

Darci M. Nielsen, Ph.D.
Curriculum Vitae

PERSONAL INFORMATION

Work Address: Center for Alcohol and Addiction Studies
 Brown University
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EDUCATION

- 1992 **B.S. University of Rochester, Rochester, NY**
Neuroscience (Major), International Relations (certificate)
Thesis Advisor: David Mattson, M.D., Ph.D.
Thesis Title: T cell diversity in multiple sclerosis and oligodendrogloma
 proliferation.
Honors: Dean's List
- 1997 **M.S. Albany Medical College, Albany, NY**
Pharmacology and Toxicology
Advisor Jeffrey N. Carlson, Ph.D.
Dissertation Title: Asymmetrical medial prefrontal cortical dopamine system
 and behavioral and neurochemical responses to stress.
- 1999 **Ph.D. Albany Medical College, Albany, NY**
Pharmacology and Neuroscience
Advisor Jeffrey N. Carlson, Ph.D.
Dissertation Title: Individual differences in paw preference, turning, and
 ethanol seeking behavior and medial prefrontal cortical
 dopamine asymmetries (June 1998).

PROFESSIONAL POSITIONS

- 1993-1998 **Graduate Research Assistant**, Department of Pharmacology and Neuroscience,
Albany Medical College, Albany, NY (Advisor: Jeffrey N. Carlson, Ph.D.).

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- 1998-2001 **Postdoctoral Research Fellow**, Department of Pediatrics, University of Colorado Health Sciences Center and Eleanor Roosevelt Institute, Denver, CO (Advisor: Linda S. Crnic, Ph.D.).
- 2001-2003 **Postdoctoral Research Scientist**, Behavioral Pharmacology Unit, Pharmacia Corporation (Now Pfizer Inc.), Kalamazoo, MI (Advisors: Lisa H. Gold, Ph.D., Galen J. Carey, Ph.D.).
- 2004-2005 **Postdoctoral Research Fellow/Research Associate**, Center for Alcohol and Addiction Studies, Brown University, Providence, RI (Advisors: Cristine L. Czachowski, Ph.D., Jennifer W. Tidey, Ph.D.).
- 2005 – Present **Investigator**, Center for Alcohol and Addiction Studies, Department of Community Health, Brown University, Providence, RI.

GRANTS, FELLOWSHIPS AND AWARDS

- 1995-1997 Albany Medical College Graduate Studies Program Student Travel Grant (three awards).
- 1997 AccuScan Travel Fellowship Honorable Mention, Society For Neuroscience.
- 1997 Research Society on Alcoholism Student Merit Award.
- 1998-2000 National Institute of Child Health and Human Development Post Doctoral Training Grant (Institutional Training Program at Eleanor Roosevelt Institute; 24 months).
- 2000-2001 FRAXA Research Foundation Fellowship Grant: “Sensory Processing Abnormalities in F1 Hybrid *Fmr1* Mutant Mice” *PI: Nielsen*.
- 2001-2003 Pharmacia Corporation Post Doctoral Research Fellowship.
- 2004 Research Excellence Award (Center for Alcohol & Addiction Studies, Brown University).
- 2004-2005 National Institute on Drug Abuse Post Doctoral Training Grant (Institutional Training Program Center for Alcohol and Addiction Studies, Brown University).
- 2005-2006 R03 Behavioral Science Track Award for Rapid Transition (B/START; NIDA): “Nicotine Addiction and Gating Deficits in Schizophrenia” *PI: Nielsen*.
- 2006 Travel Award, NIDA/APA Early Career Investigators Session

PATENTS

2001 U. S. Provisional Patent “Automated Foot-Shock Sensitivity Scoring Method.”

RESEARCH EXPERIENCE

2004-Present **Brown University, Center for Alcohol and Addiction Studies, Providence, RI**

- Independent studies investigating effects of nicotine and preference for nicotine in a schizophrenic-like animal model.
- Collaborative studies examining the role alpha3 neuronal nicotinic acetylcholine receptors play in mediating various behavioral responses to nicotine.
- Human laboratory and clinical studies on the pharmacological treatment of alcohol dependence, in the clinical laboratory of Robert Swift, M.D., Ph.D.
- Techniques include: stereotaxic surgery, prepulse inhibition of auditory startle, two-bottle choice preference procedures, dosing (subcutaneous; sc, intraperitoneal, ip), breath alcohol concentration, Montgomery & Asberg Depression Rating Scale (MADRS), Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar), brief behavioural compliance-enhancement treatment (BBCET) administrator, timeline follow-back (TLFB) certified, Form-90 certified.

2001-2003 **Pharmacia Corporation (Now Pfizer Inc.), Kalamazoo, MI**

- Worked with behavioral models to screen novel antidepressants: Setup and pharmacologically validated two animal models predictive of antidepressant activity.
- Explored developmental models of depression and schizophrenia.
- Consulted on behavioral models of central nervous system disorders in drosophila.
- Techniques utilized include: tail suspension, forced swim (Porsolt's), locomotor activity, learned helplessness, restraint, conditioned place preference, grip strength, dosing (oral; po, subcutaneous; sc, intraperitoneal, ip), radioimmunoassay, cerebrospinal fluid (CSF) collection.

1998-2001 **University of Colorado Health Sciences Center, Denver, CO**

- Developed a computer assisted data acquisition paradigm for evaluating foot shock sensitivity in mice.
- Studied altered reactivity to sensory stimuli in *Fmr1*-targeted mutant mouse models of fragile X syndrome.
- Examined behavioral measures of anxiety, depression, activity, stress, fear, and nociception in *Fmr1*-targeted mutant mouse models of fragile X syndrome.
- Evaluated the development of anxiety during the progression of autoimmune disease in MRL/lpr mice (a mouse model of Lupus).

- Techniques utilized include: acoustic startle reflex, acoustic startle habituation, prepulse inhibition of acoustic startle, elevated plus maze, fear-potentiated startle, foot shock, foot shock sensitivity, forced swim (Porsolt's), locomotor activity, tail-flick, DNA extraction, polymerase chain reaction (PCR).

1993-1998 **Albany Medical College, Albany, NY**

- Evaluated the influence of cortical dopamine asymmetry on ethanol preference and ethanol's interaction with cortical and limbic dopamine asymmetry, in left and right turning rats.
- Evaluated paw preference, turning behavior, and cortical, limbic, and striatal dopamine and dopamine metabolite levels in Collins' lateralized mice strains.
- Analyzed the effects of a D1 antagonist microinjection into the left or right medial prefrontal cortex on the behavioral and neurochemical responses to foot shock stress in left and right turning rats.
- Examined the effects of chronic antidepressant drug treatment on rats' turning behavior and biogenic amine levels in the prefrontal cortex, nucleus accumbens, and striatum.
- Investigated the effects of left and right 6-hydroxydopamine lesions of the medial prefrontal cortex on turning behavior, stress-escape behavior, and subcortical dopamine function, in rats exhibiting left or right turning biases.
- Techniques utilized include: foot shock, learned helplessness, paw preference behavior (lateral and medial), restraint, active avoidance, turning (rotational) behavior, two-bottle choice procedures, stereotaxic surgery, brain dissections, high performance liquid chromatography with electrochemical detection (HPLC-EC), cell culture, enzyme-linked immunosorbent assay (ELISA).

1991 **University of Rochester, Rochester, NY**

- Independent neuroimmunology research study with David H. Mattson, M.D., Ph.D. Analyzed T-cell receptor repertoire libraries of Multiple Sclerosis patients and studied proliferation of human glioma cell lines.
- Techniques utilized include: cell culture, plasmid DNA preparation, gel electrophoresis.

TEACHING EXPERIENCE

- 2002 **Supervisor**, Pharmacia Corporation, Kalamazoo, MI.
Trained and supervised an undergraduate summer intern in a research project that culminated in presentation of results at a team/departmental meeting.
- 1998-2001 **Laboratory Instructor**, Univ. of Colorado Health Sciences Center, Denver, CO.
Trained and supervised two undergraduates in laboratory research projects.
- 1994-1998 **Laboratory Instructor**, Albany Medical College, Albany, NY.

Trained and supervised three medical students and five undergraduates in laboratory research projects.

1994-1997 **Instructor**, Albany Medical College, Albany, NY.
Physician's Assistant Pharmacology Course Lecturer: 1:"Drugs Used in Affective (Mood) Disorders." 2: "Antipsychotic (Neuroleptic) Drugs."

PROFESSIONAL SOCIETIES AND ADVISORY COMMITTEES

1994-1995	Albany Medical College, Graduate Student Organization, Department Representative
1995-1996	Albany Medical College, Committee for Admissions and Student Evaluations
1995-1997	Albany Medical College, Graduate Student Organization, Treasurer
1997-1998	Albany Medical College, Graduate Student Organization, Department Representative
1997-1998	Albany Medical College, Financial Aid Committee
1997-1998	Albany Medical College, Executive Committee of the Graduate Studies Program
1995 - Present	Society for Neuroscience
2005 - Present	Society for Research on Nicotine and Tobacco

EDITORIAL REVIEW FOR JOURNALS

Molecular Psychiatry
Neuropeptides
Neuroscience Letters
Trends in Genetics

PEER-REVIEWED PUBLICATIONS

Carlson JN, Visker KE, Nielsen DM, Keller RW Jr., Glick SD. (1996) Chronic antidepressant drug treatment reduces turning behavior and increases dopamine levels in the medial prefrontal cortex. *Brain Research*, 707:122-126.

Nielsen DM, Visker KE, Cunningham MJ, Keller RW Jr., Glick SD, Carlson JN. (1997) Paw preference, rotation, and dopamine function in Collins HI and LO mouse strains. *Physiology & Behavior* 61:525-535.

Nielsen DM, Crosley KJ, Keller RW Jr., Glick SD, Carlson JN. (1999) Ethanol induced differences in medial prefrontal cortex dopamine asymmetry and in nucleus accumbens dopamine metabolism in left- and right-turning rats. *Brain Research* 823: 207-212.

Nielsen DM, Crosley KJ, Keller RW Jr., Glick SD, Carlson JN. (1999) Rotation, locomotor activity, and individual differences in voluntary ethanol consumption. *Brain Research* 823: 80-87.

Nielsen DM, Crosley KJ, Keller RW Jr., Glick SD, Carlson JN. (1999) Left and right 6-hydroxydopamine lesions of the medial prefrontal cortex differentially affect voluntary ethanol consumption. *Brain Research* 823: 59-66.

Nielsen DM, Crnic LS. (2002) Elevated plus maze behavior, auditory startle response, and shock sensitivity in pre-disease and in early stage autoimmune disease MRL/lpr mice. *Brain Behavior and Immunity* 16: 46-61.

Nielsen DM, Derber WJ, McClellan DA, Crnic LS. (2002) Alterations in the auditory startle response in *Fmr1* targeted mutant mouse models of Fragile X Syndrome. *Brain Research* 927: 8-17.

Nielsen DM, Crnic LS. (2002) Automated analysis of foot-shock sensitivity and concurrent freezing behavior in mice. *Journal of Neuroscience Methods* 115(2): 199-209.

Nielsen DM, Carey GJ, Gold LH. (2004) Antidepressant-Like activity of corticotropin-releasing factor type 1-receptor antagonists in mice. *European Journal of Pharmacology* 499(1-2): 135-46.

Nielsen DM. (2006) Corticotropin-releasing factor type-1 receptor antagonists: the next class of antidepressants? *Life Sciences* 78: 909-919.

MANUSCRIPTS SUBMITTED OR IN PREPARATION

Kenna GA, Nielsen DM, Schiesl A, Mello P, Swift RM. (submitted). Pharmacotherapy for co-occurring substance abuse disorders. *CNS Drugs*.

Nielsen DM, Maclean KN, Crnic LS. (submitted). Foot-shock sensitivity and shock-induced freezing in a mouse model of fragile X syndrome. *Behavioral Neuroscience*.

Kreider JC, Nielsen DM, Overdier KH, Maclean KN, Crnic LS. Avoidance learning in a mouse model of fragile X syndrome.

Nielsen DM. Effect of nicotine and bupropion on prepulse inhibition deficits in an animal model of schizophrenia.

Nielsen DM. Nicotine preference in an animal model of schizophrenia.

INVITED TALKS, PRESENTATIONS AND PUBLISHED ABSTRACTS

Nielsen DM, Carlson JN, Visker KE, Keller RW Jr., Glick SD (1995, November) Paw preference, turning behavior and dopamine function in the Collins HI and LO lateralized mouse strains. Presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA. *Society for Neuroscience Abstracts* 21:1689.

Nielsen DM, Keller RW Jr., Glick SD, Carlson JN (1996, November) Microinjection of the D1 antagonist SCH 23390 into the left or right medial prefrontal cortex differentially alters the behavioral and neurochemical responses to foot shock stress. Presented at the Annual Meeting of the Society for Neuroscience, Washington, DC. *Society for Neuroscience Abstracts* 22:161.

Nielsen DM, Crosley KJ, Keller RW Jr., Glick SD, Carlson JN (1997, July) Medial prefrontal cortex dopamine asymmetry, foot shock stress and ethanol preference. Presented at the Annual Meeting of the Research Society on Alcoholism, San Francisco, CA. *Alcoholism: Clinical and Experimental Research* 21:625.

Nielsen DM, Crosley KJ, Keller RW Jr., Glick SD, Carlson JN (1997, October) Ethanol induced changes in dopamine asymmetry in the medial prefrontal cortex and nucleus accumbens. Presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA. *Society for Neuroscience Abstracts* 23:2400.

Nielsen DM (1998, March) Individual differences in paw preference, turning, and ethanol seeking behavior and medial prefrontal cortical dopamine asymmetries. Invited seminar, Yale University School of Medicine, VA Medical Center, West Haven, CT.

Nielsen DM (1998, April) Individual differences in paw preference, turning, and ethanol seeking behavior and medial prefrontal cortical dopamine asymmetries. Invited seminar, Department of Psychiatry and Pediatrics, University of Colorado Health Sciences Center, Denver, CO.

Nielsen DM, Crnic LS (2000, May) Elevated plus maze, startle, and shock sensitivity behavior in predisease and early stage autoimmune lupus disease MRL/lpr mice. Presented at the Annual PsychoNeuroImmunology Research Society Meeting, Cape Fear, NC. *Brain, Behavior, and Immunity* 14:119.

Nielsen DM, Derber WJ, Crnic LS (2000, May) Anxiety, acoustic startle response, habituation and prepulse inhibition in *Fmr1* knockout mice. Presented at the Annual Rocky Mountain Region Neuroscience Group Meeting, Denver, CO.

Nielsen DM, Derber WJ, Crnic LS (2000, May) Anxiety, acoustic startle response, startle habituation, and prepulse inhibition of startle in a mouse model of fragile X. Presented at the Eleventh Biennial Retreat of the Developmental Psychobiology Research Group, Estes Park, CO.

Nielsen DM, Derber WJ, Crnic LS (2000, November) Anxiety, acoustic startle response, habituation and prepulse inhibition in *fmr1* knockout mice. Presented at the Annual Meeting of

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the Society for Neuroscience, New Orleans, LA. *Society for Neuroscience Abstracts* Vol. 26, Program No. 574.11.

Nielsen DM, Derber WJ, Crnic LS (2001, May) Alterations in the auditory startle response in the hybrid *Fmr1* mutant mouse model of fragile X syndrome. Presented at the Annual Rocky Mountain Region Neuroscience Group Meeting, Denver, CO.

Nielsen DM (2001, October) Anxiety measures and auditory startle response in mouse models of fragile X syndrome. Invited seminar, Behavioral Pharmacology Unit, Pharmacia Corporation, Kalamazoo, MI.

Nielsen DM, Derber WJ, Crnic LS (2001, November) Abnormal auditory startle responses in a F1 hybrid mouse model of fragile X syndrome. Presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA. *Society for Neuroscience Abstracts* Vol. 27, Program No. 982.13.

Nielsen DM, Crnic LS (2002, November) Foot-shock sensitivity and freezing behavior in a mouse model of fragile X syndrome. Presented at the Annual Meeting of the Society for Neuroscience, Orlando, FL. Program No. 311.15. 2002 *Abstract Viewer/Itinerary Planner*.

Nielsen DM (2003, June) Pharmacological validation of behavioral models used to screen antidepressants. Invited seminar, PsychoGenics Inc., Hawthorne, NY.

Nielsen DM (2003, June) Pharmacological validation of two behavioral models used to screen antidepressants. Invited seminar, Wyeth Research, Princeton, NJ.

Nielsen DM, Carey GJ, Gold LH (2003, November) Evaluation of antidepressant-like activity of corticotropin releasing factor type 1 (CRF1)-receptor antagonists in the mouse tail suspension and forced swim tests. Presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA. Program No. 538.4. 2003 *Abstract Viewer/Itinerary Planner*.

Nielsen DM (2004, February) Pharmacological validation of behavioral models used to screen antidepressants. Invited seminar, Eli Lilly and Company, Indianapolis, IN.

Nielsen DM (2006, May) Nicotine, bupropion, and sensorimotor gating deficits: Studies in an animal model of schizophrenia. Invited seminar, Department of Pharmacology and Neuroscience, Albany Medical College, Albany New York.