

KATHERINE GOOLD AKERS

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CURRENT POSITION

Hospital for Sick Children Research Institute

Postdoctoral Research Fellow, 2008-present

- Investigating the role of olfactory bulb and hippocampal neurogenesis in learning and memory in adult mice
- Investigating the effects of prenatal alcohol exposure and postnatal maternal separation on neurogenesis and learning and memory in adult mice
- Supported by Ontario Postdoctoral Fellowship
- Supervisor: Paul W. Frankland

EDUCATION

University of New Mexico, Albuquerque, NM

Ph.D., Psychology, With Distinction, 2008

- Dissertation title: Retrograde effect of hippocampal LTP induction on spatial memory: influence of memory strength and state of memory activation
- Advisor: Derek A. Hamilton

M.S., Psychology, 2005

- Thesis title: Effects of neonatal novelty exposure on competitive ability and task-directed attention
- Advisor: Akaysha C. Tang

Southwest Missouri State University, Springfield, MO

B.S., Psychology, Summa Cum Laude, 2002

PREVIOUS RESEARCH EXPERIENCE

University of New Mexico, Albuquerque, NM

Graduate Research Assistant to Derek A. Hamilton, 2005-2008

- Investigated the behavioral and biological bases of spatial navigation in preweanling and adult rats
- Examined relationships among prenatal alcohol exposure, social behavior, and hippocampal and orbitofrontal cortex structure and function in rats

Graduate Research Assistant to Gordon K. Hodge, 2005-2008

- Examined factors affecting student performance in a quiz-focused redesign of a General Psychology course

Graduate Research Assistant to Akaysha C. Tang, 2002-2005

- Investigated the effects of early environment and maternal behavior on learning and memory, synaptic plasticity, social behavior, and stress response in rats

Southwest Missouri State University, Springfield, MO

Undergraduate Research Assistant to James O. Davis, 2001-2002

- Investigated relationships among goal-setting, sleeping habits, mood, and immune response in humans

AWARDS AND HONORS

Ontario Postdoctoral Fellowship, Ontario Ministry of Research and Innovation, 2008-2010

Benjamin Franklin Haught Lecture Award, University of New Mexico, 2008

Quad-L Foundation Research Grant, University of New Mexico, 2007

Benjamin Franklin Haught Scholarship, University of New Mexico, 2006-2007

Student Conference Award, University of New Mexico, 2006-2007

Comprehensive Exam passed with Distinction, University of New Mexico, 2006

Outstanding Teaching Assistant of the Year Nominee, University of New Mexico, 2006

NIH Travel Award, International Society for Developmental Psychobiology, 2003, 2006-2008

Research, Project, and Travel Grant, University of New Mexico, 2003, 2005-2007

Student Research Allocations Grant, University of New Mexico, 2003, 2005-2007

Academic Excellence Award, Southwest Missouri State University, 2002

Board of Governors Scholarship, Southwest Missouri State University, 1998-2002

Bright Flight Scholarship, State of Missouri, 1998-2002

JOURNAL ARTICLES

K.G. Akers, F.T. Candelaria-Cook, J.P. Rice, T.E. Johnson, D.A. Hamilton. (In press). Delayed development of place navigation compared to directional responding in preweanling rats. *Behavioral Neuroscience*.

D.A. Hamilton, **K.G. Akers**, T.E. Johnson, J.P. Rice, F.T. Candelaria, E.S. Redhead. (In press). Evidence for a shift in strategy from place navigation to directional responding in one variant of the Morris water task. *Journal of Experimental Psychology: Animal Behavior Processes*.

K.G. Akers, Z. Yang, D.P. DelVecchio, B.C. Reeb, R.D. Romeo, B.S. McEwen, A.C. Tang. (2008). Social competitiveness and plasticity of neuroendocrine function in old age: influence of neonatal novelty exposure and maternal care reliability. *PLoS ONE*, 3: e2840. doi:10.1371/journal.pone.0002840.

D.A. Hamilton, **K.G. Akers**, T.E. Johnson, J.P. Rice, F.T. Candelaria, R.J. Sutherland, M.P. Weisend, E.S. Redhead. (2008). The relative influence of place and direction in the Morris water task. *Journal of Experimental Psychology: Animal Behavior Processes*, 34: 31-53.

I.R. Tal, **K.G. Akers**, G.K. Hodge. (2008). Effect of paper color and question order on exam performance. *Teaching of Psychology*, 35: 26-28.

K.G. Akers, F.T. Candelaria, D.A. Hamilton. (2007). Preweanling rats solve the Morris water task via directional navigation. *Behavioral Neuroscience*, 121: 1426-1430.

K.G. Akers, D.A. Hamilton. (2007). Comparison of developmental trajectories for place and cued navigation in the Morris water task. *Developmental Psychobiology*, 49: 553-564.

D.A. Hamilton, **K.G. Akers**, M.P. Weisend, R.J. Sutherland. (2007). How do room and apparatus cues control place navigation in the Morris water task?: Evidence for distinct contributions to a movement vector. *Journal of Experimental Psychology: Animal Behavior Processes*, 33: 100-114.

A.C. Tang, **K.G. Akers**, B.C. Reeb, R.D. Romeo, B.S. McEwen. (2006). Programming social, cognitive, and neuroendocrine development by early exposure to novelty. *Proceedings of the National Academy of Sciences, USA*, 103: 15716-15721.

K.G. Akers, M. Nakazawa, R.D. Romeo, J.A. Connor, B.S. McEwen, A.C. Tang. (2006). Early life modulators and predictors of adult synaptic plasticity. *European Journal of Neuroscience*, 24: 547-554.

B.C. Reeb, **K.G. Akers**. (2006). Is neuroplasticity of the hypothalamic-pituitary-adrenal axis maternally mediated? *Journal of Neuroscience*, 26: 5589-5590.

K.G. Akers, G.K. Hodge. (2006). The virtual cola challenge. *Teaching of Psychology*, 33: 125-127.

K.G. Akers, B.C. Reeb, A.C. Tang. (2004). Developmentally stable sex-dependent modulation of turning bias by neonatal novelty exposure. *Behavioural Brain Research*, 155: 257-263.

JOURNAL ARTICLES IN PROGRESS

D.D. Savage, M.J. Rosenberg, C.R. Wolff, **K.G. Akers**, J.L. Siedel, K.K. Caldwell, D.A. Hamilton. Effects of a novel cognition enhancing agent on fetal ethanol-induced learning deficits. (In preparation)

A.C. Tang, B.C. Reeb-Sutherland, Z. Yang, **K.G. Akers**, A. Korzekwa, R.D. Romeo, B.S. McEwen. Maternal physiology sets the stage for novelty-induced enhancement in offspring psychological development. (In preparation)

K.G. Akers, D.A. Hamilton. Retrograde alteration of spatial memory by hippocampal LTP induction: Influence of memory strength and state of memory activation. (In preparation)

INVITED LECTURES

Retrograde spatial memory deficit following induction of hippocampal long-term potentiation. (2008). *Benjamin Franklin Haught Memorial Lecture, University of New Mexico, Albuquerque, NM.*

CONFERENCE PRESENTATIONS

- K.G. Akers**, F.T. Candelaria, J.P. Rice, T.E. Johnson, D.A. Hamilton. (2008). Late developmental emergence of true place navigation in the rat. *International Society for Developmental Psychobiology*.
- K.G. Akers**, D.A. Hamilton. (2008). Retrograde effect of hippocampal LTP induction on spatial memory: influence of memory strength and memory reactivation. *Society for Neuroscience*.
- J.P. Rice, **K.G. Akers**, T.E. Johnson, F.T. Candelaria, D.A. Hamilton. (2008). Hippocampal lesions disrupt place navigation and directional responding in the Morris water task. *Society for Neuroscience*.
- A.C. Tang, **K.G. Akers**, Z. Yang, D.P. DelVecchio, B.C. Reeb, R.D. Romeo, B.S. McEwen. (2008). Social competitiveness and plasticity of neuroendocrine function in old age: influence of neonatal novelty exposure and maternal care reliability. *Society for Neuroscience*.
- D.A. Hamilton, T.E. Johnson, J.P. Rice, **K.G. Akers**, M.J. Rosenberg, D.D. Savage. (2008). Effects of social experience on structural plasticity of frontal cortex neurons and behavior in rats exposed to moderate levels of ethanol in utero. *Research Society on Alcoholism*.
- D.P. DelVecchio, Z. Yang, **K. Akers**, A. Tang. (2008). Enhancement of social competitiveness among senescent rats by neonatal experience of novelty. *American Psychological Society*.
- K.G. Akers**, F.T. Candelaria, D.A. Hamilton. (2007). Preweanling rats solve the Morris water task via directional navigation. *International Society for Developmental Psychobiology*.
- K.G. Akers**, D.A. Hamilton. (2007). High frequency stimulation of the perforant path disrupts memory for a previously-acquired spatial task. *Society for Neuroscience*.
- D.D. Savage, M. Rosenberg, C. Wolff, **K. Akers**, J. Siedel, K. Caldwell, D. Hamilton. (2007). Effects of a novel cognition enhancing agent on fetal ethanol-induced learning deficits. *Society for Neuroscience*.
- T.E. Johnson, J.P. Rice, **K.G. Akers**, M.J. Rosenberg, D.D. Savage, D.A. Hamilton. (2007). Effects of social experience on social behavior and prefrontal cortical structural plasticity in adult rat offspring exposed to moderate levels of ethanol in utero. *Society for Neuroscience*.
- D.D. Savage, M.J. Rosenberg, C.R. Wolff, **K.G. Akers**, J.L. Siedel, K.K. Caldwell, D.A. Hamilton. (2007). Effects of a novel cognition enhancing agent on fetal ethanol-induced learning deficits. *Research Society on Alcoholism*.
- A.C. Tang, **K.G. Akers**, A.M. Korzekwa, B.C. Reeb. (2007). Early life modulators of adult social engagement during dyadic interaction. *American Psychological Society*.
- K.G. Akers**, D.A. Hamilton. (2006). Development of cued vs. place learning in the Morris water task. *Society for Neuroscience*.

- D.A. Hamilton, **K.G. Akers**, M.T. Sutherland, A.M. Allan. (2006). Effects of chronic nicotine exposure on place learning and memory in the rat. *Society for Neuroscience*.
- M. Nakazawa, **K.G. Akers**, R.D. Romeo, J.A. Connor, B.S. McEwen, A.C. Tang. (2006). Effects of neonatal anoxia and mild stimulation on hippocampal synaptic plasticity and social recognition memory. *Society for Neuroscience*.
- K.G. Akers**, B.C. Reeb, R.D. Romeo, B.S. McEwen, J. Kagan, R.J. Dolan, A.C. Tang. (2006). "Social control" between two strangers—impact of neonatal novelty exposure on adult social reciprocation. *International Society for Developmental Psychobiology*.
- M. Nakazawa, A.M. Korzekwa, **K.G. Akers**, A.C. Tang. (2006). Ability to obtain reciprocal social interest is impaired by neonatal oxygen deprivation. *International Society for Developmental Psychobiology*.
- A.C. Tang, **K.G. Akers**, B.C. Reeb, A.M. Korzekwa, L.N. Rogers. (2006). What makes an adaptive rat—"better" mothers or early exposure to novelty? *International Society for Developmental Psychobiology*.
- D.A. Hamilton, **K.G. Akers**, M.T. Sutherland, D.D. Savage. (2006). Spatial memory impairment in rats exposed to moderate levels of ethanol in utero. *Research Society on Alcoholism*.
- B.C. Reeb, R.D. Romeo, **K.G. Akers**, B.S. McEwen, A.C. Tang. (2006). Maternal modulation hypothesis as an alternative to maternal mediation hypothesis. *International Congress of Neuroendocrinology conference*.
- K.G. Akers**, A.C. Tang. (2005). Effect of neonatal novelty exposure on social competition. *International Behavioral Neuroscience Society*.
- K.G. Akers**, M. Nakazawa, B.C. Reeb, A.C. Tang, R.D. Romeo, B.S. McEwen. (2004). Neonatal stimulation and adult social control. *Society for Behavioral Neuroendocrinology*.
- K.G. Akers**, B.C. Reeb, A.C. Tang. (2003). Neonatal novelty exposure modulates sex differences in turning bias. *Society for Neuroscience*.
- A.C. Tang, B.C. Reeb, M. Nakazawa, R.D. Romeo, **K.G. Akers**, B.S. McEwen. (2003). Neonatal novelty exposure modulates adult corticosterone stress response elicited by the Morris water maze. *International Society for Developmental Psychobiology*.
- K.G. Akers**, B.C. Reeb, A.C. Tang. (2003). Neonatal novelty exposure modulates sex differences in turning bias. *International Society for Developmental Psychobiology*.

TEACHING EXPERIENCE

University of New Mexico Continuing Education, Albuquerque, NM
Instructor, Biological Aspects of Substance Abuse, Fall 2006

University of New Mexico, Albuquerque, NM

Course Coordinator

General Psychology, Fall 2003-Spring 2006

Teaching Psychology Studios, Fall 2003-Spring 2006

Teaching Assistant

Brain and Behavior, Spring 2003

General Psychology, Fall 2002-Spring 2003

SERVICE

Reader/Reviewer

- Graduate Research Development Committee, University of New Mexico, 2006-2008
- Student Research Allocations Committee, University of New Mexico, 2006-2008

PROFESSIONAL ASSOCIATIONS

Society for Neuroscience

International Society for Developmental Psychobiology