

Michael T. Williams, Ph.D.

Departmental address and phone numbers:

Associate Professor
Cincinnati Children's Research Foundation
Neurology (MLC 7044)
3333 Burnet Ave.
Cincinnati, OH 45229-3039
PH: (513) 636-8624
FAX: (513) 636-3912
E-MAIL:
Michael.williams@cchmc.org

ACADEMIC EXPERIENCE

Associate Professor – Neurology, Cincinnati Children's Research Foundation (September 2006-present)

Assistant Professor- Neurology, Cincinnati Children's Research Foundation (September 2003 – August 2006)

Associate Program Director (November 2004 – present) and Training Faculty (December 2000- present) on the Training Grant in Teratology (T32 ES07051)

Faculty member of the University of Cincinnati graduate program in Molecular Developmental Biology (October 2002-present)

Faculty member of the University of Cincinnati graduate program in Neuroscience (July 2001-present)

Instructor - Pharmacology Research Center, Cincinnati Children's Research Foundation (December 2000 – August 2003)

Adjunct Instructor of Psychology (Sept. 2000 – 2002), Sinclair Community College

Adjunct Assistant Professor of Psychology (Sept. 1997 – June 2000), Wright State University

EDUCATION

Post-Doctoral Fellow in Teratology (October 1997- October 2000) on the Training Grant in Teratology (T32 ES07051). Children's Hospital Research Foundation

Mentor - Professor Charles V. Vorhees, Ph.D.

Research: substituted-amphetamines, learning and memory, neuroendocrinology, neurotoxicology.

Post-Doctoral Fellow in Psychoneuroimmunology (July 1997-Sept 1997) on the Training Grant in Psychoneuroimmunology (T32 MH18831). Ohio State University

Mentor –Phillip T. Marucha, D.M.D., Ph.D.

Research: stress, immunity

Ph.D. - Biomedical Sciences (June, 1997), Dissertation title: The effects of restraint, bright lights, and heat during gestation on pregnant female rats, their fetuses, and offspring:

emphasis on the hypothalamic-pituitary-adrenal axis. Wright State University.

Dissertation Advisor – Harry N. Davis, Jr., Ph.D. (Deceased Oct. 1999).

B.S. - Psychology (1990), Wright State University

A.A. - Psychology (1987), Belleville Area College

HONORS, AWARDS

Pediatric Research Loan Repayment Program Recipient July 2006-2007, NIH

Pediatric Research Loan Repayment Program Recipient July 2004-2006, NIH

Pediatric Research Loan Repayment Program Recipient July 2002-2004, NIH

Post-doctoral Travel Fellowship to attend International Behavioral Neuroscience Society meeting, June 1999

Travel award to attend Midwest Teratology Association, May 1996

Omnitech Travel Fellowship to attend Society of Neuroscience, November 1995

Travel Fellowship to attend International Behavioral Neuroscience Society, April 1993

Graduated (B.S.), Magna Cum Laude, Wright State University, December 1990

Outstanding Achievement in Psychology, Belleville Area College, May 1987

EXTRAMURAL SUPPORT

Investigator

Active:

Effects of lead, manganese and stress during development (NIH/NIEHS, 1 R01 ES015689-01 \$1,250,000 direct costs over 5 years, 40% effort; 9-2006 – 6-30-2011).

An Emotional Behavior Study in Sprague-Dawley CD/IGS Rats Given LY110140 Daily by Gavage from Postnatal Day (PND) 33 to 62. (Project Director. C.V. Vorhees, PI, M.T. Williams, Eli Lilly, 30% effort, 1/1/2007- 12/31/2007, \$292,871 direct costs)

Pending:

None

Co-Investigator

Active:

Developmental Effects of Methamphetamine-like Stimulants. (PI: C.V. Vorhees, NIH/NIDA, 2 R01 DA06733-10, 10% effort, 4/1/2005-3/31/2010)

Effects of neonatal MDMA on brain and behavior. (PI: C.V. Vorhees, NIH/NIDA, R01 DA021394, 20% effort 4/1/2006-3/31/2011).

Training Grant in Teratology (PI: C.V. Vorhees, NIH/NIEHS, 2 T32 ES07051)

Genetic Susceptibility to PCB-induced Developmental Neurotoxicity. (PI: C.V. Vorhees, Center for Environmental Genetics Pilot Project Grant, \$25,000, 5/1/2007-4-30-2008)

Genetic differences in PCB-induced behavior. (PI: D. W. Nebert, NIH/NIEHS, R21 ES015335, 10% effort, \$438,193, 12/15/2007 – 11/30/2009).

Pending:

None

Inactive:

Developmental interactions of methamphetamine and stress. (NIH/NIDA, 1 K01 DA14269-05, \$577,690, 2002-2007).

ADHD phenotype network: Animal model to clinical trial. (PI: F. R. Sallee, NIH/NINDS, 1 R21 MH66212-01).

Developmental Effects of Methylenedioxymethamphetamine. (PI: C.V. Vorhees, NIH/NIDA, 2 R01 DA 11902-03, 10% effort)

PEER-REVIEWED PUBLICATIONS

Vorhees, C. V., Johnson, H. L., Burns, L. N., **Williams, M. T.** (in preparation). Effects of developmental quinpirole treatment on adult behavior

Skelton, M. R., **Williams, M. T.**, McInturf, S.A., Rossi III, J., Aronow, B. J., Vorhees, C. V. (in preparation). Neonatal exposure to \pm 3,4-methylenedioxymethamphetamine alters NMDA receptor subunit 1, nNOS and PSD95 expression and LTP in adult rats

Herring, N. R., Gudelsky, G. A., Vorhees, C. V., **Williams, M. T.** (in preparation). Dissociation of neurotoxicity and path integration deficits from hyperthermia after (+)-methamphetamine treatment in adrenalectomized rats.

Skelton, M. R., Able, J. A., Grace, C. E., Herring, N.R., Schaefer, T. L., Gudelsky, G. A., Vorhees, C. V., **Williams, M. T.** (submitted 12-14-2007). (\pm)-3,4-methylenedioxymethamphetamine treatment in adult rats impairs path integration learning: A comparison of single versus once per week treatment for five weeks

Herring, N.R., Schaefer, T. L., Tang, P. H., Skelton, M. R., Lucot, J. P., Gudelsky, G. A., Vorhees, C. V., **Williams, M. T.** (submitted 11-5-2007). Time-dependent effects of (+)-methamphetamine on monoamines, corticosterone, creatine, glucose, and creatinine compared to forced swim

Sun, Y., Jia, L., **Williams M. T.**, Zamzow, M., Ran, H., Quinn, B., Aronow, B.J., Vorhees, C. V., Witte, D. P., Grabowski, G. A. (requires resubmission). Gene expression profiling and neurobehavioral assessments in prosaposin deficient mice: Molecular alterations precede neuronal deficits

Herring, N.R., Schaefer, T. L., Gudelsky, G. A., Vorhees, C. V., **Williams, M. T.** (accepted with revision). Novel effect of (+)-methamphetamine on path integration learning, novel object recognition, and neurotoxicity in rats.

- Vorhees, C. V., Herring, N.R., Schaefer, T. L., Grace, C. E., Skelton, M. R., Johnson, H. L., **Williams, M. T.** (accepted with revision). Effects of (+)-methamphetamine on path integration and spatial learning in rats: Effects of dose and rearing conditions.
53. Skelton, M. R., **Williams, M. T.**, Vorhees, C. V. (in press). Developmental effects of 3,4-methylenedioxymethamphetamine: A review. Behavioural Pharmacology
52. Schaefer, T. L., Skelton, M. R., Herring, N.R., Gudelsky, G. A., Vorhees, C. V., Williams, M. T. (in press). Short- and long-term effects of (+)-methamphetamine and (±)-3,4-methylenedioxymethamphetamine on monoamine and corticosterone levels in the neonatal rat following multiple days of treatment. Journal of Neurochemistry
51. Pan, D., Sciascia, A., Vorhees, C. V., **Williams, M. T.** (2008). Progression of multiple behavioral deficits during development in a murine model of Hurler Syndrome: Age of onset during development. Brain Research, 1188:241-253.
50. Grace, C. E., Schaefer, T. L., Herring, N.R., Skelton, M. R., McCrea, A. E., Vorhees, C. V., **Williams, M. T.** (2008). (+)-Methamphetamine increases corticosterone in plasma and BDNF in brain more than forced swim or isolation in neonatal rats. Synapse, 62(2):110-121.
49. Lingrel, J. B., **Williams, M. T.**, Vorhees, C. V., Moseley A. E. (2007). Na,K-ATPase and the role of isoforms. J Bioenergetics and Biomembranes 39(5-6):385-9. (Review)
48. Vorhees, C. V., Skelton, M. R., **Williams, M. T.** (2007). Age-dependent effects of neonatal methamphetamine exposure on spatial learning. Behavioural Pharmacology, 18(5-6):549-562.
47. Skelton, M. R., **Williams, M. T.**, Schaefer, T. L., Vorhees, C. V. (2007). Neonatal methamphetamine increases brain derived neurotrophic factor, but not nerve growth factor, during treatment and results in long-term spatial learning deficits. Psychoneuroendocrinology, 32(6): 734-745.
46. **Williams, M. T.***, Herring, N.R.*, Schaefer, T. L., Skelton, M. R., Campbell N. G., Lipton, J. W., McCrea, A. E., Vorhees, C. V. (2007). Alterations in corticosterone and behavior following the administration of 5-methoxy-diisopropyltryptamine ('Foxy') to adult rats: A new drug of abuse. *denotes equal authorship. Neuropsychopharmacology 32: 1404-1420.
45. Vorhees, C. V., Schaefer, T. L., **Williams, M. T.** (2007). Developmental exposure to 3,4-methylenedioxymethamphetamine results in differential long-term deficits in spatial vs. path integration learning as a function of dose distribution. Synapse 61(7): 488-499.
44. Moseley A. E.*, **Williams, M. T.***, Schaefer, T. L., Bohanan, C. S., Behbehani, M. M., Vorhees, C. V., Lingrel, J. B. (2007). Deficiency in Na,K-ATPase alpha isoform genes alters spatial learning, motor activity and anxiety in mice. *denotes equal authorship. Journal of Neuroscience 27(3):616-626.

43. Skelton, M. R., **Williams, M. T.**, Vorhees, C. V. (2006). Treatment with MDMA from P11-20 disrupts spatial learning and path integration learning in adolescent rats but only spatial learning in older rats. Psychopharmacology 189(3):307-318.
42. Thacker, S. K., Perna, M. K., Ward, J. J., Schaefer, T. L., **Williams, M. T.**, Kostrzewa, R. M., Brown, R. W. (2006). The effects of adulthood olanzapine treatment on cognitive performance and neurotrophic factor content in male and female rats neonatally treated with quinpirole. European Journal of Neuroscience. 24:2075-2083.
41. **Williams, M. T.**, Furay, A. F., Ehrman, L. A., Schaefer, T. L., Vorhees, C. V. (2006). Ontogeny of the adrenal response to (+)-methamphetamine in neonatal rats: the effect of prior drug exposure. Stress 9(3): 153-163.
40. Vorhees, C. V., **Williams, M. T.** (2006). Morris water maze: Procedures for assessing spatial and related forms of learning and memory. Nature Protocols. 1(2):_848-858.
39. Schaefer, T. L., Ehrman, L. A., Gudelsky, G. A., Vorhees, C. V., **Williams, M. T.** (2006). A comparison of monoamine and corticosterone levels 24 hours following d-methamphetamine, \pm 3,4-methylenedioxymethamphetamine, cocaine, d-fenfluramine, or methylphenidate administration in the neonatal rat. Journal of Neurochemistry 98(5): 1369-1378.
38. Ehrman, L. A., **Williams, M. T.**, Schaefer, T. L., Gudelsky, G. A., Reed, T. M., Fienberg, A. A., Greengard, P., Vorhees, C. V. (2006). Phosphodiesterase 1B modulates the effects of methamphetamine on locomotor activity and spatial learning through a DARPP32-dependent pathway: evidence from PDE1B-DARPP32 double knockout mice. Genes, Brain, and Behavior, 5: 540-551.
37. Able, J. A., Gudelsky, G. A., Vorhees, C. V., **Williams, M. T.** (2006). \pm 3, 4-Methylenedioxymethamphetamine in adult rats produces deficits in path integration and spatial reference memory. Biological Psychiatry, 59(12): 1219-1226.
36. Crawford, C. A., **Williams, M. T.**, Kohutec, J. L., Choi, F. A., Yoshida, S. T., McDougall, S. A., Vorhees, C. V. (2006). Neonatal 3,4-methylenedioxymethamphetamine (MDMA) exposure alters neuronal protein kinase A activity, serotonin and dopamine content, and [35 S]GTP S binding in adult rats. Brain Research, 1077: 178-186.
35. 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(5): 253-259.
34. Becker, L. A., Kunkel, A. J., Brown, M. R., Ball, E. E., **Williams, M. T.** (2005). Effects of dietary phytoestrogen exposure during perinatal period. Neurotoxicology and Teratology 27(6):825-834.
33. Brunskill, E. W., Ehrman, L. A., **Williams, M. T.**, Klanke, J., Hammer, D., Schaefer, T. L., Sah, R., Dorn, G. W., Potter, S. S., Vorhees, C. V. (2005). Abnormal neurodevelopmental,

- behavioral, and neurotransmitter signaling in *NPAS-3* deficient mice. European Journal of Neuroscience 22(6): 1265-1276.
32. Cohen, M. A., Skelton, M. R., Schaefer, T. L., Gudelsky, G. A., Vorhees, C. V., **Williams, M. T.** (2005). Learning and memory after neonatal exposure to 3,4-methylenedioxymethamphetamine (ecstasy) in rats: Interaction with exposure in adulthood. Synapse 57(3): 148-159.
31. **Williams, M. T.**, Schaefer, T. L., Ehrman, L. A., Able, J. A., Gudelsky, G. A., Sah, R., Vorhees, C. V. (2005). 3,4-Methylenedioxymethamphetamine administration on postnatal day 11 in rat increases pituitary-adrenal output and reduces striatal and hippocampal serotonin without altering SERT activity. Brain Research 1039(1/2):95-105.
30. Vorhees, C. V., Reed, T. M., Morford, L. L., Fukumura, M., Wood, S. L., Brown, C. A., Skelton, M. R., McCrea, A. E., Rock, S. L., and **Williams, M. T.** (2005). Periadolescent rats (P41-50) exhibit increased susceptibility to d-methamphetamine-induced long-term spatial and sequential learning deficits compared to juvenile (P21-30 or P31-40) or adult rats (P51-60). Neurotoxicology and Teratology 27(1): 117-134.
29. Kuan, C.-Y., Schloemer, A. J., Lu, A., Burns, K. A., Weng, W.-L., **Williams, M. T.**, Strauss, K. I., Vorhees, C. V., Flavell, R. A., Davis, R. J., Sharp, F. R., Rakic, P. (2004). Hypoxia-ischemia induces DNA synthesis without cell proliferation in dying neurons in adult rodent brain. Journal of Neuroscience 24(47):10763-10772.
28. Skelton, M. R., Blankemeyer, T. L., Gudelsky, G. A., Brown-Strittholt, C. A., Vorhees, C. V., **Williams, M. T.** (2004). Metyrapone attenuates the sequential learning deficits, but not monoamine depletions following d,l-fenfluramine administration to adult rats. Synapse 54(4): 214-222.
27. **Williams, M. T.**, Brown, C. A., Skelton, M. R., Vinks, A. A., and Vorhees, C. V. (2004). Absorption and clearance of \pm 3,4-methylenedioxymethamphetamine from the plasma of neonatal rats. Neurotoxicology and Teratology 26(6): 849-856.
26. Vorhees, C. V., Reed, T. M., Skelton, M. R., and **Williams, M. T.** (2004). Exposure to 3,4-methylenedioxymethamphetamine (MDMA) on postnatal days 11-20 induces reference but not working memory deficits in the Morris water maze in rats: implications of prior learning. International Journal of Developmental Neuroscience. 22(5/6): 247-259.
25. **Williams, M. T.**, Moran, M. S., & Vorhees, C. V. (2004). Behavioral and growth effects induced by low dose methamphetamine administration during the neonatal period in rats. International Journal of Developmental Neuroscience. 22(5/6): 273-283.
24. 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(3):161-168.

23. **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. European Journal of Neuroscience 19(12): 3165-3170. *denotes equal authorship.
22. Brown, R. W., Thompson, K. D., Thompson, K. N., Ward, J. J., Thacker, S. K., **Williams, M. T.**, and Kostrzewa, R. M. (2004). Adulthood nicotine treatment alleviates behavioral impairments in rats neonatally treated with quinpirole: Possible roles of acetylcholine function and neurotrophic factor expression. European Journal of Neuroscience 19(6): 1634-1642.
21. **Williams, M. T.**, Blankemeyer, T. L., Schaefer, T. L., Brown, C. A., Gudelsky, G. A., Vorhees, C. V. (2003). Long-term effects of neonatal methamphetamine exposure in rats on spatial learning in the Barnes maze and on cliff avoidance, corticosterone release, and neurotoxicity in adulthood. Dev Brain Res 147(1-2): 163-175.
20. **Williams, M. T.**, Moran, M. S., & Vorhees, C. V. (2003) Refining the critical period for methamphetamine-induced spatial deficits in the Morris water maze. Psychopharmacology 168, 329-338.
19. **Williams, M. T.**, Morford, L. L., Wood, S. L., Wallace, T. L., Fukumura, M., Broening, H. W., and Vorhees, C. V. (2003). Developmental d-methamphetamine treatment selectively induces spatial navigation impairments in reference memory in the Morris water maze while sparing working memory. Synapse 48, 138-148.
18. Crawford, C. A., **Williams, M. T.**, Newman, E. R., McDougall S. A., & Vorhees, C. V. (2003) Methamphetamine exposure during the preweaning period causes prolonged changes in dorsal striatal protein kinase A activity, dopamine D2-like binding sites, and dopamine content. Synapse 48, 131-137.
17. **Williams, M. T.**, Morford, L. L., Wood, S. L., Rock, S. L., McCrea, A. E., Fukumura, M., Wallace, T. L., Broening, H. W., Moran, M. S., & Vorhees, C. V. (2003). Developmental 3,4-methylenedioxymethamphetamine (MDMA)-induced learning deficits are not related to undernutrition or litter effects: novel use of litter size to control for MDMA-induced growth decrements. Brain Research 968 (1), 89-101.
16. **Williams, M. T.**, Vorhees, C. V., Boon, F., Saber, A. J., and Cain, D. P. (2002). Methamphetamine exposure from postnatal day 11 to 20 causes impairments in both behavioral strategies and spatial learning in adult rats. Brain Research 958 (2), 312-321.
15. **Williams, M. T.**, Morford, L. L., McCrea, A. E., Wood, S. L., and Vorhees, C. V. (2002). Administration of d,l-fenfluramine to rats produces learning deficits in the Cincinnati water maze but not the Morris water maze: Relationship to adrenal cortical output. Neurotoxicology and Teratology 24 (6), 783-796.

14. Morford, L. L., Wood, S. L., Gudelsky, G. A., **Williams, M. T.**, and Vorhees, C. V. (2002). Impaired spatial and sequential learning in rats treated neonatally with d-fenfluramine. European Journal of Neuroscience 16 (3), 491-500.
13. **Williams, M. T.**, Morford, L. L., McCrea, A. E., Inman-Wood, S. L., & Vorhees, C. V. (2001). Elevations in plasmatic titers of corticosterone and aldosterone, in the absence of changes in ACTH, testosterone, or glial fibrillary acidic protein, 72 hours following d,l-fenfluramine or d-fenfluramine administration to rats. Neurotoxicology and Teratology 23 (1), 32-39.
12. **Williams, M. T.**, Inman-Wood, S. L., Morford, L. L., McCrea, A. E., Ruttle, A. M., Moran, M. S., Rock, S. L., & Vorhees, C. V. (2000). Prewaning treatment with methamphetamine induces increases in both corticosterone and ACTH in rats. Neurotoxicology and Teratology, 22 (5), 751-759.
11. Inman-Wood, S. L., **Williams, M. T.**, Morford, L. L., & Vorhees, C. V. (2000). Effects of prenatal cocaine on Morris and Barnes maze tests of spatial learning and memory in the offspring of C57BL/6J mice. Neurotoxicology and Teratology, 22, 547-557.
10. Hennessy, M. B., Davis, H. N., McCrea, A. E., Harvey, A. T., & **Williams, M. T.** (1999). Short- and long-term consequences of corticotropin-releasing factor in early development. Annals of the New York Academy of Sciences, 897, 76-91.
9. **Williams, M. T.**, McCrea, A. E., Hennessy, M. B., & Davis, H. N. (1999). Stress during pregnancy alters the offspring hypothalamic, pituitary, adrenal, and testicular response to isolation on the day of weaning. Neurotoxicology and Teratology, 21(6), 653-659.
8. **Williams, M. T.**, Davis, H. N., McCrea, A. E., Long, S. J., & Hennessy, M. B. (1999). Changes in the hormonal concentrations of pregnant rats and their fetuses following multiple exposures to a stressor during the third trimester. Neurotoxicology and Teratology, 21(4), 403-414.
7. Hennessy, M. B., **Williams, M. T.**, Miller, D. D., Douglas, C. W., & Voith, V. L. (1998). Influences of male and female petters on plasma cortisol and behaviour: Can human interaction reduce the stress of dogs in a public animal shelter? Applied Animal Behaviour Science, 61, 63-77.
6. **Williams, M. T.**, Davis, H. N., McCrea, A. E., & Hennessy, M. B. (1998). The distribution of radiolabeled corticotropin-releasing factor in pregnant rats: An investigation of placental transfer to the fetuses. International Journal of Developmental Neuroscience, 16(3/4), 229-234.
5. **Williams, M. T.**, Hennessy, M. B., & Davis, H. N. (1998). Stress during pregnancy alters rat offspring morphology and ultrasonic vocalizations. Physiology & Behavior, 63(3), 337-343.
4. Hennessy, M. B., Davis, H. N., **Williams, M. T.**, Mellott, C., & Douglas, C. (1997). Plasma cortisol levels of dogs at a county animal shelter. Physiology & Behavior, 62(3), 485-490.

3. **Williams, M. T.**, Hennessy, M. B., & Davis, H. N. (1995). CRF administered to pregnant rats alters offspring behavior and morphology. Pharmacology, Biochemistry, & Behavior, *52*, 161-167.
2. Hennessy, M. B., Long, S. J., Nigh, C. K., **Williams, M. T.**, & Nolan, D. J. (1995). Effects of peripherally administered corticotropin-releasing factor (CRF) and a CRF antagonist: Does peripheral CRF activity mediate behavior of guinea pig pups during isolation? Behavioral Neuroscience, *109*, 1137-1145.
1. Hennessy, M. B., O'Neil, D. R., Becker, L. A., Jenkins, R., **Williams, M. T.**, & Davis, H. N. (1992). Effects of centrally administered CRF and alpha-helical CRF on the vocalizations of isolated guinea pig pups. Pharmacology, Biochemistry, & Behavior, *43*, 37-43.

PUBLISHED ABSTRACTS

- Schaefer, T. L., Lingrel, J. B., Moseley A. E., Vorhees, C. V., **Williams, M. T.** (2007). Loss of ouabain binding in the $\alpha 2$ isoform of the Na, K-ATPase: Effects on locomotor activity, cognition, and response to dopamine receptor agonists. Society for Neuroscience Abstracts Vol 33, Program No.
- Seroogy K.B., Hemmerle, A.M., Dickerson, J.W., Herring, N.R., Schaefer, T.L., Vorhees, C.V., **Williams, M.T.** (2007). MDMA administration modulates expression of neurotrophins and their receptors in multiple regions of adult rat brain. Society for Neuroscience Abstracts Vol 33, Program No.
- Skelton M.R., Schaefer, T.L., Vorhees, C.V., **Williams, M.T.** (2007). Methamphetamine (MA) causes differential increases in plasmatic CORT levels depending on developmental age and length of treatment. Society for Neuroscience Abstracts Vol 33, Program No.
- Grace C.E, Schaefer, T.L., Herring, N.R, Gudelsky; G.A., **Williams, M.T.**, Vorhees, C.V., (2007). Adrenalectomy with adrenal autograft prevents serotonin depletions in methamphetamine-treated neonatal rats. Society for Neuroscience Abstracts Vol 33, Program No.
- Williams, M.T.**, Herring, N.R., Schaefer, T.L., Vorhees, C.V. (2007). Methamphetamine exposure in adult rats results in path integration deficits that are independent of increased corticosterone release. Proceed Australian Neurosci Soc
- Schaefer, T.L.; Herring, N.R.; Grace C.E.; Skelton M.R.; Johnson H.L.; Vorhees, C.V. **Williams, M.T.** (2007). Learning and memory effects following neonatal exposure to 5-methoxy-diisopropyltryptamine or (\pm)3,4-methylenedioxymethamphetamine in rats. Proceed Australian Neurosci Soc

- Vorhees, C.V., Herring, N.R., Schaefer, T.L., Skelton, M.R., Grace, C.E., Miranowski, S.K., **Williams M.T.** (2007). Path integration and spatial learning deficits induced by developmental exposure to methamphetamine. Proceed Australian Neurosci Soc
- Curran, C.P., **Williams, M.T.**, Vorhees, C.V., Dalton, T.P., Nebert, D.W. (2007). The role of CYP1A2 and the aryl hydrocarbon receptor (AHR) in PCB-induced developmental neurotoxicity. *Birth Defects Research Part A-Clinical and molecular Teratology* 79(5):371
- Williams, M.T.**, Schaefer, T.L.; Herring, N.R.; Grace C.E.; Skelton M.R.; Johnson H.L.; Vorhees, C.V. (2007). Differential effects of 5-methoxy-diisopropyltryptamine or (±)3,4-methylenedioxymethamphetamine during development in rats. Neurotoxicol Teratol 29(3): 405-406.
- Vorhees, C.V., Herring, N.R., Schaefer, T.L., Skelton, M.R., Grace, C.E., Miranowski, S.K., **Williams M.T.** (2007). Developmental methamphetamine: Effects of dose and rearing condition on later path integration and spatial learning. Neurotoxicol Teratol 29(3): 405
- Schaefer, T L; Skelton, M R; Herring, N R.; Gudelsky; G A; Vorhees C V; **Williams, M T.** (2007). Changes in corticosterone and monoamines following multiple days of (+)-methamphetamine or (±)-3,4-methylenedioxymethamphetamine exposure in the neonatal rat. Neurotoxicol Teratol 29(3): 409-410
- Skelton, M. R., **Williams, M. T.**, Schaefer, T. L., Vorhees, C. V. (2007). Neonatal (+)-methamphetamine increases brain derived neurotrophic factor, but not nerve growth factor, during treatment and results in long-term spatial learning deficits. Neurotoxicol Teratol 29(3): 405.
- Schaefer, T.L.; Herring, N.R.; Grace C.E.; Skelton M.R.; Johnson H.L.; Vorhees, C.V.; and **Williams, M.T.** (2006) A comparison of preweaning 5-methoxy-diisopropyltryptamine and (±)3,4-methylenedioxymethamphetamine administration on postweaning anxiety, learning and locomotor activity in rats. Society for Neuroscience Abstracts Vol 32, Program No. 390.17
- Herring, N.R., Schaefer, T.L., Dickerson, J.W., Hemmerle, A.M., Vorhees, C.V., Seroogy K.B., **Williams, M.T.** (2006). Neurotoxic methamphetamine (MA) administration increases BDNF in cortical regions and trkB in striatum of adult rats. Society for Neuroscience Abstracts Vol 32, Program No. 390.18
- Grace C.E.; Herring, N.R.; **Williams, M.T.**, Vorhees, C.V. (2006). Effects of (+)-methamphetamine on motor performance, prepulse inhibition, and learning and memory in the adult mouse following a neurotoxic dose. Society for Neuroscience Abstracts Vol 32, Program No. 390.16
- Hemmerle, A.M., Dickerson, J.W., Herring, N.R., Schaefer, T.L., Vorhees, C.V., **Williams, M.T.**, Seroogy K.B. (2006). Increased expression of BDNF and trk B mRNAs in adult rat prefrontal cortex and/or striatum after MDMA administration. Society for Neuroscience Abstracts Vol 32, Program No. 478.17

- Skelton M.R., **Williams, M.T.**, Vorhees, C.V. (2006) P11 exposure to (\pm)3,4-methylenedioxymethamphetamine does not increase CAM-KII or neuronal nitric oxide synthase phosphorylation in the rat hippocampus. Society for Neuroscience Abstracts Vol 32, Program No. 390.19
- Longacre, I.D., Thompson, K.N., Maple, A.M., Brown, R.W., Skelton, M.R., Vorhees, C.V. **Williams, M.T.** (2006) Reduction in spine density and length in the dentate gyrus and nucleus accumbens in adult rats after neonatal MDMA (Ecstasy) exposure. Society for Neuroscience Abstracts Vol 32, Program No. 478.18
- Vorhees, C. V., Skelton, M. R., **Williams, M. T.** (2006). Third trimester-equivalent model of MDMA exposure: Effects on brain and behavioral development in rats. Neurotoxicology and Teratology 28(3):412-413.
- Schaefer, T. L., Vorhees, C. V., **Williams, M. T.** (2005). A comparison of methamphetamine, methylenedioxymethamphetamine, and 5-methoxy-diisopropyltryptamine administration in developing adrenalectomized rats with adrenal auto-transplantation. Society for Neuroscience Abstracts. Vol 31, Program No. 111.2
- Skelton, M. R., **Williams, M. T.**, Vorhees, C. V. (2005). Increases in NMDA receptor subunit 1, nitric oxide synthase and post synaptic density 95 in adult rats following neonatal MDMA exposure. Society for Neuroscience Abstracts. Vol 31, Program No. 111.3
- Herring, N. R., Schaefer, T. L., Tang, P. H., Vorhees, C. V., **Williams, M. T.** (2005). A comparison of the effects of methamphetamine and forced swim on markers of energy metabolism. Society for Neuroscience Abstracts. Vol 31, Program No. 57.1.
- Able, J. A., Vorhees, C. V., **Williams, M. T.** (2005). The effects of MDMA administration on learning and memory in adult rats: multiple day versus single day administration Society for Neuroscience Abstracts. Vol 31, Program No. 341.17.
- Grace, C.E., Herring, N. R., Schaefer, T.L., Skelton, M. R., Vorhees, C. V., **Williams, M. T.**, (2005). Comparison of the effects of methamphetamine, forced swim, and isolation in the developing rat. Society for Neuroscience Abstracts. Vol 31, Program No. 111.1
- Brown, R. W., Thacker, S. K., Perna, M. K., Smith, K.J., Ward, J. J., Schaefer, T. L., **Williams, M. T.**, Kostrzewa, R. M., (2005). The effects of adulthood olanzapine treatment on cognitive performance and neurotrophic factor content in male and female rats neonatally treated with quinpirole. Society for Neuroscience Abstracts. Vol 31, Program No. 884.7.
- Vorhees, C.V., Pu, C, Fukumura, M., **Williams, M.T.** (2005). Path integration versus spatial learning: what does the Cincinnati water maze (CWM) measure? Neurotoxicology and Teratology 27(3):

- Moseley, A.E., **Williams, M.T.**, Schaefer, T.L., Vorhees, C.V., Lingrel, J.B. (2005). Behavioral abnormalities in Na,K-ATPase alpha subunit haploinsufficient mice. *Journal of General Physiology* 126 (1): 7A.
- Williams; M.T.**, Abel, J. A., Schaefer; T. L., Gudelsky, G. A., Vorhees, C. V. (2004). The combination of gestational stress and neonatal methamphetamine: effects on corticosterone and neurotransmitter content. Society for Neuroscience Abstracts, Vol 30, Program No. 464.12.
- Schaefer; T. L., Burns, K. A., Kuan, C.-Y, Vorhees, C. V., **Williams; M. T.** (2004). Effects of methamphetamine administration on cell proliferation in the developing rat brain. Society for Neuroscience Abstracts, Vol 30, Program No. 915.2.
- Brunskill, E. W., Erhman, L. A., **Williams, M. T.**, Klanke, J., Hammer, D., Schaefer, T. L., Sah, R., Dorn, G. W., Potter, S. S., Vorhees, C. V. (2004) Schizophrenia-like behavior and brain abnormalities in Npas3-deficient mice. Society for Neuroscience Abstracts, Vol 30, Program No. 911.8.
- Moseley A. E., Lingrel, J. B., Schaefer, T. L., **Williams, M. T.**, Vorhees, C. V. (2004). Genetically reduced Na,K-ATPase alpha isoforms induce specific behavioral alterations in mice. Society for Neuroscience Abstracts, Vol 30, Program No. 1026.9.
- Herring; N. R., Schaefer; T. L., Skelton; M. R., Able; J. A., Clark; J. F., Vorhees; C. V., **Williams, M. T.** (2004). Neurotoxic methamphetamine (MA) administration increases plasma corticosterone and brain creatine levels. Society for Neuroscience Abstracts, Vol 30, Program No. 915.11.
- Able, J.,A., Schaefer; T.,L., Gudelsky, G.,A, Vorhees, C.,V., **Williams M.,T.** (2004). Administration of MDMA to adult rats: effects on sequential but not spatial learning. Society for Neuroscience Abstracts, Vol 30, Program No. 689.14
- Williams, M. T.**, Schaefer, T. L., Ehrman, L. A., Furay A. R., Able, J. A., Koscher, J. R., Herman, J. P., Vorhees, C. V. (2003). Long-term effects of methamphetamine on the HPA axis in developing animals. Society for Neuroscience Abstracts, Vol 29, Program No. 713.19.
- Schaefer, T. L., **Williams, M. T.**, Ehrman, L. A., Gudelsky, G. A., Berry, H. K., Vorhees, C. V. (2003). Adrenalectomy and metyrapone differentially affect drug- induced changes in monoamine levels in developing animals. Society for Neuroscience Abstracts, Vol 29, Program No. 713.17.
- Brown, R. W., **Williams, M. T.**, Vorhees, C. V. (2003). Neonatal methamphetamine administration induces region-specific long-term neuronal morphological changes in the rat hippocampus, nucleus accumbens, and parietal cortex. Society for Neuroscience Abstracts, Vol 29, Program No. 144.11.

- Skelton, M. R. **Williams, M. T.** Vorhees, C. V. (2003). Exposure to 3,4-methylenedioxymethamphetamine during development leads to long-term changes in gene expression. Society for Neuroscience Abstracts, Vol 29, Program No. 713.18.
- Crawford, C. A., Kohutck, J. L., Choi, F. A., Yoshida, S. T., **Williams, M. T.**, McDougall, S. A., Vorhees, C. V. (2003). Long-term effects of preweanling MDMA exposure on the dopamine and serotonin systems in the adult rat. Society for Neuroscience Abstracts, Vol 29, Program No. 961.6.
- Vorhees, C. V., Schaefer, T. L., Ehrman, L. A., Sah, R., Gudelsky, G. A., **Williams, M. T.** (2003). Short-term effects of P11 MDMA treatment on monoamines, ACTH, corticosterone and serotonin transporter in rats. Neurotoxicology and Teratology 25(3): .
- Williams, M. T.**, Furay, A. R., Vorhees, C.V. (2002) In pursuit of the critical period for d-methamphetamine-induced Morris maze deficits: implications for the stress-hyporesponsive period. Society for Neuroscience Abstracts, Vol 28, Program No. 684.11.
- Brown, C.A., **Williams, M.T.**, Skelton, M.R., Vorhees, C.V. (2002) Methamphetamine-induced decreases in corticotropin-releasing factor in the hippocampus and hypothalamus of neonatal rats: possible role in learning and memory deficits. Society for Neuroscience Abstracts, Vol 28, Program No. 589.14,
- Vorhees, C.V., Reed, T.M., Morford, L.L., Fukumura, M., Wood, S.L., Brown, C.A., Skelton, M.R., McCrea, A.E, Rock, S.L., **Williams, M.T** (2002) d-Methamphetamine (MA) treatment during juvenile and adolescent stages of development induce age-dependent impairments of spatial learning in the Morris water maze. Society for Neuroscience Abstracts, Vol. 28, Program No. 185.14.
- Vorhees, C. V., **Williams, M. T.**, Boon, F., Saber, A., and Cain, D. P. (2002). An analysis of factors contributing to P11-20 methamphetamine-induced spatial learning deficits. Neurotoxicology and Teratology, 24(3): 421.
- Williams, M. T.**, Morford, L. L., Inman-Wood, S. L., Rock, S. L., McCrea, A. E., Fukumura, M., Wallace, T.L., Broening, H. W., Moran, M. S., Berry, H.K. & Vorhees, C. V. (2001). Learning and memory deficits in adulthood following administration of MDMA to preweaning rats: consideration of undernutrition and stress. Society for Neuroscience Abstracts, Vol. 27, Program No. 319.20.
- Faught, M. R., **Williams, M. T.** & Vorhees, C. V. (2001) Long-term changes in gene expression in the brain due to developmental exposure to 3,4-methylenedioxymethamphetamine. Society for Neuroscience Abstracts, Vol. 27, Program No. 541.11.
- Vorhees, C. V., Morford, L. L., Broening, H. W., Fukumura, M., Inman-Wood, S. L., Wallace, T. L., & **Williams, M. T.** (2001). P11-20 d-methamphetamine treatment induces reference memory-based learning deficits while sparing sequential and cued learning and working memory. Neurotoxicology and Teratology 23(3): & Society for Neuroscience Abstracts, Vol. 27, Program No. 77.12.

- Rock, S. L., Vorhees, C. V., & **Williams, M. T.** (2000). Dopamine-1 receptor alteration following postnatal methamphetamine treatment. Society for Neuroscience Abstracts, Vol. 26, Program No. 291.4.
- Morford, L. L., Inman-Wood, S. L., McCrea, A. E., Vorhees, C. V., & **Williams, M. T.** (1999). Persistent increase in adrenal output without concurrent gonadal alterations in male rats three days following acute d,l-fenfluramine exposure. The Toxicologist
- Inman, S. L., Morford, L. L., **Williams, M. T.**, & Vorhees, C. V. (1998). Prenatal cocaine treatment in C57BL/6 mice affects Barnes maze performance. Neurotoxicology and Teratology, 20(3), 359.
- Williams, M. T.**, McCrea, A. E., Hennessy, M. B., & Davis, H. N. (1996). Effects of variations in reproductive activity on hypothalamic, pituitary, adrenal, and testicular hormones in male rats. Society for Neuroscience Abstracts., 22(Part 1), 156.
- McCrea, A. E. & **Williams, M. T.** (1996). Maintaining pregnant rats on a standard vs. reversed light/dark cycle: Implications for gestational stress. Society for Neuroscience Abstracts., 22(Part 1), 462.
- Williams, M. T.**, Hennessy, M. B., & Davis, H. N. (1995). The pituitary-adrenal response to separation in a novel environment is attenuated in prenatally stressed, preweanling rat offspring. Society for Neuroscience Abstracts., 21(Part 1), 501. Also, poster session presented at Wright State University's International Neuroscience Symposium, Dayton, OH.
- Davis, H. N., **Williams, M. T.**, Benghuzzi, H. A., England, B. G., & Bajpai, P. K. (1992). Sustained release of testosterone and dihydrotestosterone by ALCAP ceramic implants in rats. Journal of Investigative Surgery, 5, 255.

INVITED TALKS

- Williams, M. T.**, Herring, N. R., Schaefer, T. L., Vorhees, C. V. Effects of (+)-methamphetamine on learning and memory and neurotoxicity in the adult rats. University of Sydney, Sydney, AU (July 2007). Mini-Symposium "Party Drugs: Effects on Brain and Behaviour," Sydney, Australia, July 20, 2007.
- Vorhees, C.V. (Invited speaker), Herring, N.R., Schaefer, T.L., Skelton, M.R., Grace, C.E., Miranowski, S.K., and **Williams, M.T.** Developmental methamphetamine: Effects of dose and rearing condition on later path integration and spatial learning. University of Sydney, Mini-Symposium "Party Drugs: Effects on Brain and Behaviour," Sydney, Australia, July 20, 2007.
- Schaefer, T.L. (Invited speaker), Skelton, M.R., Herring, N.R., Vorhees, C.V., and **Williams, M.T.** The effects of developmental psychostimulant exposure on serotonin and

corticosterone. University of Sydney, Mini-symposium “Pary Drugs: Effects on Brain and Behaviour,” Sydney, Australia, July 20, 2007.

Vorhees, C.V. (Invited speaker), Schaefer, T.L., Skelton, M.R., and **Williams, M.T.**
Developmental effects of MDMA on learning and memory. Seminar at the Victoria University of Wellington, Wellington, New Zealand, July 24, 2007.

Williams, M. T. & Vorhees, C. V. Development of the hypothalamic-pituitary-adrenal axis: consequences of early drug exposure. Annual meeting of the Society of Toxicology (March, 2000). The Toxicologist 54(1) :414.

Williams, M. T. Research opportunities in Behavioral Neuroscience. Address to the Psi Chi Honor Society at Sinclair Community College, Dayton, OH (January, 2000) and Psychology Career Days (October 2001).

Williams, M. T. Behavioral and neuroendocrine effects of substituted amphetamines throughout development. Bio-Psy Seminar at Evansville College, Evansville, IN (December, 1999).

Williams, M. T. Environmental factors that may confound neurotoxicological studies. Neurotoxicology and Neurotoxicity Testing workshop, Argus Laboratories, Horsham, PA. (September, 1999).

PRESENTATIONS

Jia, L., Sun, Y., **Williams, M.T.**, Zamzow, M., Ran, H., Quinn, B., Aronow, B.J., Vorhees, C.V., Witte, D.P., and Gregory A. Grabowski (2007, October). CEBP δ is a candidate regulator of brain disease in prosaposin deficiency mice. Annual meeting of the American Society of Human Genetics, San Diego, CA.

Sun, Y., Ran, H., Zamzow, M., Quinn, B., **Williams, M.T.**, Vorhees, C.V., Witte, D.P., Cheng, H., Han, X., Grabowski, G.A. (2007, October). Saposin B deficiency in mice leads to sulfatide and lactosylceramide accumulation and slowly developed neurological deficit. Annual meeting of the American Society of Human Genetics, San Diego, CA.

Curran, C.P., Dalton, T. P., **Williams, M.T.**, Vorhees, C.V., Nebert, D.W. (2007, March). Maternal-fetal distribution of PCB 153 versus PCB 169 in *cyp1a2*(-/-) knockout compared with *cyp1a2*(+/+) wild-type mice. Annual meeting of the Society of Toxicology.

Schaefer, T.L., Moseley, A.E., Lingrel, J.B., Vorhees, C.V., **Williams, M.T.** (2006, May). Loss of ouabain binding in the $\alpha 2$ isoform of Na, K-ATPase affects locomotor and startle behavior. Poster presented at the 15th Annual meeting of the International Behavioral Neuroscience Society, Whistler, BC, Canada.

Herring, N. R., Schaefer, T. L., Vorhees, C. V., **Williams, M. T.** (2006, May). Methamphetamine exposure in adult rats results in path integration and novel object learning

deficits. Poster presented at the 15th Annual meeting of the International Behavioral Neuroscience Society, Whistler, BC, Canada.

Skelton, M. R., **Williams, M. T.**, Vorhees, C. V. (2006, May). Treatment with MDMA from p11-20 disrupts spatial learning and path integration learning in adolescent rats and spatial learning in older rats. Poster presented at the 15th Annual meeting of the International Behavioral Neuroscience Society, Whistler, BC, Canada.

Grace, C.E., Herring, N.R., Schaefer, T.L., Skelton, M.R., **Williams, M.T.**, Vorhees, C.V. (2006, May). Neonatal exposure to methamphetamine increases BDNF, but not NGF, in hippocampus and striatum. Poster presented at the 15th Annual meeting of the International Behavioral Neuroscience Society, Whistler, BC, Canada.

Sun, Y., Jia, L., **Williams, M.**, Vorhees, C., Witte, D. P., Grabowski, G. A. (2005, October). Gene expression profiling in prosaposin deficient mice: molecular alterations precede neuronal pathology. Annual meeting of the American Society of Human Genetics, Salt Lake City UT.

Schaefer, T. L., Herring, N. R., McCrea, A. E., Lipton, J. W., Campbell, N. G., Vorhees, C. V., **Williams, M. T.** (2005, June). Effects of 5-methoxy-diisopropyltryptamine on hormone and neurotransmitter levels in the adult rat. Poster presented at the 14th Annual meeting of the International Behavioral Neuroscience Society, Santa Fe, NM.

Herring N. R., Schaefer T. L., McCrea A. E., Vorhees C. V., **Williams M. T.** (2005, June). Behavioral effects of 5-methoxy-n,n-diisopropyltryptamine (Foxy) in adult rats. Poster presented at the 14th Annual meeting of the International Behavioral Neuroscience Society, Santa Fe, NM.

Skelton, M. R. **Williams, M. T.** Vorhees, C. V. (2005, June). Neonatal exposure to 3,4-methylenedioxymethamphetamine alters NMDA receptor and associated proteins in adult rats. Poster presented at the 14th Annual meeting of the International Behavioral Neuroscience Society, Santa Fe, NM.

Williams, M. T., Moran, M. S., & Vorhees, C. V. (2004, June). Behavioral and growth effects induced by low dose methamphetamine administration during the neonatal period in rats. Poster presented at the 13th Annual meeting of the International Behavioral Neuroscience Society, Key West, FL.

Schaefer, T L; Able, J A; Skelton, M R; McCrea A E; Gudelsky; G A; Vorhees C V; **Williams, M T.** (2004, June). Changes in corticosterone and monoamines following exposure to methamphetamine and MDMA for 5 or 10 day periods in the developing rat. Poster presented at the 13th Annual meeting of the International Behavioral Neuroscience Society, Key West, FL.

Brown, M., Ball, E. E., Snyder, M., **Williams, M. T.**, Becker, L. A. (2003, November). Dietary phytoestrogen exposure during perinatal period affects male offspring: daily weight, anogenital

distance, USV & testosterone levels. Poster presented at the annual meeting of the International Society of Developmental Psychobiology, New Orleans, LA.

Williams, M. T., Schaefer, T. L., Ehrman, L. A., Sah, R., Gudelsky, G. A., Vorhees, C. V. (2003, April). The time course of effects following the administration of methylenedioxymethamphetamine, 'ecstasy', on central nervous system monoamine content, pituitary activation, and adrenal output on postnatal day 11 in rats. Poster presented at the 12th Annual meeting of the International Behavioral Neuroscience Society, San Juan, Puerto Rico.

Schaefer, T. L., **Williams, M. T.**, Ehrman, L. A., Gudelsky, G. A., Vorhees, C. V. (2003, April). Administration of various psychostimulants on P11 causes differential changes in corticosterone and monoamine levels 18 hours later: effect of metyrapone. Paper presented at the 12th Annual meeting of the International Behavioral Neuroscience Society, San Juan, Puerto Rico.

Crawford, C. A., **Williams, M. T.**, Newman, E. R., Zavala, A. R., McDougall, S. A., Vorhees, C. V. (2001, December). Long-term effects of neonatal methamphetamine on the striatal dopamine system in the adult rat. Poster session presented at the American College of Neuropsychopharmacology, HI

Williams, M. T.; Blankemeyer, T. L.; Vorhees, C. V. (2001, April). Metyrapone inhibition of corticosterone production reverses d,l-fenfluramine-induced learning and memory deficits in the Cincinnati water maze. Poster session presented at the Tenth Annual meeting of the International Behavioral Neuroscience Society, Cancun, Mexico.

Johnson, J. R., **Williams, M. T.**, & Becker, L. A. (2001, April). Increased dietary phytoestrogen intake during gestation and nursing alters anogenital distance, isolation-induced ultrasonic vocalizations, and adult testosterone titers of offspring. Poster session presented at the Tenth Annual meeting of the International Behavioral Neuroscience Society, Cancun, Mexico.

Williams, M.T., Klaber, F. L., Brown, C. A., & Vorhees, C. V. (2000, April). Performance in the Cincinnati water maze: relation to lighting conditions, strain differences, test order, and intertrial interval. Poster session presented at the Ninth annual meeting of the International Behavioral Neuroscience Society, Denver, CO.

Williams, M. T., Inman-Wood, S. L., Morford, L. L., McCrea, A. E., Ruttle, A. M., Moran, M. S., Rock, S. L., & Vorhees, C. V. (1999, June). A possible mechanism for Morris water maze deficits in adult rats which were administered methamphetamine during postnatal days 11-20. Paper presented at the Eighth annual meeting of the International Behavioral Neuroscience Society, Nancy, France.

Williams, M. T., Morford, L. L., McCrea, A. E., Inman-Wood, S. L., & Vorhees, C. V. (1999, June). Exposure of male rats to d,l-fenfluramine alters the hypothalamic-pituitary-adrenal axis and learning in the Cincinnati water maze. Poster session presented at the Eighth annual meeting of the International Behavioral Neuroscience Society, Nancy, France.

Hennessy, M. B., **Williams, M. T.**, Mazzei, S. M., Douglas, C. W., & Davis, H. N. (1997, October). Behavior of isolated guinea pig pups after treatment with antisera to corticotropin-releasing factor. Poster session presented at the annual meeting of the International Society of Developmental Psychobiology, New Orleans.

Williams, M. T., Hennessy, M. B., Long, S., & Davis, H. N. (1996, May). The effects of stress during pregnancy on the response of the hypothalamic-pituitary-adrenal (HPA) axis in rats and their fetuses. Paper presented at the Fifth Annual International Behavioral Neuroscience Society Meeting, Cancun, Mexico.

McCrea, A. E., **Williams, M. T.**, & Diana, J. N. (1996, May). Gestational stress (GS) applied during the light or the dark phase of the light/dark cycle has differential effects in rat offspring. Poster session presented at the Fifth Annual International Behavioral Neuroscience Society Meeting, Cancun, Mexico. Also, poster session presented at the Spring meeting of the Midwest Teratology Association, Perrysville, OH.

Hennessy, M. B., Davis, H. N., **Williams, M. T.**, & Mellott, C. (1996, May). Plasma cortisol levels of dogs in an animal shelter. Paper presented at the Midwestern Psychological Association, Chicago, IL.

Williams, M. T., Hennessy, M. B., & Davis, H. N. (1995, May). Gestational stress alters preweanling offspring morphology and ultrasonic vocalization response to social isolation in rats. Poster session presented at the Fourth Annual Meeting of the International Behavioral Neuroscience Society, Santiago de Compostela, Spain.

Williams, M. T., Lyons, S., Hennessy, M. B., & Davis, H. N. (1994, May). Injection stress during pregnancy has lasting effects on offspring development and behavior in rats. Poster session presented at the Third Annual Meeting of the International Behavioral Neuroscience Society, Clearwater, FL.

Williams, M. T., Hennessy, M. B., & Davis, H. N. (1993, April). Administration of corticotropin releasing factor to pregnant rats has lasting effects on their preweanling offspring. Poster session presented at the Second Annual Meeting of the International Behavioral Neuroscience Society, Clearwater, FL.

Williams, M. T., Sims, M. L., Hennessy, M. B., & Davis, H. N. (1993, April). Postnatal administration of corticotropin releasing factor produces lasting effects on isolation vocalizations and basal corticosterone levels in preweanling rats. Paper presented at the Midwestern Psychological Association, Chicago, IL.

Williams, M. T., Becker, L. A., Nolan, D. J., & Hennessy, M. B. (1992, October). Corticotropin releasing factor (CRF): effects of peripheral administration on guinea pig pups during maternal separation. Poster session presented at the Annual Meeting of the International Society for Developmental Psychobiology, Newport Beach, CA.

Davis, H. N., **Williams, M. T.**, Benghuzzi, H. A., England, B. G., & Bajpai, P. K. (1992, September) Sustained release of testosterone and dihydrotestosterone by ALCAP ceramic implants in rats. Paper presented at the Academy of Surgical Research, St. Charles, IL.

Hennessy, M. B., O'Neil, D. R., Becker, L. A., Jenkins, R., **Williams, M. T.**, & Davis, H. N. (1991, November). Effects of centrally-injected CRH on the vocalizations of isolated guinea pig pups. Poster session presented at the Annual Meeting of the International Society for Developmental Psychobiology, New Orleans, LA.

POSTDOCTORAL FELLOWS

Devon Graham, Ph.D.: October 2007-present.

Matthew R. Skelton, Ph.D.: May 2006- present.

Martha A. Cohen, Ph.D.: November 2003- November 2005 (status- unknown).

DISSERTATION AND THESIS STUDENTS

Tori L. Schaefer: Mentor July 2004-present. Molecular and Developmental Biology, University of Cincinnati. Candidacy Passed 5/9/2006.

Nicole R. Herring: Mentor May 2004 – Aug 2007. Neuroscience, University of Cincinnati: Candidacy Passed 2/2/2005, Dissertation defended 8/8/2007. Post-doc- Vanderbilt

Jessica A. Able: Mentor June 2003-May 2006. Neuroscience, University of Cincinnati. Candidacy Passed 2/21/2005. Terminal Masters defended 5/12/2006.

DISSERTATION AND THESIS COMMITTEES

Bethann N. Johnson: Dissertation committee member 2007-present. Department of Pharmacology, Boston University School of Medicine.

Hongyan Zhu: Dissertation committee member 2007-present. Molecular and Developmental Biology, University of Cincinnati

Curtis E. Grace: Dissertation committee member 2006-present. Molecular and Developmental Biology, University of Cincinnati

Chris P. Curran: Dissertation committee member 2005-2007. Environmental Health Sciences, University of Cincinnati. Defended November 26, 2007

Amy R. Furay: Dissertation committee member 2004-2007. Neuroscience, University of Cincinnati. Defended February 22, 2007.

Megan M.W. Straiko: Dissertation committee member 2004-June 2006. Neuroscience, University of Cincinnati. Defended June 6, 2006

Karine Proulx: Dissertation committee member 2004-May 2006. Neuroscience, University of Cincinnati. Defended May 21, 2006.

Brooke R. Davis: Dissertation committee member 2003-June 2006. Neuroscience, University of Cincinnati. Defended June 7, 2006

Matthew R. Skelton: Dissertation committee member 2003- May 2006. Molecular and Developmental Biology, University of Cincinnati. Defended May 18, 2006

Carrie A. Brown-Strittholt: Dissertation committee member 2002-May 2005. Molecular and Developmental Biology, University of Cincinnati.

DISSERTATION CANDIDACY COMMITTEES

Jonathan W. Dickerson: Candidacy committee member 2006-2007. Neuroscience, University of Cincinnati.

Curtis E. Grace: Candidacy committee Chair 2005. Molecular and Developmental Biology, University of Cincinnati.

Chris P. Curran: Candidacy committee member 2004. Environmental Health Sciences, University of Cincinnati.

Amy R. Furay: Candidacy committee Chair 2003. Neuroscience, University of Cincinnati.

Megan M. W. Straiko: Candidacy committee member 2003. Neuroscience, University of Cincinnati.

Polly Dornette: Candidacy committee member 2002. Neuroscience, University of Cincinnati.

Carrie A. Brown: Candidacy committee member 2001. Molecular and Developmental Biology, University of Cincinnati.

ACADEMIC COMMITTEES

Neuroscience Stipend Committee 2006- Involved in determining the stipends for students and collecting information on other comparable programs.

Neurobiology /Behavioral Sciences Workgroup 2005: – Involved in planning the future of neuroscience research at CCHMC

Neurology Research Committee 2004- present: – Involved in the research plan of the division

PROFESSIONAL MEMBERSHIPS AND POSITIONS HELD

International Behavioral Neuroscience Society (IBNS)

2003-2008 Nominations Committee for IBNS (Co-Chair 2004, Chair 2005-2008)

1997-2000 Animal Use Committee for IBNS (Co-chair 1998-1999); (Chair, 1999-2000)

1995-1996 Student representative for IBNS

Ohio Miami Valley Chapter of Neuroscience

Midwest Teratology Association

Neurobehavioral Teratology Society

Society for Neuroscience

Faculty for Undergraduate Neuroscience

OTHER PROFESSIONAL ACTIVITIES

Reviewer for Behavioural Brain Research (2005, 2007)

Reviewer for Behavioural Pharmacology (2006, 2007)

Reviewer for Biological Psychology (1999)

Reviewer for Brain Research (2004)

Reviewer for Brain Research Bulletin (1998)

Reviewer for Environmental Health Perspectives (2001)

Reviewer for European Journal of Neuroscience (2005, 2007)

Reviewer for European Journal of Pharmacology (2007)

Reviewer for International Journal of Developmental Neuroscience (2006)

Reviewer for Neuropharmacology (2007)
Reviewer for Neuroscience (2007)
Reviewer for Neurosignals (2007)
Reviewer for Neurotoxicology and Teratology (1997-2004)
Reviewer for Pharmacology, Biochemistry and Behavior (1999, 2004, 2006-2007)
Reviewer for Physiology and Behavior (2007)
Reviewer for Social Neurosciences (2007)
Reviewer for Theriogeneology (2003)

TEACHING EXPERIENCE

Development, Regeneration and Plasticity, University of Cincinnati, **Fall 2005**. This is a team taught graduate course. Responsible for the preparation, lecture, and testing for the section covering pharmacotoxicity and neural development.

Teratology, University of Cincinnati, **Winter 2000, Winter 2002, Winter (2004-2007)**. This is a team taught graduate course. Responsible for the preparation, lecture, and testing for the section covering drugs of abuse.

Functional Genomics, University of Cincinnati, **Spring 2002, 2003, 2004**. This is a team taught graduate course. Responsible for the preparation and lecture of the section covering behavioral methods in functional genomics.

Howard Hughes Excellence in Science Education and Learning (ExSEL) program, Summers 2001-2006. Lecture on neuroendocrinology and drugs of abuse to high school students who participate in this program.

Animal Behavior, Xavier University, **Fall 2002**. Complete responsibility for classroom preparation, lectures, testing, and student evaluations

Developmental Neuroscience, University of Cincinnati, **Winter 2002**. This is a team taught postgraduate seminar course for Pediatric Psychiatry Fellows. Responsible for the preparation and lecture for the section covering the development of neurotransmitter systems.

Introduction to Psychology (General Psychology II), Sinclair Community College, **Winter 2001, Winter 2002**. Complete responsibility for classroom preparation, lectures, testing, and student evaluations

Introduction to Psychology (General Psychology I), Sinclair Community College, **Fall 2000, Spring 2001, Fall 2001, Winter 2002, Spring 2002**. Complete responsibility for classroom preparation, lectures, testing, and student evaluations

Introduction to Psychology (The Science of Behavior II), Wright State University, **Winter 1997 to Winter 1998, Fall 1998, Fall 1999, Winter 2000, Spring 2000**. Complete responsibility for classroom preparation, lectures, testing, and student evaluations.

Introduction to Psychology (The Science of Behavior I), Wright State University, **Winter 1999, Spring 1999**. Complete responsibility for classroom preparation, lectures, testing, and student evaluations.

Hormones and Behavior, Wright State University, **Spring 1998, Spring 1999, Spring 2000**. Developed the course and had full responsibility for classroom preparation, lectures, testing, and student evaluations.

Biological Influences on Human Behavior, Antioch College, **Spring 1998**. Complete responsibility for classroom preparation, lectures, testing, and student evaluations.

Physiological Psychology, Wright State University, **Fall 1997**. Complete responsibility for classroom preparation, lectures, testing, and student evaluations.

Physiological Psychology Methods, Wright State University, **Spring 1991 to Spring 1995** (Graduate Teaching Assistant). Responsibilities included: preparation of laboratory exercises, helping students during these exercises, demonstrating various techniques (i.e., stereotaxic procedures, histology)

Physiological Psychology Seminar, Wright State University, **Winter 1994**. Responsibilities included: preparation and presentation of advanced topics in physiological psychology concurrent with the formal class materials.

Laboratory for Introduction to Biology, Wright State University, **Fall 1993** (Graduate Teaching Assistant). Responsibilities included: preparation of laboratory exercises and lectures, development of quizzes, and grading of students on their laboratory exercises.

Quantitative and Research Methods, Wright State University, **Winter 1991** (Teaching Assistant). This was a graduate level course, and responsibilities included: tutoring students on the use of Statistical Analysis Systems (SAS) and grading SAS programs submitted by students.

REFERENCES

Charles V. Vorhees, Ph.D., Professor
Children's Hospital Research Foundation
Division of Developmental Biology
3333 Burnet Ave
Cincinnati, OH 45229-3039
(513) 636-8622
Charles.Vorhees@cchmc.org

Iain S. McGregor, Ph.D., Professor
University of Sydney
Room 244 Top South
A16 - Badham
The University of Sydney
NSW 2006 Australia
+61 2 9351 3571
iain@psych.usyd.edu.au

Sandra L. Wood, Ph.D. Senior Scientist
WP45-103
Merck Research Laboratories
Safety Assessment
West Point, PA 19486
215-652-6334
215-652-7758 (Fax)
Sandra_Wood2@Merck.com

Michael L. Woodruff, Ph.D., Professor
Vice Provost for Research
Professor of Anatomy & Cell Biology
Professor of Psychology
Box 70565
East Tennessee State University
Johnson City, TN 37614
(423) 929-6244

Russell W. Brown, Ph.D., Assoc. Professor
Department of Psychology
East Tennessee State University
College of Medicine
P.O. Box 19960A
Johnson City, TN 37614
(423) 439-5863