard, A. B., Ordway, G. A., Brown, R. W. Eszopiclone facilitation of the antidepressant efficacy of fluoxetine using a social defeat stress model in the mouse. Daniel M. Noel, Benjamin A. Hughes, A. Brianna Sheppard, Gregory A. Ordway, Russell W. Brown.

2007

Society for Neuroscience, November 2007, Washington, D. C.

Cope, Z. A., Sheppard, A. B., Longacre, I. D., Perna, M. K., Thompson, K. N., Roane, D. S., Brown, R. W. Amphetamine sensitization in a rodent model of psychosis.

Correll J. A. Noel, D. M., Thompson, K. N., Longacre, I. D., Yin, D., Harrison, T., Brown, R. W. Nicotine sensitization in adolescent Beta Arrestin-2 knockout mice: Correlations with BDNF.

Sheppard, A. B., Amine, L., Woodruff, M. L., Brown, R. W. Nicotine-conditioned hyperactivity in adolescent male and female D2-primed rats.

Hughes, A. B., Sheppard, A. B., Longacre, I. D., Brown, R. W. Methylphenidate (Ritalin) exposure to adolescent D2-primed rats eliminates the initial hypoactive response to nicotine in adulthood.

2006

College on Problems of Drug Dependence, Scottsdale, AZ

Perna, M.K, Smith, K.J.Handy, C., Maple, A.M., Pauly, J. R., Brown, R. W. Nicotine sensitization in a rodent model of psychosis: A comparison of adult and adolescent rats.

Maple, A. M. Perna, M. K., Ogawa, Y. E., Longacre, I. D., Brown, R. W. Nicotine alleviation of deficits in prepulse inhibition in a rodent model of schizophrenia are blocked by mecamylamine.

Correll, J. A., Thompson, K. N., Longacre, I. D., Woodruff, M. L., Yin, D., Brown, R. W. Nicotine sensitization in Beta Arrestin-2 knockout mice.

Bruner, C. L., Cooper, E. L., Perna, M. K., Estep, C., Thompson, K. N., Brown, R. W. The effects of nicotine conditioned place preference in D2-primed adolescent rats: Age-related and gender effects.

Cain, M. E., Stairs, D. J., Brown, R. W., Bardo, M. T. Role of the Central Nucleus of the Amygdala in Enrichment-Induced Changes of Rat Amphetamine Self-Administration.

Society for Neuroscience, Atlanta, GA.

Correll, J. A., Thompson, K. N., Longacre, I. D., Woodruff, M. L., Yin, D., Kostrzewa, R. M. Brown, R. W.. Nicotine sensitization in adolescent Beta Arrestin-2 knockout mice.

Longacre, I. D., Kimberly N. Thompson, K. N., , Maple, A. M., Brown, R. W., Skelton, M. R., Vorhees, C. V.,³, Williams, M. T. Reductions in spine density and length in the dentate gyrus and nucleus accumbens in adult rats after neonatal MDMA exposure.

Maple, A. M., Longacre, I. D., Perna, M. K , Woodruff, M. L., Brown, R. W. Nicotine exacerbates prepulse inhibition deficits in dopamine D2-receptor primed rats.

Ogawa, Y. E, Cooper, E. L., Bruner, C. L. , Perna, M. K , Thompson, K. N., Baisden, R. Brown, R. W. . The effects of nicotine conditioned place preference in D2-primed adolescent rats: Age-related and gender effects.

Perna, M. K Correll, J. A, Maple, A. M., Brown, R. W. Nicotine sensitization in adolescent and adult rats D2 receptor primed as neonates.