

MCF Neuroscience Department Highlights: Nov. 2012 – Feb. 2013

Congratulations to faculty recently earning a combined \$2M in grant awards:

The Alzheimer's Association recently awarded John Fryer, PhD, a two-year grant for his studies elucidating the role of clusterin (CLU) and lipocalin 2 (LCN2) in Alzheimer's disease and normal cognitive function. He has also been awarded a one-year Center for Individualized Medicine-Microbiome grant to study gut microbiota changes as a result of high-fat diet and exercise in adult and neonatal mice as well as microbiota alterations that might occur in a mouse model of Rett syndrome.

Heather Melrose, PhD, has been awarded a Michael J. Fox Foundation LRRK2 Challenge 2013 Award for her efforts to explore the in vivo rescue of dopamine release deficits via kinase inhibition in LRRK2 mutant mice.

Rosa Rademakers, PhD, was recently awarded an R01 grant to investigate the genetic and functional analyses of TMEM106B, SORT1 and TBC1D1 and their involvement in the regulation of progranulin in FTL and ALS.

Yongjie Zhang, PhD, and John Fryer, PhD, will serve as multiple PD/PIs on their recently awarded NIH R21 grant, "Understanding the Mechanisms of TDP-43 Function."

Students and faculty publish significant work in high-impact journals:

Peter E.A. Ash, Kevin F. Bieniek, Tania F. Gendron, PhD, Thomas Caulfield, PhD, Wen-Lang Lin, PhD, Mariely DeJesus-Hernandez, Marka M. van Blitterswijk, PhD, Karen Jansen-West, Joseph W. Paul, Rosa Rademakers, PhD, Kevin B. Boylan, MD, Dennis W. Dickson, MD, Leonard Petrucelli, PhD: [Unconventional Translation of C9ORF72 GGGGCC Expansion Generates Insoluble Polypeptides Specific to c9FTD/ALS](#), *Neuron*.

Christopher D. Anderson, MD, Alessandro Biffi, MD, Michael A. Nalls, PhD, William J. Devan, BS, Kristin Schwab, BA, Alison M. Ayres, BA, Valerie Valant, BA, **Owen A. Ross, PhD**, Natalia S. Rost, MD, Richa Saxena, PhD, Anand Viswanathan, MD, Bradford B. Worrall, MD, MSc, **Thomas G. Brott, MD**, Joshua N. Goldstein, MD, Devin Brown, MD, Joseph P. Broderick, MD, Bo Norrving, MD, Steven M. Greenberg, MD, PhD, Scott L. Silliman, MD, Björn M. Hansen, BS, David L. Tirschwell, MD, Arne Lindgren, MD, Agnieszka Slowik, MD, Reinhold Schmidt, MD, Magdy Selim, MD, Jaume Roquer, MD, PhD, Joan Montaner, MD, PhD, Andrew B. Singleton, PhD, Chelsea S. Kidwell, MD, Daniel Woo, MD, Karen L. Furie, MD, **James F. Meschia, MD**, Jonathan Rosand, MD, MSc and on behalf of the International Stroke Genetics Consortium: [Common Variants Within Oxidative Phosphorylation Genes Influence Risk of Ischemic Stroke and Intracerebral Hemorrhage](#), *Stroke*

Veronique V. Belzil, PhD, Tania F. Gendron, PhD, and Leonard Petrucelli, PhD: [RNA-mediated toxicity in neurodegenerative disease](#), *Molecular and Cellular Neuroscience*.

Kevin F. Bieniek, Melissa E. Murray, PhD, Nicola J. Rutherford, Monica Castanedes-Casey, Mariely DeJesus-Hernandez, Amanda M. Liesinger, Matthew C. Baker, Kevin B. Boylan, MD, Rosa Rademakers, PhD, Dennis W. Dickson, MD: [Tau pathology in frontotemporal lobar degeneration with C9ORF72 hexanucleotide repeat expansion](#), *Acta Neuropathologica*.

Mariely DeJesus-Hernandez, Sruti Rayaprolua, Alexandra I. Soto-Ortolaza, Nicola J. Rutherford, Michael G. Heckman, Sharleen Traynor, Audrey Strongosky, Neill Graff-Radford, MD, Jay Van Gerpen, MD, Ryan J. Uitti, MD, Jerry J. Shih, MD, Siong-Chi Lin, MD, Zbigniew K. Wszolek, MD, Rosa Rademakers, PhD, Owen A. Ross, PhD: [Analysis of the C9orf72 repeat in Parkinson's disease, essential tremor and restless legs syndrome](#), *Parkinsonism & Related Disorders*.

Shinsuke Fujioka, MD, Christina Sundal, MD, Audrey J. Strongosky, Monica Castanedes-Casey, Rosa Rademakers, PhD, Owen A. Ross, PhD, Carles Vilariño-Güell, PhD, Matthew J. Farrer, PhD, Zbigniew K. Wszolek, MD, Dennis W. Dickson, MD: [Sequence variants in eukaryotic translation initiation factor 4-gamma \(eIF4G1\) are associated with Lewy body dementia](#), *Acta Neuropathologica*.

Rita Guerreiro, Ph.D., **Aleksandra Wojtas, M.S.**, Jose Bras, Ph.D., **Minerva Carrasquillo, Ph.D.**, Ekaterina Rogaeva, Ph.D., Elisa Majounie, Ph.D., Carlos Cruchaga, Ph.D., Celeste Sassi, M.D., John S.K. Kauwe, Ph.D., **Steven Younkin, M.D., Ph.D.**, Lilinaz Hazrati, M.D., Ph.D., John Collinge, M.D., Jennifer Pocock, Ph.D., Tammarny Lashley, Ph.D., Julie Williams, Ph.D., Jean-Charles Lambert, Ph.D., Philippe Amouyel, M.D., Ph.D., Alison Goate, Ph.D., **Rosa Rademakers, Ph.D.**, Kevin Morgan, Ph.D., John Powell, Ph.D., Peter St. George-Hyslop, M.D., Andrew Singleton, Ph.D., and John Hardy, Ph.D. for the Alzheimer Genetic Analysis Group: [TREM2 variants in Alzheimer's disease](#), *The New England Journal of Medicine*.

Tandanori Hamano, Shu-Hui Yen, PhD, Tania Gendron, PhD, Li-wen Ko, PhD, Masaru Kuriyama: [Pitavastatin decreases tau levels via the inactivation of Rho/ROCK](#), *Neurobiology of Aging*.

Peizhou Jiang, PhD, Ming Gan, PhD, Abdul Shukkur Ebrahim, PhD, Monica Castanedes-Casey, Dennis W. Dickson, MD, Shu-Hui C. Yen, PhD: [Adenosine monophosphate-activated protein kinase overactivation leads to accumulation of \$\alpha\$ -synuclein oligomers and decrease of neurites](#), *Neurobiology of Aging*.

Takahisa Kanekiyo, MD, PhD, Chia-Chen Liu, PhD, Mitsuru Shinohara, PhD, Jie Li, and Guojun Bu, PhD: [LRP1 in Brain Vascular Smooth Muscle Cells Mediates Local Clearance of Alzheimer's Amyloid- \$\beta\$](#) , *Journal of Neuroscience*.

Kejal Kantarci, MD, MS, Tanis J. Ferman, PhD, Bradley F. Boeve, MD, Stephen D. Weigand, MS, Scott Przybelski, BS, Prashanthi Vemuri, PhD, Melissa M. Murray, PhD, Matthew L. Senjem, MS, Glenn E. Smith, PhD, David S. Knopman, MD, Ronald C. Petersen, MD, PhD, Clifford R. Jack Jr., MD, Joseph E. Parisi, MD and Dennis W. Dickson, MD: [Focal atrophy on MRI and neuropathologic classification of dementia with Lewy bodies](#), *Neurology*.

Naomi Kouri, Kenici Oshima, Makio Takahashi M, Melissa E. Murray, PhD, Zeshan Ahmed, Joseph E Parisi, MD, Shu-Hui Yen, PhD, Dennis W. Dickson, MD: [Corticobasal degeneration with olivopontocerebellar atrophy and TDP-43 pathology: an unusual clinicopathologic variant of CBD](#), *Acta Neuropathologica*.

Jie Li, Takahisa Kanekiyo, MD, PhD, Mitsuru Shinohara, PhD, and Guojun Bu, PhD: [Differential Regulation of Amyloid- \$\beta\$ Endocytic Trafficking and Lysosomal Degradation by Apolipoprotein E Isoforms](#), *Journal of Biological Chemistry*, Selected as "Paper of the Week."

Chia-Chan Liu, PhD, Takahisa Kanekiyo, MD, PhD and Guojun Bu, PhD: [Apolipoprotein E and Alzheimer Disease: risk, mechanisms and therapy](#), *Nature Reviews Neurology*.

Mercedes Prudencio, PhD, Karen R. Jansen-West, Wing C. Lee, PhD, Tania F. Gendron, PhD, Yong-Jie Zhang, PhD, Ya-Fei Xu, PhD, Jennifer Gass, PhD, Cristiana Stuani, Caroline Stetler, Rosa Rademakers, PhD, Dennis W. Dickson, MD, Emanuele Buratti, PhD, Leonard Petrucelli, PhD: [Misregulation of human sortilin splicing leads to the generation of a nonfunctional progranulin receptor](#), *PNAS*.

Mitsuru Shinohara, PhD, Ronald C. Petersen, MD, Dennis W. Dickson, MD, Guojun Bu, PhD: [Brain regional correlation of amyloid- \$\beta\$ with synapses and apolipoprotein E in non-demented individuals: potential mechanisms underlying regional vulnerability to amyloid- \$\beta\$ accumulation](#), *Acta Neuropathologica*.

Rosa Rademakers, PhD, & Marka van Blitterswijk, PhD: [Motor neuron disease in 2012: Novel causal genes and disease modifiers](#), *Nature Reviews Neurology*.

Naruhiko Sahara, Michael Deture, PhD, Yan Ran, Abdul-Shukku Ebrahim, PhD, Dongcheul Kang, PhD, Joshua Knight, Christiane Volbracht, Jan Torleif Pedersen, Dennis W. Dickson, MD, Shu-Hui Yen, PhD, Jada Lewis, PhD: [Characteristics of TBS-Extractable Hyperphosphorylated Tau Species: Aggregation Intermediates in rTg4510 Mouse Brain](#), *Journal of Alzheimer's Disease*

Malin Wennström, Yulia Surova, Sara Hall, Christer Nilsson, Lennart Minthon, Fredrik Boström, Oskar Hansson, Henrietta M. Nielsen, PhD: [Low CSF Levels of Both \$\alpha\$ -Synuclein and the \$\alpha\$ -Synuclein Cleaving Enzyme Neurosin in Patients with Synucleinopathy](#), *PLoS One*.