BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Niswender, Colleen M.	Research Assistant Professor of Pharmacology
eRA COMMONS USER NAME niswenc	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Akron		1986-1987	Biology
University of Toledo	B.S.	1987-1991	Pharmacy
Vanderbilt University	Ph.D.	1991-1996	Pharmacology
Vanderbilt University		1996-1998	Pharmacology
University of Washington		1998-2004	Pharmacology

A. Positions and Honors.

Employment

1996-1998 Postdoctoral Fellow, Vanderbilt University
1998-2003 Senior Fellow, Pharmacology, University of Washington
2003-2004 Acting Instructor, Pharmacology, University of Washington
2004-present Research Assistant Professor, Pharmacology, Vanderbilt University

Honors and Awards

1991 Valedictorian, College of Pharmacy
Phi Kappa Phi Graduate Fellowship
AAPS-AFPE Gateway Scholarship
The Merck-Sharp and Dohme Award in Medicinal Chemistry
The Upjohn Award in Pharmacology
The SmithKline Beechem Award in Clinical Pharmacy
1993 First Place, Vanderbilt University Graduate Student Research Day
1994 First Place, Vanderbilt University Graduate Student Research Day
1995 Grass Foundation Fellowship to attend “Neurobiology of Human Neurological Disease: Mechanisms of Neurodegeneration”, Cold Spring Harbor Laboratory
1994-1996 Pharmaceutical Research and Manufacturers of American Foundation Predoctoral Award in Pharmacology
1997-1998 Pharmaceutical Research and Manufacturers of American Foundation Postdoctoral Award in Pharmacology
1999-2000 Fellow, Neurobiology and Behavior Training Grant, University of Washington
2000-2003 Fellow, National Service Research Award, NIDDK
2000 Travel award for abstract submitted to “Obesity and the Regulation of Energy Homeostasis”, Keystone Symposium, Taos, NM
2003-2004 DERC Pilot and Feasibility Award Recipient

Professional Memberships

1991-present Phi Kappa Phi
1991-1998, 2006-present Society for Neuroscience

B. Selected peer-reviewed publications (in chronological order).

Original Research

1. Hagley MT, Hulisz D, and **Burns CM**. Hepatotoxicity associated with angiotensin converting enzyme inhibitors. Ann Pharm 1993;27:228-230.
2. *Rueter SM, ***Burns CM**, Coode SA, Mookherje P, Emeson RB. Glutamate receptor RNA editing in vitro by enzymatic conversion of adenosine to inosine. Science 1995;267:1491-1494.*equal authorship publication

3. Hinko CN, Crider AM, Kliem MA, Steinmiller CL, Seo TH, Ho B, Venkatarangan P, El-Assadi AA, Chang H, **Burns CM**, Tietz E, Anderson P, Klitgaard H. Anticonvulsant activity of novel derivatives of 2- and 3-piperidinecarboxylic acid in mice and rats. Neuropharmacology 1996;35(12):1721-1735.
4. **Burns CM**, Chu H, Rueter SM, Hutchinson LK, Canton H, Sanders-Bush E, Emeson RB. Regulation of serotonin-2C receptor G-protein coupling by RNA editing. Nature 1997;387:303-308.
5. Backstrom JR, Chang MS, Chu H, **Niswender CM**, Sanders-Bush E. Agonist-directed signaling of serotonin 5-HT_{2C} receptors: differences between serotonin and lysergic acid diethylamide (LSD). Neuropsychopharm 1999;21(2Suppl):77S-81S.
6. **Niswender CM**, Copeland SC, Emeson RB, Sanders-Bush E. RNA editing of the human serotonin 5-hydroxytryptamine 2C receptor silences constitutive activity. J Biol Chem 1999;274(14):9472-9478.
7. Herrick-Davis K, Grinde E, **Niswender CM**. Serotonin 2C receptor RNA editing alters receptor basal activity: implications for serotonergic signal transduction. J Neurochem 1999;73(4):1711-1717.
8. **Niswender CM**, Herrick-Davis K, Dilley GE, Meltzer HY, Overholser JC, Stockmeier CA, Emeson RB, Sanders-Bush E. RNA editing of the serotonin 2C receptor: alterations in suicide and implications for serotonergic pharmacotherapy. Neuropsychopharm 2001;24(5):478-491.
9. Berg KA, Cropper JD, **Niswender CM**, Sanders-Bush E, Emeson RB, Clarke WP. RNA editing of the 5-HT(2C) receptor alters agonist-receptor-effector coupling specificity. Br J Pharmacol 2001;134:386-392.
10. **Niswender CM**, Hutchinson LK. RNA processing regulation and interindividual variation. In: Pharmacogenetics of Psychotropic Drugs 2002. B. Lerer, editor. Cambridge University Press, 127-154.
11. **Niswender CM**, Ishihara W, Judge L, Zhang C, Shokat KM, McKnight GS. Protein engineering of protein kinase A catalytic subunits results in the acquisition of novel inhibitor sensitivity, J Biol Chem 2002;277(32): 28916-28922.
12. **Niswender CM**, Willis BS, Wallen A, Sweet I, Jetton T, Thompson BR, Wu C, Lange AJ, McKnight GS. Hepatocyte-specific activation of a Protein Kinase A holoenzyme with enhanced sensitivity to cAMP disrupts glucose homeostasis. Genesis, 2005; 43(3):109-119.
13. Hemstapat K, De Costa H, Nong Y, Brady AE, Luo Q, **Niswender CM**, Tamagnan GD, Conn PJ. A novel family of potent negative allosteric modulators of group II mGluRs. J Pharmacol Exp Ther 2007; 322(1):254-264.
14. Ayala JE, **Niswender CM**, Luo Q, Banko JL, Johnson RL, Conn PJ. Group III mGluR regulation of synaptic transmission at the SC-CA1 synapse is developmentally regulated. Neuropharmacology, 2007, epub.
15. **Niswender CM**, Myers KA, Kim, C, Ayala JE, Conn PJ, Weaver CD. Development of a novel and direct assay for high throughput screening of Gi/o-linked G protein coupled receptors using thallium flux through GIRK channels. Mol Pharm*,* 2008, epub.
16. Shirey JK, Xiang Z, Orton D, Brady AE, Myers KA, Williams R, Rodriguez AL, Weaver CD, **Niswender CM**, Conn PJ. Development and use of allosteric potentiators to examine the role of M4 mAChR in modulating hippocampal neurotransmission. Nat Chem Biol 2008; Jan 4(1):42-50.
17. Lewis LM, Sheffler D, Williams R, Bridges TM, Kennedy JP, Brogan JT, Mulder MJ, Wliiams L, Nalywajko NT, **Niswender CM**, Weaver CD, Conn PJ, Lindsley CW. Synthesis and SAR of selective muscarinic acetylcholine receptor subtype 1 (M1 AChr) antagonists. Bioorg Med Chem Lett*,*18(3):885-90.
18. Alizadeh A, Fitch KR, **Niswender CM**, McKnight GS, Barsh GS. Melanocyte lineage-specific expression of Cre recombinase using *Mitf* regulatory elements. Pigment Cell Research, *in press*.

<u>Non-experimental articles (reviews)</u>

1. **Niswender CM**, Sanders-Bush E, Emeson RB. Identification and characterization of RNA editing events within the serotonin 2C receptor. Annals N Y Acad Sci 1998;15(861):38-48.
2. **Niswender CM**. Recent advances in mammalian RNA editing. CMLS, Cell Mol. Life Sci. 1998;54:946-964.
3. **Niswender CM**. Strategies and requirements for the detection of RNA editing in G-protein coupled receptor RNA. Methods Enzymol, 2002;343:476-492.
4. **Niswender CM**, McKnight GS. Transgenic models for the study of cAMP signaling. Invited review, Handbook of Experimental Pharmacology, Transgenic Models in Pharmacology 2004;159:131-164.
5. **Niswender CM**, Jones CK, and Conn PJ. New therapeutic frontiers for metabotropic glutamate receptors. *Curr Top Med Chem* 2005; 5(9): 847-857.
6. Conn, PJ and **Niswender, CM**. mGluR7's lucky number. Proc Nat Acad Sci 2006; 103(2):251-2.

Recent abstracts

1. **Niswender CM**, Myers KA, Banko JL, Rodriguez AL, Edl J, Zhang Y, Shirey JK, Saleh SA, Weaver CD, Conn PJ. Identification of novel allosteric modulators of group III mGluRs: New tools for the study of synaptic transmission. 5th Meeting on Metabotropic Glutamate Receptors, Taormina, Italy, 2005.
2. Myers KA, **Niswender CM,** Williams R, Edl J, Saleh S, Jones CK, Weaver CD, Orton D, Conn PJ. Characterization of novel allosteric antagonists of metabotropic glutamate receptor subtype 7. Society for Neuroscience Abstracts, 2006.
3. Brady AE, Shirey JK, Rodriguez AL, **Niswender CM**, Weaver CD, Conn, PJ. A high throughput functional screen for the identification of selective allosteric ligands of the M1 mAChR. Society for Neuroscience Abstracts, 2006.
4. Edl J, Banko JL, Myers KA, **Niswender CM**, Conn PJ. Developmental differences in group III mGluR regulation of synaptic transmission in area CAI of the rat hippocampus. Society for Neuroscience Abstracts, 2006.
5. **Niswender CM**, Myers KA, Williams R, Ayala J, Luo Q, Saleh S, Jones CK, Weaver CD, Orton D, Conn PJ. Permissive antagonism induced by novel allosteric antagonists of metabotropic glutamate receptor 7. American College of Neuropsychopharmacology Abstracts, 2006.
6. **Niswender CM**, Jones CK, Weaver CD, Rodriguez AL, Chen Y, Shirey JK, Brady AE, Marlo JE, Luo Q, Xianzhang M, Williams L, Hammond AS, Myers KA, Orton D, Williams R, Days EL, Nalywajko NT, Williams, M, Conn PJ. Allosteric modulation of metabotropic glutamate receptor 5, M1 and M4 muscarinic receptors: potential therapeutic directions for schizophrenia. Southeastern Pharmacology Society abstracts, 2006.
7. **Niswender CM**, Weaver CD, Lindsley CW, Jones CK, Lewis M, Marlo JE, Shirey JK, Xiang Z, Brady AE, Orton D, Williams R, Rodriguez AL, Yin H, Days EL, Farmer C, Luo Q, Xianzhang M, Myers KA, Ayala JE, Nalywajko NT, Lorsen KA, Williams M, Conn PJ. High Throughput Screening, Medicinal Chemistry, Physiology, and Behavioral Pharmacology at Vanderbilt in Support of Drug Discovery for Targets Involved in CNS Disorders. 8th Annual Rett Syndrome Symposium, 2007.
8. Bridges T, Jones C, Brady A, Marlo J, Rodriguez A, **Niswender C**, Williams R., Kim K., Sheffler D, Grier M, Weaver D, Conn PJ, Lindsley C. Novel allosteric modulation of the M1 muscarinic receptor: agonists and potentiators for the treatment of Alzheimer's disease and schizophrenia. ACS-CNS Medicinal Chemistry Conference, 2007.
9. Myers-Johnson KA, **Niswender CM**, Luo Q, Ayala JE, Rodriguez AL, Marlo JE, Days EL, Nalywajko NT, Lornsen KA, Williams M, Lewis M, Weaver CD, Conn PJ. Discovery, synthesis, and SAR of a series of novel positive allosteric modulators of metabotropic glutamate receptor subtype 4. Society for Neuroscience Abstracts, 2007.
10. Shirey, JK, Xiang Z, Orton D, Brady AE, Johnson KA, Williams R, Ayala JE, Rodriguez AL, Wess J Weaver CD, **Niswender CM**, Conn PJ. An allosteric potentiator suggests a role for M_4 muscarinic acetylcholine receptor (mAChR) in modulating excitatory hippocampal synaptic transmission. Experimental Biology Abstracts, 2008.