

MICHAEL M. FOLKERTS

Associate Professor of Psychology
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EDUCATION

Ph.D., Neuroscience, University of California, Davis. June 2002. Mentors: Robert F. Berman, Ph.D., Bruce G. Lyeth Ph.D., and J. Paul Muizelaar, M.D., Ph.D.

Master of Arts, Biological Psychology, Wayne State University, Detroit, MI, June, 1997. Advisor: Robert F. Berman, Ph.D.

Bachelor of Science, Biology and Bachelor of Arts, Psychology, Hope College, Holland MI, May 1992.

Eagle Scout. May, 1984.

RESEARCH EXPERIENCE

Pepperdine University Neurotrauma Research Laboratories, 8/02 – present.

Doctoral Research, UC Davis, 9/97- 6/02.

Autophosphorylation of CaMKII after Traumatic Brain Injury. Determined the spatial and temporal distribution of both CaMKII and CREB as well as the activity of CaMKII after lateral fluid percussion TBI using immunostaining and immunoblotting techniques and a radioenzymatic assay. Administered CaMKII inhibitor (KN93) into hippocampus after TBI and quantified neuroprotection using stereology. Drs. R.F. Berman and B.G. Lyeth, Neuroscience.

Master's Research, Wayne State University, 9/94-6/97.

Characterized the impact-acceleration model of brain injury both neuroanatomically (MAP-2) and behaviorally (motor and cognitive deficits in Morris water maze, radial arm maze, beam walk and inclined plane). Drs. R.F. Berman/ J.A. Rafols, Depts. Psychology/ Anatomy.

Research Assistant, Henry Ford Hospital Sleep Disorders and Research Center, Detroit, MI 6/92-8/94.

Collected, maintained and statistically evaluated data for human sleep studies (REM deprivation, obstructive sleep apnea, narcolepsy) including patient electrode placements, brain EEG scoring, neuropsychological evaluations, writing papers for publication and presenting research at national meetings.

Undergraduate Research, Hope College, Holland, MI, 9/90-9/92.

Gathered and analyzed data for rat physiological studies including urine, fecal, body weight, blood pressure, and blood plasma levels. Performed surgeries for core body temperature measurements during thermal dehydration studies.

TEACHING EXPERIENCE

Assistant Professor (Fall 2002 to present) Pepperdine University, Social Science Division – Teaching the following courses: Biological Psychology, Drugs and Behavior, Comparative Animal Behavior, Intro Psychology.

Teaching Assistant, Neurobiology, Physiology and Behavior (1/00-5/00) – University of California at Davis. Led twice a week discussions (two classes) on lectured topics, landmark journal articles and in-class quizzes.

Associate-In, Brain and Behavior, Wayne State University, MI, Summer, 1997.
Prepared syllabus, designed and presented lectures providing students with a general overview of the brain and neuroscience principles in relationship with both normal and abnormal behaviors. Jeremy L. Hall, Ph.D.

Instructor, Cellular Biology, Rochester College, MI, Summer 1997.
Prepared lectures, handouts, hands-on activities including microscope techniques for home schooled children (16-18 years). David Brackney, M.S.

Teaching Assistant, Learning & Memory (9/94-6/97) and Methods on Neurobiology (1/97-6/97) – Wayne State University, MI
Lectured and guided students in hands-on techniques of learning and memory including computer simulations and operant conditioning with rats. Instructed students how to write scientific papers and graded their progress. Collaborated in the preparation of a lab course book. Demonstrated neuroscience techniques and assisted students with identification of sheep brain anatomy. Drs. Berman & Hall.

PUBLICATIONS

Folkerts M.M., Parks E.A., Dedman J.R., Kaetzel M.A., Lyeth B. G., and Berman R.F (2007). Phosphorylation of Calcium Calmodulin-Dependent Protein Kinase II following Lateral Fluid Percussion Brain Injury in Rats. Journal of Neurotrauma. 24(4): 638-650.

Hallam, TM, Floyd, CL, **Folkerts MM**, Lee LL, Gong QZ, Lyeth BG, Muizelaar JP, Berman RF (2004). Comparison of Behavioral Deficits and Acute Neuronal Degeneration in Rat Lateral Fluid Percussion and Weight Drop Brain Injury Models. Journal of Neurotrauma 21(5): 521-539.

Barney C.C., Smith G.L. and **Folkerts M.M.** (1999). Thermal dehydration-induced thirst in spontaneously hypertensive rats. American J. Physiology. 276(5 Pt 2):R1302-10.

Folkerts M.M., Berman R.F., Muizelaar J.P., and Rafols J.A. (1998). Disruption of MAP-2 immunostaining in rat hippocampus after traumatic brain injury. J Neurotrauma. 15(5):349-363.

Nykamp K., Rosenthal L., **Folkerts M.M.**, Roehrs T., Guido P., and Roth T. (1998). The effects of REM sleep deprivation on the level of sleepiness/alertness. *Sleep*. 21(6):609-14.

Bishop C., Rosenthal L., **Folkerts M.M.**, Nykamp K., Helmus T., Guido P., Syron M.L., Roehrs T., Rice M., and Roth T. (1998). The perception of sleep as a function of the level of daytime sleepiness among patients with obstructive sleep apnea. *Comprehensive Psychiatry*. 39(5):312-7.

Folkerts M.M., Rosenthal L., Roehrs T., Krstevska S., Murlidhar A., Zorick F., Wittig R., and Roth T. (1996). The reliability of the diagnostic features in patients with narcolepsy. *Biological Psychiatry*. 40(3):208-14.

Barney C.C. and **Folkerts M.M.** (1995). Thermal dehydration-induced thirst in rats: role of body temperature. *Am. J. Physiol.* 269(38):R557-564.

Rosenthal L., **Folkerts M.M.**, Roehrs T., et al. (1994). Sleepiness and sleep onset REM periods in the absence of clinical symptomatology. *Biological Psychiatry* 36:341-343.

ABSTRACTS AND PRESENTATIONS (*undergraduate students)

Swindle J*, Michelis D* and **Folkerts M** (2007). Role of Protein Phosphatase 1 (PP1) in Cortex and Hippocampus after Lateral Fluid Percussion (LFP) Brain Injury in Rats. *J Neurotrauma*. 24(7):1237.

Guadagno J*, Holway K*, **Folkerts M** (2006). Protein Phosphatase 2A and 2B levels following Lateral Fluid Percussion (LFP) Brain Injury. *J Neurotrauma*.

Podaraza* K, Tedrow* V, and **Folkerts M** (2004). Calcium-Calmodulin Dependent Protein Kinase IV (CaMKIV) levels following Lateral Fluid Percussion (LFP) Brain Injury. Whittier College (Whittier, CA) - Southern California Conference on Undergraduate Research Abstracts, Page 161.

Alvarez*, A., N. Galloway* and **M. Folkerts** 2003. Histological characterization of the lateral fluid percussion model of traumatic brain injury, University of California at Irvine - **Southern California Conference on Undergraduate Research Abstracts**, Page 144.

Alvarez*, A. and **M. Folkerts** 2003. Assessing traumatic brain injury using the lateral fluid percussion method, **Annual Biomedical Research Conference for Minority Students (ABRCMS)**, San Diego California.

Folkerts M.M. Autophosphorylation of CaMKII after TBI. Presented at The Inaugural Northern California Neurotrauma Spring Symposium, UCSF (2002).

Folkerts M.M., Parks E.A., Muizelaar J.P., Lyeth B.G., and Berman R.F. CaMKII activation in cortex and hippocampus following lateral fluid percussion injury in rats. 2001 19th Annual National Neurotrauma Meeting.

Folkerts M.M., Parks E.A., Hallam T.M., Muizelaar J.P., Lyeth B.G., and Berman R.F. Phosphorylation of cyclic AMP response element binding protein following lateral fluid percussion brain injury in rats. 2000 18th Annual National Neurotrauma Meeting.

Hallam T.M., **Folkerts M.M.**, Lyeth B.G., Muizelaar J.P., Berman R.F. Differential distribution of apoptotic and necrotic neurons following varying magnitudes of lateral fluid percussion brain injury. 2000 30th Annual Society for Neuroscience Meeting.

Folkerts M.M., Hallam T.M., Lyeth B.G., Muizelaar J.P., Berman R.F. Cellular markers of neuronal damage in rat hippocampus and cortex after traumatic brain injury. Presented at the 1999 29th Annual Society for Neuroscience Meeting.

Hallam T.M., **Folkerts M.M.**, Lee L.L., Gong Q-Z., Lyeth B.G., Muizelaar J.P. Berman R.B. Behavioral and histological characterization of diffuse brain injury in rats. Presented at the 1999 29th Annual Society for Neuroscience Meeting.

Folkerts M.M., Berman R.F., Lyeth B.G., Dedman J.R., Kaetzel M.A., Muizelaar J.P. Immunohistological localization of autophosphorylated CaMKII in rat fluid percussion injury. Presented at the 1999 17th Annual National Neurotrauma Society Meeting.

Lyeth B.G., Hallam T.M., **Folkerts M.M.**, Lee L.L., Gong Q-Z., Murphy S., Muizelaar J.P., Berman R.F. Relationship of injury severity to neurobehavioral outcome after diffuse brain injury in rats. Presented at the 1999 17th Annual National Neurotrauma Society Meeting.

Folkerts M.M. Autophosphorylation of CaMKII after traumatic brain injury. Presented at the 1999 3rd Annual UC Davis Neuroscience Spring Retreat.

Folkerts M.M., Berman R.F., Muizelaar J.P. Moderate acute ethanol intoxication provides partial neuroprotection in a rat model of diffuse brain injury. Presented at the 1998 16th Annual National Neurotrauma Society Meeting.

Berman R.F., **Folkerts M.M.**, Wang G., Muizelaar J.P. Effects of diffuse brain injury on in vitro hippocampus electrophysiology. Presented at the 1998 16th Annual National Neurotrauma Meeting.

Folkerts M.M. Disruption of MAP-2 immunostaining after impact acceleration traumatic brain injury. Presented at the 1998 2nd Annual UC Davis Neuroscience Spring Retreat.

Folkerts M.M. Disruption of MAP-2 immunostaining in rat hippocampus after traumatic brain injury. Presented at the 1997 27th Annual Society for Neuroscience Meeting and 28th Annual Michigan Chapter Society for Neuroscience.

Folkerts M.M., Berman R.F. Behavioral, morphological and electrophysiological effects of diffuse axonal injury in rats. Presented at the 1996 14th Annual National Neurotrauma Meeting.

Rosenthal L. and **Folkerts M.M.** The level of daytime sleepiness and the perception of sleep on the MSLT. *Sleep Research* 25:348.

Rosenthal L., **Folkerts M.M.** et al. Administration of dexamethasone and its effects on sleep and daytime sleepiness. Presented at the 1995 APSS National Sleep Conference.

Rosenthal L., **Folkerts M.M.** et al. The effects of selective REM deprivation on daytime on sleepiness. Presented at the 1994 APSS National Sleep Conference.

Rosenthal L., Helmus T, **Folkerts M.M.** Auditory awakening thresholds in sleepy and narcoleptic subjects. Presented at the 1994 APSS National Sleep Conference.

Rosenthal L., **Folkerts M.M.** Total sleep time during an enforced time in bed period in sleepy and alert subjects. Presented at the 1993 APSS National Sleep Conference.

Barney C, **Folkerts M.M.** Effects of thermal dehydration on spontaneously hypertensive rats. FASEB A1838 (body fluid regulation 5220). Presented at 1992 NSF Research Experience for Undergraduates, 1992 PEW Mid-States Biology Research Symposium and 1992 National Conference on Undergraduate Research.

ACADEMIC SERVICE

- Coordinator of Psychology department
- Member: IACUC (research animal care)
- Member: Student Disciplinary Committee
- Secretary/ Treasurer of SFA Executive Committee
- Member: Seaver Academic Council
- Chair: Academic Support Committee
- Psychology Representative for Pepperdine University's Preview Day (gave talk and provided material for interested parents and students)
- Pepperdine University Founder's Day
- Women's Water Polo Faculty Advisor
- Faculty Advisor: Psi Chi (Psychology Honor Society)
- Service Learning (Drugs and Behavior): SOS Malibu, Union Rescue Mission, Khepera House, The Midnight Mission, Daybreak Shelter, AA (open Meetings (Point Dume)
- Social Action Grant funded through the Lily Endowment for \$2000 (funds for service learning component to Drugs and Behavior – SOS Malibu)

PROFESSIONAL AFFILIATIONS

National Neurotrauma Society
Society for Neuroscience

GRANTS, AWARDS AND HONORS

Psi Chi Undergraduate Research Grant (2006-2007) (\$1350):

“Traumatic Brain Injury: The Role of pCaMKII Levels on Memory Impairment”

National Science Foundation (\$370,000):

“REU Site: Undergraduate Research in Biology: Cellular Stress Physiology”

Dean’s Research Grant -2004 (\$500) by the Seaver Research Council

Seaver Fellow in Social Science (2003-2004) - \$2000

Dean’s Research Grant -2003 (\$1000) by the Seaver Research Council

SURB (2003-2007)

Finalist Student Research Competition, 18th Annual National Neurotrauma Society Symposium. New Orleans, LA (November 3 & 4, 2000).

REFERENCES

Robert F. Berman, Ph.D. (530)754-5102
Bruce G. Lyeth, Ph.D. (530)754-5244
J. Paul Muizelaar, M.D., Ph.D. (916)734-3685
Department of Neurological Surgery, UC Davis, CA 95616

Leon Rosenthal, M.D.
Seep Associates of Texas, Dallas, TX (214)750-7776

Chris Barney, Ph.D. (616)395-7720
Department of Biology, Hope College, Holland, MI 49423