

CURRICULUM VITAE

NAME: David H. McDougal, Ph.D.

ACADEMIC RANK: Assistant Professor-Research

CONTACT INFORMATION

Pennington Biomedical Research Center
6400 Perkins Road
Baton Rouge, LA 70808
225-763-0278 (phone)
David.McDougal@pbrc.edu

EDUCATION

December, 1999 Bachelor of Science – Biological Sciences, Louisiana State University, Baton Rouge, LA
December, 2001 Bachelor of Science – Psychology, Louisiana State University, Baton Rouge, LA
December, 2008 Doctor of Philosophy – Vision Sciences, University of Alabama, Birmingham, AL

PROFESSIONAL EXPERIENCE

10/08 – 1/10 Postdoctoral Researcher, Autonomic Neurosciences, Pennington Biomedical Research Center, Louisiana State University, Baton Rouge, LA
1/10 – 10/13 Instructor, Autonomic Neurosciences, Pennington Biomedical Research Center, Louisiana State University, Baton Rouge, LA.
10/13 – present Assistant Professor-Research , Neurobiology of Metabolic Dysfunction, Pennington Biomedical Research Center, Louisiana State University, Baton Rouge, LA.

PROFESSIONAL ORGANIZATION MEMBERSHIPS

Society for Neuroscience – member since 2008
American Diabetes Association – member since 2011

HONORS AND AWARDS

LSU Honors Scholarship, Louisiana State University
American Diabetes Association Young Investigator Travel Grant Award

GRANTS AND CONTRACTS SUPPORT

Active grants

1. 1-15-JF-3 McDougal, David (PI) 07/01/2015 6/30/2018 3.00
American Diabetes Association Junior Faculty Award
Central nervous system mechanisms of glucose detection: role of the type 2 glucose transporter [GLUT2] in hypoglycemic counterregulation.
The goal of this project is to employ transgenic mouse models to develop fundamental knowledge regarding the role of GLUT2 in CNS hypoglycemic counterregulation both in vivo and in vitro.
Role: PI

2. U54 GM104940 Cefalu, W (PI)
2014 LA CaTS Pilot Grant
Testing glial pathways to HAAF in human subjects using ¹³C magnetic resonance spectroscopy.
The major goal of this project is to determining if prolonged fasting in humans leads to alterations in CNS metabolism, as measured by ¹³C magnetic resonance spectroscopy.
Role: PI

Completed grants

1. Predoctoral Fellowship, (T32) NIH Vision Science Training Grant
(August, 2005 – May, 2008)
University of Alabama at Birmingham
2. Predoctoral Fellowship, (T32) NIH Neuroscience Training Grant
(June, 2002 – May, 2005)
University of Alabama at Birmingham
3. PBRC NORC Pilot and Feasibility Grant- NORC Center Grant # 2P30DK072476-06
05/01/2011-04/31/2013
The Role of Brainstem Astrocytes in the Autonomic Response to Hypoglycemia.
Focuses on the role of the type 2 glucose transporter in the detection of systemic hypoglycemia by specific brain regions and cell types within the CNS.
4. 2 P20 RR021945 Gettys, Thomas (PI) 09/04/2006-07/31/2016
NIH (NCRR) Mentoring Obesity and Diabetes Research in Louisiana (COBRE)
Role: Project 3 Principal Investigator (07/01/10 – 06/30/2015)
The specific aims of the COBRE proposal are to: a) expand the critical mass of investigators using cell and molecular approaches in the pursuit of obesity/diabetes research; b) mentor junior faculty displaying great promise; c) implement evaluation criteria for junior investigators; d) foster a collaborative and interactive research environment and e) strengthen the research infrastructure.

PUBLICATIONS

Peer Reviewed Journal Articles

1. Gamlin PD, **McDougal DH**, Pokorny J, Smith VC, Yau KW and Dacey DM. (2007) Human and macaque pupil responses driven by melanopsin-containing retinal ganglion cells. *Vision Res* 47, 946-54. PMID: PMC1945238
2. **McDougal DH**, and Gamlin PD. (2010) The influence of intrinsically-photosensitive retinal ganglion cells on the spectral sensitivity and response dynamics of the human pupillary light reflex. *Vision Res.* 50(1):72-87. PMID: PMC2795133
3. Sipe GO, Dearworth J. Jr, Selvarajah BP, Blaum JF, Littlefield TE, Fink DA, Casey CN, and **McDougal DH**, Spectral sensitivity of the photointrinsic iris in the red-eared slider turtle (*trachemys scripta elegans*). *Vision Research*, 2011. 51(1): p. 120-130. PMID: 20951155
4. Rogers RC, **McDougal DH**, and Hermann GE. (2011) Leptin amplifies the action of thyrotropin-releasing hormone in the solitary nucleus: An in vitro calcium imaging study. *Brain Res*, **1385**: p. 47-55. PMID: 21334313
5. **McDougal DH**, Hermann GE, and Rogers RC. (2011) "Vagal afferent stimulation activates astrocytes in the nucleus of the solitary tract via AMPA receptors: evidence of an atypical neural–glial interaction in the brainstem." *The Journal of Neuroscience*, **31**(39): 14037-14045. PMID: 21957265

6. **McDougal DH**, Viard E., et al. (2013). "Astrocytes in the hindbrain detect glucoprivation and regulate gastric motility." *Autonomic Neuroscience* 175(1–2): 61-69. PMID: 23313342
7. **McDougal, DH**, Hermann, GE and Rogers, RC (2013). "Astrocytes in the nucleus of the solitary tract are activated by low glucose or glucoprivation: evidence for glial involvement in glucose homeostasis." *Frontiers in Neuroscience* 7: 249. PMCID: 3868892
8. Barnes, MJ and **McDougal, DH** (2014). "Leptin into the rostral ventral lateral medulla (RVLM) augments renal sympathetic nerve activity and blood pressure." *Front Neurosci* 8: 232. PMCID: 4125949
9. **McDougal, DH** and Gamlin, PD (2015). "Autonomic control of the eye." *Comprehensive Physiology* 5(1): 439-473.

Chapters and Reviews

1. **McDougal DH** and Gamlin PDR. (2008) Pupillary Control Pathways. In: I.B. Allan, K. Akimichi, M.S. Gordon, & W. Gerald (Eds.), *The Senses: A Comprehensive Reference* (pp. 521-536). New York: Academic Press.
2. Gamlin PDR and **McDougal DH**. (2010) Visual Optics: Pupil. *Encyclopedia of the Eye* (Elsevier) in press.

Abstracts and Proceedings

1. Gamlin PD, Smith VC, Dacey DM, Pokorny J, and **McDougal DH**
Melanopsin-containing Retinal Ganglion Cells Drive the Pupillary Light Reflex in the Primate Invest. *Ophthalmol. Vis. Sci.* 2004 45: E-Abstract 2262
2. **McDougal DH**, Gamlin PD. Intrinsically-Photoreceptive Retinal Ganglion Cells Drive the Paradoxical Pupil Response in Primates. Program No. 408.3. *2004 Abstract Viewer/Itinerary Planner*. San Diego, CA: Society for Neuroscience, 2004. Online.
3. **McDougal DH**, Gamlin PD. Human Pupil Responses Driven by Melanopsin-Containing Retinal Ganglion Cells. Program No. 240.17. *2006 Neuroscience Meeting Planner*. Atlanta, GA: Society for Neuroscience, 2006. Online.
4. **McDougal DH**, Gamlin PD. The Influence of Melanopsin on the Spectral Sensitivity of Human Pupillary Responses to Long Duration Light Stimuli. Program No. 68.23. *2007 Neuroscience Meeting Planner*. San Diego, CA: Society for Neuroscience, 2007. Online.
5. Sipe GO, Dearworth J. Jr, Blaum JF, and **McDougal DH**. Spectral Sensitivity of the Photointrinsic Iris in the Turtle. *IOVS* 2009; 50: E-Abstract 5038.
6. **McDougal DH**, Gamlin PD. The Relative Contribution of Rods, Cones, and Melanopsin to the Human Pupillary Light Reflex. *IOVS* 2009; 50: E-Abstract 3052.
7. **McDougal DH**, Hermann GE, and Rogers RC. In vitro stimulation of vagal afferents activates astrocytes in the nucleus of the solitary tract. Program No. 88.3. *2009 Neuroscience Meeting Planner*. Chicago, IL: Society for Neuroscience, 2009. Online.
8. **McDougal DH**, Hermann GE, and Rogers RC. Glucosensitive astrocytes in the nucleus of the solitary tract. Program No. 91.23. *2010 Neuroscience Meeting Planner*. San Diego, CA: Society for Neuroscience, 2010. Online.
9. **McDougal DH**, Hermann GE, and Rogers RC. (2011). "Astrocytes in the Nucleus of the Solitary Tract Actively Signal during Low Glucose Availability." *Diabetes* 60(Supplement 1): A134.
10. **McDougal DH**, Rogers RC, and Hermann GE. (2011). "Astrocytes in rat nucleus of the solitary tract are activated by low glucose or glucoprivic challenges." *Autonomic neuroscience : basic & clinical* 163(1): 76
11. **McDougal DH**, Rogers RC, and Hermann GE. Astrocytes as glucosensors in the solitary nucleus. Program No. 901.03. *2012 Neuroscience Meeting Planner*. New Orleans, LA: Society for Neuroscience, 2012. Online
12. **McDougal DH** and Morrison CD. (2015). "Astrocyte-specific disruption of GLUT2 alters the response to systemic glucoprivia." *Diabetes* 64 (Supplement 1).

INVITED TALKS AND LECTURES

April, 2008 Invited Speaker "The Spectral Sensitivity of the Human Pupillary Light Reflex: A Moving Target?" Department of Biology, Lafayette University, Easton, Pennsylvania

April, 2014 Invited Speaker " The Role of Astrocytes in the CNS Response to Hypoglycemia "Department of Biology, Lafayette University, Easton, Pennsylvania

SERVICE

Faculty Advisory Committee Member August, 2012 – February, 2015

PBRC Holiday Committee Member January 2013 – Present

Ad Hoc Manuscript Reviewer

Journal of the Optical Society of America

TEACHING AND MENTORING**Courses Taught****Graduate Level**

Faculty

NEUR 704, Introduction to Neurobiology

Department of Neurobiology

Dauphin Island Sea Lab / University of Alabama at Birmingham

Mobile, Alabama / Birmingham, Alabama

Summer 2010, 2011

Laboratory Coordinator

NEUR 704, Introduction to Neurobiology

Department of Neurobiology

Dauphin Island Sea Lab / University of Alabama at Birmingham

Mobile, Alabama / Birmingham, Alabama

Summer 2009

Lecturer

NEUR 704, Introduction to Neurobiology

Department of Neurobiology

Dauphin Island Sea Lab / University of Alabama at Birmingham

Mobile, Alabama / Birmingham, Alabama

Summer 2006, 2009, 2010, 2011

Teaching Assistant

NEUR 704, Introduction to Neurobiology

Department of Neurobiology

Dauphin Island Sea Lab / University of Alabama at Birmingham

Summer 2003, 2004, 2005 and 2006

Undergraduate level

Teaching Assistant

CH 462, Biochemistry II

Department of Chemistry

University of Alabama at Birmingham

Spring 2003

Lecturer

CH 461, Biochemistry I

Department of Chemistry

University of Alabama at Birmingham

Fall 2003

Teaching Assistant

CH 461, Biochemistry I