

Curriculum Vitae

John B. Redell, Ph.D.

PRESENT TITLE: Assistant Professor, non-tenure research

ADDRESS: The University of Texas Medical School at Houston
Department of Neurobiology and Anatomy
6431 Fannin St., MSB 7.256
Houston, TX 77030

CITIZENSHIP: USA

UNDERGRADUATE EDUCATION:

B.S. Biochemistry
Texas A&M University
College Station, TX

GRADUATE EDUCATION:

Ph.D., Pharmacology
University of Washington
Seattle, WA

POSTGRADUATE TRAINING:

Post-doctoral fellow
Department of Pharmacology
University of Washington
Seattle, WA

Post-doctoral fellow
Department of Neurobiology and Anatomy
The University of Texas Medical School at Houston
Houston, TX

ACADEMIC APPOINTMENTS:

Research Scientist, 2001-2005
Ceregent, Vivian L. Smith Center of Neurologic Research
The University of Texas Medical School at Houston
Houston, TX

Assistant Professor, 2001-2005
Department of Neurosurgery
The University of Texas Medical School at Houston
Houston, TX

Research Scientist, 2005-2007
Department of Neurobiology and Anatomy
The University of Texas Medical School at Houston
Houston, TX

Senior Research Scientist, 2007-2013

Department of Neurobiology and Anatomy
The University of Texas Medical School at Houston
Houston, TX

Assistant Professor, non-tenure research, 2013-present
Department of Neurobiology and Anatomy
The University of Texas Medical School at Houston
Houston, TX

PROFESSIONAL ORGANIZATIONS

2013-present Member of Mission Connect, a project of the TIRR Foundation

HONORS AND AWARDS:

National Science Foundation Graduate Research Fellowship-Honorable mention
Molecular Biology Training Grant (NIH)
Neuroplasticity Training Grant (NIH)

EDITORIAL POSITIONS:

Advances in Neuroscience, 2013-2017

SERVICE ON NATIONAL GRANTS REVIEW PANELS, STUDYS SECTIONS:

Ad Hoc Reviewer, American Institute of Biological Sciences (AIBS), 2012

CURRENT GRANT SUPPORT:

Role of miR-505-3p in Mild Traumatic Brain Injury Pathology
P.I.: Redell
TIRR Foundation
\$59,814 2018-2020

Manipulation of the gut microbiome after jTBI
P.I.: Michael Hylin
TIRR Foundation
\$60,000 2017-2019

Genetic contribution to outcome after concussion
P.I.: Pramod Dash
UT Presidential Collaborative Award
\$195,676 2016-2018 (no cost extension requested)

PENDING GRANT SUPPORT:

Comprehensive quantitative profiling of cellular alterations caused by mTBI
P.I.(multi-PI): Roysam (contact), Dash, Redell
NIH/NINDS
\$3,864,600 07/01/2019 – 06/30/2024
*Scored 4th Percentile; in council review

PAST GRANT SUPPORT:

Circulating biomarkers for mild traumatic brain injury
P.I.: Redell
TIRR Foundation
\$60,000 2015-2017

Deciphering a role for 3'UTR length in neural plasticity

P.I.: Dash

UTHealth BRAIN Initiative

\$100,000 2015-2016

Characterizing disruptions in neural circuit connectivity after mild TBI

P.I.: Redell

UTHealth BRAIN Initiative

\$100,000 2015-2016

Improving learning and memory in brain injured animals

P.I.: Redell

TIRR Foundation

\$60,000 2014-2016

Comprehensive profiling of brain cytoarchitectural alterations associated with combined lithium and valproate treatment for mFPI-associated memory impairments

P.I.: Roysam

TIRR Foundation

\$50,000 2013-2015

miR-223 regulation of blood-brain barrier function after brain injury

P.I.: John Redell

NIH/NINDS

\$410,000 2012-2015

Combined treatment with valproic acid and exercise to improve outcome following spinal cord injury

P.I.: Redell

Department of Defense

\$150,000 2010-2013

MicroRNA regulation of vascular endothelial function

P.I.: Redell

American Heart Association

\$140,000 2009-2012

PUBLICATIONS:

Abstracts (*, presented)

Craviso, G.L., Duval, D.L., **Redell, J.B.** and Waymire, J.C.: Does the nicotinic-mediated induction of tyrosine hydroxylase (TH) in isolated bovine adrenal chromaffin cells involve regulation at the level of transcription? *Society for Neuroscience Abstracts*. 1991.

Acosta-Urquidi, J., Chavkin, C., **Redell, J.**, Davidson, N. and Lester, H.A.: Modulation by cAMP of the delayed rectifier channel Kv3 expressed in *Xenopus* oocytes. *Society for Neuroscience Abstracts*. 1992.

***Redell, J.B.**, Tempel, B. L: Differential expression of Kv1.1 mRNA in the mouse heart. *Molecular and Cellular Biology Training Program Symposium (University of Washington)*. 1993.

***Redell, J. B.**, Tempel, B. L: Genomic structure and chromosomal mapping of the inwardly rectifying K⁺ channel gene IRK1. *Biophysical Society Abstracts*. 1994.

*Twitchell, W., **Redell, J.B.**, Tempel, B.L, Rane, S.G. and Mackie, K.: Activation of G-protein regulated, inwardly-rectifying potassium channels (GIRKs) by the CB1 neuronal cannabinoid receptor. *Society for Neuroscience Abstracts*. 1997.

***Redell, J.B.**, Zhao, J., and Dash, P.K.: Consequences of altered catechol-o-methyl transferase (COMT) expression after TBI. *National Neurotrauma Society*. 2006.

Rojas, R., Zhang, Y., Harwerth, R.S., Dash, P., **Redell, J.B.**, WoldeMussie, E., Smith, E.L., and Carter-Dawson, L.: Elevated albumin in retina and vitreous of monkeys with experimental glaucoma. *Association for Research in Vision and Ophthalmology (ARVO)*. 2007.

***Redell, J.B.**, Liu, Y., and Dash, P.: Traumatic brain injury alters microRNA expression: potential for modulating pathophysiological processes. *Mission Connect Symposium*. 2008.

Grill, R.G., **Redell, J.B.**, Moore, A.N., Zhou, J., and Dash, P.K.: Early inflammatory response following traumatic brain injury. *National Neurotrauma Society*. 2010.

Grill, R.G., **Redell, J.B.**, Moore, A.N., Zhou, J., Dash, P.K.: Comparison of early inflammatory responses in two rodent models of traumatic brain injury. *National Neurotrauma Society*. 2011.

***Redell, J.B.**, Moore, A.N., Grill, R.J., Johnson, D., Liu, Y., and Dash, P.K.: Analysis of functional pathways altered following mild traumatic brain injury. *Military Health System Research Symposium*. 2012.

*Grill, R.J., Ghosh, A., and **Redell, J.B.**: Low-dose valproic acid improves locomotor activity after SCI. *Military Health System Research Symposium*. 2012.

Rozas, N., Moore, A.N., **Redell, J.B.**, Dash, P.K.: Leucine and glutamine differentially regulate long-term memory formation: role of mTOR signaling pathway. *Society for Neuroscience Abstracts*. 2012.

Grama, K., Lu, Y., Megjhani, M., Maric, D., **Redell, J.B.**, Roysam, B.: Comprehensive detection and quantitative profiling of brain cytoarchitectural alterations caused by pathophysiological conditions using multiplex imaging and computational analysis. *Mission Connect Symposium*. 2013.

Elorr, F.N., Perez, A., Moore, A.N., Hylin, M.J., **Redell, J.B.**, Zhao, J., Dash, P.K.: Morphological changes of medial prefrontal neurons in mice exposed to chronic stress and repeated concussive injury. *University of Texas Health Science Center Research Symposium*. 2013.

Moussa-H.N., Sibai, B.M., Blackwell, S.C., Leon, M.G., **Redell, J.**, Dash, P., Longo, M.: Parental inheritance of NOS3 gene and abnormal uterine environment contribute to autism spectrum disorder (ASD) in a hypertensive murine model. *Society for Maternal and Fetal Medicine*. 2014.

Grama, K., Megjhani, M., Lu, Y., Roysam, B., **Redell, J.**, Dash, P. Maric, D.: Comprehensive computational analysis of tissue remodeling in the rat brain after traumatic injury. *Biomedical Engineering Society Meeting*. 2014.

Grama, K., Megjhani, M., Lu, Y., Roysam, B., Maric, D., **Redell, J.**: Computational analysis of tissue remodeling in the rat brain after traumatic injury. *Mission Connect Symposium*. 2014.

Huang X., **Redell J B.**, Dash P.K., Wu J.: Analysis of gene expression change in rat models

during rehabilitation of traumatic brain injury. *Rice Undergraduate Research Symposium*. 2015

***Redell, J.B.**, Hylin, M., Huang, X., Zhao, J., Wu, J. and Dash, P.K. Environmental enrichment alters expression of neuroimmune signaling pathway genes after traumatic brain injury. *Mission Connect Symposium*. 2015.

***Redell, J.B.**, Grama, K., and Roysam, B. Characterizing disruptions in neural circuit connectivity after mild traumatic brain injury. *University of Texas Health Science Center-Neuroscience Research Center Symposium*. 2015.

Moussa, H.N., Sibai, B.M., Blackwell, S.C., Fournie, D.A., Ontiveros, A.E., Lu, F., **Redell, J.B.**, Dash, P.K., Longo, M. A Novel Double Knockout Mouse Model for Fetal Origins of Autism Study: Genes vs. Environment? *Society for Maternal-Fetal Medicine*. 2016.

Jahanipour, J., Li, X., Lu, H., **Redell, J.**, Dash, P., Maric, D., and Roysam, B. Computational profiling of astrocytes' activation patterns after mild fluid percussion injury. *Mission Connect Symposium*. 2017.

Underwood, E., **Redell, J.B.**, Hylin, M., and Dash, P.K. Metformin Improves mitochondrial respiration and neurocognitive outcome following repeated concussive injury. *National Neurotrauma Society*. 2018.

Vedantam, A., McCarthy, J.J., Levin, H.S., Dash, P.K., **Redell, J.B.**, and Robertson, C.S. Inflammatory markers and pituitary dysfunction after mild TBI. *Mission Connect Symposium*. 2018.

Refereed Original Articles in Journals

Redell, J.B. and Tempel, B.L.: Multiple promoter elements interact to control the transcription of the potassium channel gene *Kcnj2*. *J. Biol. Chem.* **273** (35): 22807-22818, 1998. PMID: 9712915.

Zaritsky, J.J., **Redell, J.B.**, Tempel, B.L and Schwarz, T.L.: The consequences of disrupting cardiac inwardly rectifying K(+) current (I(K1)) as revealed by the targeted deletion of the murine Kir2.1 and Kir2.2 Genes. *J. Physiol.* **533**(Pt3): 697-710, 2001. PMID: 11410627.

Redell, J.B., Moore, A.N., and Dash, P.: Expression of the prodynorphin gene after experimental brain injury and its role in behavioral dysfunction. *Exp. Biol. Med.* (Maywood). **228**(3): 261-9, 2003. PMID: 12626770.

Crow, T., **Redell, J.B.**, Xue-Bian, J., Tian, L-M, and Dash, P.: Inhibition of conditioned stimulus pathway phosphoprotein 24 protein expression blocks the development of intermediate-term memory in *Hermisenda*. *J. Neurosci.* **23**(8): 3415-22, 2003. PMID: 12716949.

Yamoah, E.N., Levic, S., **Redell, J.B.** and Crow, T.: Inhibition of Csp24 expression blocks the reduction in I_A produced by one-trial *in vitro* conditioning of *Hermisenda*. *J. Neurosci.* **25**(19): 4793-800, 2005. PMID: 17240060.

Redell, J.B., and Dash, P.K.: Traumatic brain injury stimulates hippocampal catechol-o-methyl transferase expression in microglia. *J. Neurosci. Lett.* **431**(1): 36-41, 2007. PMID: 15888654.

Redell, J.B., Zhao, J., and Dash, P.K.: Acutely increased cyclophilin A expression after brain injury: a role in blood-brain barrier function and tissue preservation. *J. Neurosci. Res.* 85(9):1980-8, 2007. PMID: 17461417.

Redell, J.B., Xue-Bian, J.J., Bubb, M.R., and Crow, T.: One-trial *in vitro* conditioning regulates an association between the β -thymosin repeat protein Csp24 and actin. *Neuroscience* 148(2): 413-420, 2007. PMID: 17681698.

Zhao, J., Moore, A.N., **Redell, J.B.**, and Dash, P.K.: Enhancing expression of Nrf2-driven genes protects the blood-brain barrier following brain injury. *J. Neurosci.* 27(38):10240-10248, 2007. PMID: 17881530.

Redell, J.B.¹, Hergenroeder, G.¹, Moore, A.N., Dubinsky, W.P., Funk, R.T., Crommett, J., Clifton, G.L., Levine, R., Valadka, A., and Dash, P.K.: Identification of serum biomarkers in brain injured adults: potential for predicting elevated intracranial pressure (¹authors contributed equally). *J. Neurotrauma* 25(2):79-93, 2008. PMID: 18260791.

Hergenroeder, G.W., **Redell, J.B.**, Moore, A.N., and Dash, P.K.: Biomarkers in the clinical diagnosis and management of traumatic brain injury. *Molecular Diagnosis & Therapy* 12(6):345-58, 2008. PMID: 19035622.

Redell, J.B., Liu, Y., and Dash, P.: Traumatic brain injury alters expression of hippocampal microRNAs: potential regulators of multiple pathophysiological processes. *J. Neurosci. Res.* 87(6):1435-48, 2009. PMID: 19021292.

Carter-Dawson, L., Zhang, Y., Harwerth, R.S., Rojas, R., Dash, P., Zhao, X.C., WoldeMussie, E., Ruiz, G., Chuang, A., Dubinsky, W.P., and **Redell, J.B.**: Elevated albumin in retinas of monkeys with experimental glaucoma. *Invest. Ophthalmol. Vis. Sci.* 51(2):952-959, 2010. PMID: 19797225.

Dash, P.K., **Redell, J.B.**, Hergenroeder, G., Zhao, J., Clifton, G.L., and Moore, A.: Serum ceruloplasmin and copper are early biomarkers for TBI-associated elevated intracranial pressure. *J. Neurosci. Res.* 88(8):1719-1726, 2010. PMID: 20091772.

Pati, S., Khakoo, A.Y., Zhao, J., Jimenez, F., Gerber, M.H., Harting, M., **Redell, J.B.**, Grill, R., Guha, S., Cox, C.S., Reitz, M.S., Holcomb, J.B., and Dash, P.K.: Human mesenchymal stem cells inhibit vascular permeability by modulating VE-cadherin/ β -catenin signaling. *Stem Cells Dev.* 20(1):89-101, 2010. PMID: 20446815.

Redell, J.B., Moore, A.N., Ward III, N.H., Hergenroeder, G.W., and Dash, P.K.: Human traumatic brain injury alters plasma microRNA levels. *J. Neurotrauma* 27(12):2147-2156, 2010. PMID: 20883153.

Redell, J.B., Zhao, J., and Dash, P.K.: Altered expression of miRNA-21 and its targets in the hippocampus after traumatic brain injury. *J. Neurosci. Res.* 89(2):212-221, 2011. PMID: 21162128.

Zhao, J., **Redell, J.B.**, Moore, A.N., and Dash, P.K.: A novel strategy to activate cytoprotective genes in the injured brain. *Biochem. Biophys. Res. Commun.* 407(3):501-506, 2011. PMID: 21414291.

Zhao, J., Pati, S., **Redell, J.B.**, Zhang, M., Moore, A.N., and Dash, P.K.: Caffeic acid phenethyl ester (CAPE) protects blood-brain barrier integrity and reduces contusion volume in rodent models of traumatic brain injury. *J. Neurotrauma* 29(6):1209-1218, 2012. PMID: 22150135.

Menge, T., Zhao, Y., Zhao, J., Wataha, K., Geber, M., Zhang, J., Letourneau, P., **Redell, J.**, Shen, L., Wang, J., Peng Z., Xue, H., Kozar, R., Cox, C.S., Khakoo, A.Y., Holcomb, J., Dash, P., and Pati, S.: Mesenchymal stem cells regulate blood brain barrier integrity in traumatic brain injury through the production of the soluble factor TIMP3. *Sci. Transl. Med.* 4(161):161ra150, 2012. PMID: 23175708.

Jeter, C.B., Hergenroeder, G.W., Hylin, M.J., **Redell, J.B.**, Moore, A.N., and Dash, P.K.: Biomarkers for the diagnosis and prognosis of mild traumatic brain injury/concussion. *J. Neurotrauma* 30(8):657-670, 2013. PMID: 23062081.

Hylin, M.J., Orsi, S.A., Rozas, N.S., Hill, J.L., Zhao, J., **Redell, J.B.**, Moore, A.N., and Dash, P.K.: Repeated mild closed head injury impairs short-term visuospatial memory and complex learning. *J. Neurotrauma* 30(9):716-726, 2013. PMID: 23489238.

Redell, J.B., Moore, A.N., Johnson, D., Grill, R.J., Zhao, J., Liu, Y., and Dash, P.K.: Analysis of functional pathways altered following mild traumatic brain injury. *J. Neurotrauma* 30(9):752-764, 2013. PMID: 22913729.

Jeter, C.B., Hylin, M.J., Hergenroeder, G.W., Hill, J.L., Johnson, D.R., Barrera, J. A., Shields, T.C., **Redell, J.B.**, Zhao, J., Moore, A.N., and Dash, P.K.: Biomarkers of organ injury. *Recent Patents on Biomarkers*, 4(2): 98-109, 2014. DOI: 10.2174/2210309004666140616232339.

Rozas, N.S., **Redell, J.B.**, Hill, J.L., McKenna, J., Gambello, M.J., and Dash, P.K.: Genetic activation of mTORC1 signaling worsens neurocognitive outcome after traumatic brain injury. *J. Neurotrauma*, 32(2):149-158, 2015. PMID: 25025304.

Rozas, N.S., **Redell, J.B.**, McKenna, J., Moore, A.N., Gambello, M.J., and Dash, P.K.: Prolonging the survival of Tsc2 conditional knockout mice by glutamine supplementation. *Biochem. Biophys. Res. Commun.* 457(4): 635-639, 2015. PMID: 25613864.

Rozas, N.S., **Redell, J.B.**, Pita-Almenar, J., McKenna, J., Moore, A.N., Gambello, M.J., and Dash, P.K.: Intra-hippocampal glutamine administration inhibits mTORC1 signaling and impairs long-term memory. *Learning and Memory* 22(5):239-46, 2015. PMID: 25878136.

Dash, P.K., Hylin, M.J., Hood, K.N., Orsi, S.A., Zhao, J., **Redell, J.B.**, Tsvetkov, A.S., and Moore, A.N.: Inhibition of Eif2 α phosphatase reduces tissue damage and improves learning and memory following traumatic brain injury. *J. Neurotrauma* 32(20):1608-1620, 2015. PMID: 25843479.

Hergenroeder, G.W., Moore, A.N., Schmitt, K.M., **Redell, J.B.**, and Dash, P.K. Identification of autoantibodies to glial fibrillary acidic protein (GFAP) in spinal cord injury patients. *Neuroreport* 27(2):90-93, 2016. PMID: 26629661.

Dash, P., Zhao, J., Kobori, N., **Redell, J.**, Hylin, M., Hood, K., and Moore, A. Activation of alpha 7 cholinergic nicotinic receptors reduce blood-brain barrier permeability following experimental traumatic brain injury. *J. Neurosci.* 36(9):2809-18, 2016. PMID: 26937017.

Moussa, H.N., Sibai, B.M., Blackwell, S.C., Hylin, M.J., **Redell, J.B.**, Liu, Y., Dash, P.K., and Longo, M. Contribution of maternal hypertension to autism etiology in a murine model: cerebellar gene expression. *Future Neurology* 12(1):21-33, 2017. DOI 10.2217/fnl-2016-0011.

Hood, K., Zhao J., **Redell, J.B.**, Hylin, M.J., Harris, B., Perez, A., Moore, A.N., and Dash, P.K. Endoplasmic reticulum stress contributes to the loss of newborn hippocampal neurons after traumatic brain injury. *J. Neurosci.* 38(9):2372-2384, 2018. PMID 29386258.

Hergenroeder, G., **Redell, J.**, Choi, H., Schmitt, L., Donovan, W., Francisco, G., Schmitt, K., Moore, A., and Dash, P.K. Increased levels of circulating GFAP and CRMP2 autoantibodies in the acute stage of spinal cord injury predict the subsequent development of neuropathic pain. *J. Neurotrauma.* 2018, 35(21):2530-2539. PMID 29774780.

San Lucas, F.A., **Redell, J.**, Dash, P., and Liu, Y. Classifying mild traumatic brain injuries with functional network analysis. *BMC Syst. Biol.* 2018, 12(8):131. PMID: 30577783

Maynard, M., Underwood, E., **Redell, J.**, Zhao, J., Moore, A., Dash, P. Carnosic acid improves outcome after repetitive mild traumatic brain injury. *J. Neurotrauma* 2018 (accepted).

Book Chapters

Jeter, C.B., **Redell, J.B.**, Moore, A.N., Hergenroeder, G.W., Zhao, J., Johnson, D.R., Hylin, M.J., and Dash, P.K.: "Biomarkers of traumatic injury" in G. Li and S.P. Baker (Eds.) Injury Research: Theories, Methods, and Approaches. New York, Springer, 2011, pg. 337-355.

San Lucas, A., **Redell, J.**, Dash, P., and Liu, Y.: "Computer-assisted approaches to identify functional gene networks involved in traumatic brain injury" in A. K. Srivastava and C. S. Cox Jr. (Eds.) Preclinical and Clinical Methods in Brain Trauma Research. Springer Science+Business Media, LLC, 2018, pg. 349-360.

Other Professional Communications-Presentations

April 2009. University of Texas Medical School at Houston, Department of Neurobiology and Anatomy Colloquia. "MicroRNAs and Traumatic Brain Injury"

July 2010. University of Texas Medical School at Houston, Center for Translational Injury Research Colloquia. "Identification and Characterization of Novel TBI Biomarkers"

May 2015. Mission Connect/TIRR External Board, Review of Science. "Improving Learning and Memory in Brain Injured Animals"

December 2016. Mission Connect/TIRR Scientific meeting. "MicroRNAs and Traumatic Brain Injury"

January 2017. Mission Connect/TIRR Scientific meeting. "Is the Brain Recovered from Concussion when Athletes Return to Play?"