

Curriculum Vitae

Benjamin R. Miller
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Richland College
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Dallas, TX 75243

Education

- 2009 **Ph.D.** Indiana University
Major I: Neuroscience Major II: Psychology
Advisor: George V. Rebec, Ph.D.
- 2004 **M.S.** University of North Texas
Major: Biology
Advisor: Guenter W. Gross, Ph.D.
- 2002 **B.S.** University of North Texas
Major: Biology Minors: Chemistry, English
University Honors Program

Teaching Experience

Independent Teaching

- 2002 Mentor, High School Honors Assistant Researchers, U.S. Army Corps of Engineers Research and Development Center, Lewisville Aquatic Ecosystem Research Facility, Lewisville, TX.
- 2004 Mentor, undergraduate research assistant enrolled in Special Problems (BIO 4900), University of North Texas. Student: Isaac Maycotte
- 2002-2004 **Instructor**, Animal Physiology Laboratory (BIO 3810), University of North Texas (**4 semesters**; student **evaluations** available).
- 2005-2007 Mentor, Initiative for Maximizing Student Diversity in Scientific Research, NIH IMSD Scholars Program, Indiana University. Student: Rafael D. White
- 2005-2009 Mentor, Science Technology and Research Scholars Program, Indiana University. Students: Anand Shah, Rishi Ardeshta, Lauren J. Walker, Jenna N. Fritsch, Desire Cossyleon, Wajihah A. Hussain
- 2005-2009 Mentor, undergraduate research assistants enrolled in Supervised Research I and II (P493/P494), Indiana University. Students: Tyler J. Brock, Emma L. Klein, Thomas W. Gaither
- 2007 **Instructor**, Methods of Experimental Psychology (P211), Indiana University (student **evaluations** available).
- 2007 Guest Lecturer, Neuropsychopharmacology (P667), Indiana University. Lecture title: Pharmacology at the tripartite synapse: The pharmacological influence of glia in the synapse and their role in information processing and disease (student **evaluations** available).
- 2008 Guest Lecturer, Molecular Neuroscience (N510), Indiana University. Lecture title: Neurotransmitter Release.
- 2009-present **Adjunct Faculty**, Biology for Majors (BIOL 1406), Richland College; School of Mathematics, Science and Health Professions; Dallas County Community College District, Dallas, TX (student **evaluations** available).
- 2011-present **Visiting Assistant Professor**, Human Anatomy and Physiology (lecture/lab, BIO 1340/1140), Texas Wesleyan University; Biology Department, Fort Worth, TX.

I certify that statements made by me in this vitae are true, complete and correct.

Associate Instructor

2005	Methods of Experimental Psychology (P211), Indiana University
2005	Behavioral Neuroscience (P326), Indiana University
2006	Advanced Statistics in Psychology 2 (P554), Indiana University
2007	Neuropsychopharmacology (P667), Indiana University
2008	Molecular and Cellular Neuroscience (N510), Indiana University

Pedagogical Training

2002	Teaching Assistant Orientation in Biology (BIO5005), University of North Texas.
2006	The Teaching of Psychology (P660), Indiana University.

Publications and Papers

** denotes mentored undergraduate author/co-author throughout the document*

Research

1. Dorner JL, **Miller BR**, Barton SJ, Brock TJ^{*}, Rebec GV (2007) Sex differences in behavior and striatal ascorbate release in the 140 CAG knock-in mouse model of Huntington's disease. Behavioural Brain Research 178(1):90-97.
2. Gopal KV, **Miller BR**, Gross GW (2007) Acute and sub-chronic functional neurotoxicity of methylphenidate on neural networks in vitro. Journal of Neural Transmission 114(11):1365-75.
3. Liu X, **Miller BR**, Rebec GV, Clemmer DE (2007) Protein expression in striatum and neocortex of the R6/2 mouse model of Huntington's disease. Journal of Proteome Research 6(8):3134-42.
4. **Miller BR**, Dorner JL, Shou M, Sari Y, Barton SJ, Sengelaub DR, Kennedy RT, Rebec GV (2008) Up-regulation of GLT1 expression increases glutamate uptake and attenuates the Huntington's disease phenotype in R6/2 mice. Neuroscience 153(1):329-37.
5. **Miller BR**, Walker AG, Shah AS^{*}, Barton SJ, Rebec GV (2008) Dysregulated information processing by medium-spiny neurons in striatum of freely behaving mouse models of Huntington's disease. Journal of Neurophysiology 100:2205-2216.
6. Walker AG, **Miller BR**, Fritsch JN^{*}, Barton SJ, Rebec GV (2008) Altered information processing in the prefrontal cortex of Huntington's disease mouse models. Journal of Neuroscience 28(36):8973-8982.
7. Fowler SC, **Miller BR**, Gaither TW^{*}, Johnson MA, Rebec GV (2009) Force-plate quantitative assessment of progressive behavioral deficits in the R6/2 mouse model of Huntington's disease. Behavioural Brain Research 202:130-137.
8. Dorner JL, **Miller BR**, Klein EL^{*}, Murphy-Nakhnikian A, Andrews RL^{*}, Barton SJ, Rebec GV (2009) Corticostriatal dysfunction underlies diminished striatal ascorbate release in the R6/2 mouse model of Huntington's disease. Brain Research 1290:111-120.
9. **Miller BR**, Walker AG, Fowler SC, von Hörsten S, Riess O, Johnson MA, Rebec GV (2010) Dysregulation of coordinated neuronal firing patterns in striatum of freely behaving transgenic rats that model Huntington's disease. Neurobiology of Disease 37:106-113.
10. Sari Y, Prieto AL, Barton SJ, **Miller BR**, Rebec GV (2010) Ceftriaxone-induced up-regulation of cortical and striatal GLT1 in the R6/2 model of Huntington's disease. Journal of Biomedical Science 17:62.
11. Ball KT, Wellman CL, **Miller BR**, Rebec GV (2010) Electrophysiological and Structural Alterations in Striatum Associated with Behavioral Sensitization to MDMA (Ecstasy) in Rats: Role of Drug Context. Neuroscience 171:794-811.

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12. **Miller BR**, Dorner JL, Gaither TW^{*}, Klein EL^{*}, Barton SJ, Rebec GV (under review) Up-regulation of GLT1 reverses deficient corticostriatal-dependent efflux of ascorbate in striatum of the R6/2 mouse model of Huntington's disease.
13. **Miller BR**, Walker LJ^{*}, Cossyleon D^{*}, Hussain WA^{*}, Barton SJ, Walker AG, Rebec GV (in preparation) Altered neuronal firing patterns in motor cortex (M1) of the R6/2 model of Huntington's disease.

Reviews

1. **Miller BR**, Bezprozvanny I (2010) Corticostriatal circuit dysfunction in Huntington's disease: intersection of glutamate, dopamine, and calcium. Future Neurology 5(5):735-756.
2. **Miller BR**, Walker AG, Barton SJ, Rebec GV (2011) Dysregulated neuronal activity patterns implicate corticostriatal circuit dysfunction in multiple rodent models of Huntington's disease. Frontiers in Systems Neuroscience, Special Topic on Basal Ganglia X – Proceedings of the 10th triennial meeting of the International Basal Ganglia Society. doi. 10.3389/fnsys.2011.00026.

Pedagogical

1. **Miller BR**, Troyer M^{*}, Busey TA (2008) Virtual EEG: A Program-based electroencephalogram designed for undergraduate neuroscience-related courses. The Journal of Undergraduate Neuroscience Education (JUNE), Fall 2008, 7(1):A19-A25.

For access to Virtual EEG see: <http://virtualeeg.psych.indiana.edu/>

Certificates, Certifications & Other Qualifications

HONORS, FELLOWSHIPS, GRANTS

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| 2004 | College of Arts and Sciences, Program in Neuroscience Fellowship, Indiana University, Program in Neuroscience. |
| 2005 | Center for the Integrative Study of Animal Behavior (CISAB) Pilot Research Award. "The effects of Ceftriaxone on GLT-1 expression and its neurotherapeutic potential for Huntington's disease." Indiana University. |
| 2006 | CISAB Travel Award. Indiana University. 1 st annual Glia in Health and Disease meeting. Cold Spring Harbor, NY. |
| 2006 | Glia in Health and Disease Travel Award, Cold Spring Harbor Meetings. Cold Spring Harbor, NY. |
| 2006 | Faculty commendation for outstanding qualifying exam, Indiana University. |
| 2007 | CISAB Travel Award. Indiana University. 37 th annual Society for Neuroscience meeting. San Diego, CA. |
| 2007 | Sigma Xi Grants-in-Aid of Research Award. "Regulation of synaptic glutamate to restore striatal neuronal output in the R6/2 mouse model of Huntington's disease." |
| 2007 | Graduate Student Poster Competition Award, Society for Neuroscience, Indianapolis Chapter Annual Meeting, Indianapolis, IN. |
| 2009 | Ruth L. Kirschstein National Research Service Award (NINDS F31 NS-064791) "Effects of glutamate uptake on the neuropathophysiology of Huntington's disease." |
| 2009 | CAG Triplet Repeat Disorders Gordon Research Conference Travel Award, Waterville Valley Resort, NH. |
| 2011 | Ruth L. Kirschstein National Research Service Award (NINDS F32 NS-071853) "Aberrant corticostriatal synaptic activity in Huntington's disease" (Declined). |

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience, Member
Sigma Xi, Full Member

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Relevant Work Experience

2011 – present

Visiting Assistant Professor

Texas Wesleyan University; Department of Biology; Fort Worth, TX
Teach Human Anatomy and Physiology (lecture/lab, BIO 1340/1140)

2009 – present

Adjunct Faculty

Richland College; School of Mathematics, Science, and Health Professions; Dallas
County Community College District, Dallas, TX
Teach Biology for Majors (BIOL 1406)

2009 – 2011

Postdoctoral Researcher

UT Southwestern Medical Center, Dallas, TX
Advisor: Ilya Bezprozvanny, Ph.D.

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