NOAH WALTON, PhD
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Overview

Large pharma scientist with twenty years of experience in preclinical/translational research in regenerative medicine, neuroscience, and drug delivery technology. Extensive record of scientific publication, technology discovery, and business development.

Professional Experience

2015-present: **Executive Scientist/Manager**, Astellas Pharma Inc.

- Identification/implementation of external technologies for drug delivery to internal pipeline.

2012-2015: **Principal Scientist/Associate Manager**, Astellas Research Institute of America.

- Translational research to advance early discovery drug candidates to clinical stage.

2009-2012: **Senior Scientist**, Astellas Research Institute of America.

- Research focus: Early discovery neuroscience research for developing bipolar/schizophrenia drug targets.

Education

• **University of Chicago/Howard Hughes Medical Institute** (2006-2009) – Postdoctoral training. Department of Human Genetics.

- Developmental human epigenomics involving high-throughput research techniques.

• **University of Florida** (2002-2006) - College of Medicine- PhD (Neurobiology) Warrington College of Business Administration (non-degree)

- Doctoral research on adult neural stem cell biology and applied uses in biomedicine.

• **Duke University** (1998-2001) – BS. Major: Biology (Genetics). Minors: Chemistry and Sociology.

- Synergistic effect of genetics and diet on the oxidative pathophysiology of Alzheimer's disease.

Notable Scientific Accomplishments

• Developed multiple drug programs from conception to clinical stages.

• Leading investigator on multiple first-tier scientific journal publications, with mainstream media including *Scientific American*, *Discover*, and *The New York Times*.
• Conceived, invented, and patented several bench-to-bedside stem cell technologies.
• Established and oversaw ongoing collaborations with multiple international institutions.
• Published a "Top 10% cited" paper ("Adult Neurogenesis Transiently Generates Oxidative Stress" in *Public Library of Science*).

Fancy Awards

• Winner, Best Poster (Basic Science), 2012 Society of Biological Psychiatry Meeting.
• 1st place 2006 Volkswagen-Stiftung Route 28 Theoretical Research Design Competition
• NIH T32 Doctoral Fellowship (Neuromuscular Rehabilitation Training Grant)
• 2nd place University of Florida Department of Neuroscience Medical Guild Research Competition (2003)
• Howard Hughes Undergrad Research Fellowship in Biomedical Neuroscience (2000-01).
• Duke University Undergraduate Research Support Grant Award Recipient.
• Dean's List (Duke University, UNC-Chapel Hill, and the University of Florida).
• North Carolina AP Scholar
• National Honor Society Chapter President
• North Carolina School of Science and Math finalist
• North Carolina Governor's School finalist
• National Talent Identification Program (TIP) Scholar

Patents

• "Culturing and Differentiating Neural Precursor Cells." Docket #61639(49163).

• "Indefinite Culture of Human Adult Glia Without Immortalization and Therapeutic Uses Thereof." Docket #5853-567.

Teaching Experience

2010-2016: Mentored MS/MD students for independent study projects.

2004: Instructor, Univ. of Florida Student Science Training Program, Stem Cell Biology.

2005-2006: Teaching Assistant, University of Florida Graduate Interdisciplinary Core Course.

Publications

Bipolar disorder patients exhibit reduced hippocampal gastrin-releasing peptide and CaMK2α. **Walton NM**, de Koning A, Kogan JH, Shin R, Gross AK, Heusner CL, Chen Q, Miyake S, Tamura K, Miyakawa T, Matsumoto M. *Biological Psychiatry* (In Preparation)

Media-based separation of hippocampal and subventricular stem/progenitor cells. **Walton NM**, de Koning A, Kogan JH, Shin R, Gross AK, Heusner CL, Chen Q, Miyake S, Tamura K, Matsumoto M. *Methods in Molecular Biology* (In Review)

Identification of a Putative Peripheral Biomarker for Postnatal Neurogenesis. Miyake S, **Walton NM**, Hashimoto Y, Ogino S, Suzumura K, Wu T, Watanabe Y, Lake ED, Chen Q, Nakahara S, Tajinda K, Matsumoto M, Ito H. *Science Translational Medicine* (In Review)

The impact of genetics on future drug discovery in schizophrenia. Matsumoto M, **Walton NM**, Yamada H, Kondo Y, Marek GJ, Tajinda K. *Expert Opinions on Drug Discovery* (2017)

Strategies for Utilizing Neuroimaging Biomarkers in CNS Drug Discovery and Development: CINP/JSNP Working Group Report. Suhara T, Chaki S, Kimura H, Furusawa M, Matsumoto M, Ogura H, Negishi T, Saijo T, Higuchi M, Omura T, Watanabe R, Miyoshi S, Nakatani N, Yamamoto N, Liou SY, Takado Y, Maeda J, Okamoto Y, Okubo Y, Yamada M, Ito H, **Walton NM**, Yamawaki S. *International Journal of Neuropsychopharmacology* (2017)

Mouse Model of Chromosome 15q13.3 Microdeletion Syndrome Demonstrates Features Related to Autism Spectrum Disorder. Kogan JH, Gross AK, Featherstone RE, Shin R, Chen Q, Heusner CL, Adachi M, Lin A, **Walton NM**, Miyoshi S, Miyake S, Tajinda K, Ito H, Siegel SJ, Matsumoto M. *Journal of Neuroscience* (2015)

Immaturity of brain as an endophenotype of neuropsychiatric disorders. Hagihara H, Shoji H, Takao K, **Walton NM**, Matsumoto M, Miyakawa T. *Nihon Shinkei Seishin Yakurigaku Zasshi* (2014)

Gastrin-releasing peptide contributes to the regulation of adult hippocampal neurogenesis and neuronal development. **Walton NM**, de Koning A, Xie X, Shin R, Chen Q, Miyake S, Tajinda K, Gross AK, Kogan JH, Heusner CL, Tamura K, Matsumoto M. *Stem Cells* (2014)

Derivation of neural stem cells from an animal model of psychiatric disease. de Koning A*, **Walton NM***, Shin R, Chen Q, Miyake S, Tajinda K, Gross AK, Kogan JH, Heusner CL, Tamura K, Matsumoto M. *Translational Psychiatry* (2013)

Immature dentate gyrus: An endophenotype of neuropsychiatric disorders. Hagihara H, Takao K, **Walton NM**, Matsumoto M, Miyakawa T. *Neural Plasticity* (2013)

The immature dentate gyrus represents a shared phenotype of mouse models of epilepsy and psychiatric disease. Shin R, Kobayashi K, Hagihara H, Kogan JH, Miyake S, Tajinda K, **Walton NM**, Gross AK, Heusner CL, Chen Q, Tamura K, Miyakawa T, Matsumoto M. *Bipolar Disorders* (2013)

Deficiency of Schnurri-2, an MHC Enhancer Binding Protein, Induces Mild Chronic Inflammation in the Brain and Confers Molecular, Neuronal, and Behavioral Phenotypes Related to Schizophrenia. Takao K, Kobayashi K, Hagihara H, Ohira K, Shoji H, Hattori S, Koshimizu H, Umemori J, Toyama K, Nakamura HK, Kuroiwa M, Maeda J, Atsuzawa K, Esaki K, Yamaguchi S, Furuya S, Takagi T, **Walton NM**, Hayashi N, Suzuki H, Higuchi M, Usuda N, Suhara T, Nishi A, Matsumoto M, Ishii S, Miyakawa T. (2013) *Neuropsychopharmacology*

Detection of an immature dentate gyrus feature in human schizophrenia/bipolar patients. **Walton NM**, Zhou Y, Kogan JH, Shin R, Webster M, Gross AK, Heusner CL, Chen Q,

Miyake S, Tajinda K, Tamura K, Miyakawa T, Matsumoto M. (2012) *Translational Psychiatry*

*SR*EB2/GPR85, a schizophrenia risk factor, negatively regulates hippocampal adult neurogenesis and neurogenesis-dependent learning and memory. Chen Q, Kogan JH, Gross AK, Zhou Y, **Walton NM**, Shin R, Heusner CL, Miyake S, Tajinda K, Tamura K, Matsumoto M. (2012) *Eur J Neurosci*

Adult neurogenesis transiently generates oxidative stress. **Walton NM**, Shin R, Tajinda K, Heusner CL, Kogan JH, Miyake S, Chen Q, Tamura K, Matsumoto M. (2012) *PLoS One*

Nestin is required for the proper self-renewal of neural stem cells. Park D, Xiang AP, Mao FF, Zhang L, Di CG, Liu XM, Shao Y, Ma BF, Lee JH, Ha KS, **Walton N**, Lahn BT (2010) *Stem Cells*

The radial glial antibody RC2 recognizes a protein encoded by Nestin. Park D, Xiang AP, Mao FF, **Walton NM** *et al* (2009) *Biochem Biophys Res Comm.*

Gliotypic neural stem cells transiently adopt tumorigenic properties during normal differentiation. **Walton NM**, Snyder GT, Park D, Kobeissy F, *et al.* (2008) *Stem Cells.*

Systematic identification of cis-silenced genes by trans-complementation. Lee JH, Bugarija B, Millan EJ, **Walton NM**, *et al.* (2008) *Hum Mol Gen.*

Microglia instruct subventricular zone neurogenesis. **Walton NM**, Sutter BM, Laywell ED, Levkoff LH, et al. (2006) *Glia.*

Derivation and large-scale expansion of multipotent astroglial neural progenitors from adult human brain. **Walton NM**, Sutter BM, Chen HX, Chang LJ, *et al.* (2006) *Development.*

Fusion of neural stem cells in culture. Chen KA, Laywell ED, Marshall G, **Walton NM**, *et al.* (2006) *Exp Neurol*

Phenotypic and functional characterization of adult brain neuropoiesis. Scheffler B*, **Walton NM***, Lin DD, Goetz AK, *et al.* (2005) *PNAS*

*co-first authors

Miscellaneous Professional Responsibilities

• Laboratory Safety Manager, 2005-2009
• Clinical Study Coordinator, IRB project "Culturing Brain Cells From Intraoperative Guide Tubes and Electrodes" Effective April 2006-2010
• Ad Hoc Reviewer- PNAS, Journal of Neuroscience, Glia, Developmental Brain Research

Professional Memberships

Society for Neuroscience (2003-present)

International Society for Stem Cell Research (2004-present)

Technical Expertise

• Stem cell (ESC, IPSC, and adult-derived) culture, enrichment, transplantation, directed differentiation, and assay development for immunotolerance and in vitro/vivo function.
• Extensive animal surgical experience (rodents, cats, nonhuman primates). Device implantation and tissue transplant experience, including stereotactic and sterile technique.
• Expertise developing protocols for GLP/GMP procedures (incl. human strain and biological reagent development), institutional compliance, and early phase clinical trials.
• Direct experience in employing cutting-edge/emerging technologies, including high throughput genomics, proteomics, and automated drug screening and bioinformatics/data mining.
• Research techniques: transgenic animal design, quantitative histological assay development, cell culture (including embryonic and iPS cell derivation and culture), high-throughput screening for hit-to-lead identification, microarray analysis (including bioinformatics), immunohistochemistry, immunotolerance assays (NK cytotoxicity and co-culture assays), electron microscopy, live-cell imaging, electrophysiology, unbiased stereology, molecular biology (western blots, immunoprecipitation, PCR, etc.), various metabolic assays, small/large-scale gene profiling, cloning and sequencing. Biologic development for BBB penetration.

Other Skills

• Public Speaking: Presented more than 30 studies in national and international meetings, including the National Institutes of Health and the Society for Neuroscience Meeting and the California Stem Cell Initiative & Christopher Reeves Foundation.
• Venture/CRO management.
• Broad experience in computer programming and database mining, including Nextbio, IPA, Microsoft Office Suite, XHTML, Photoshop, and Endnote.
• Trained in Health Information Privacy (HIPPA) and Pharma ethics compliance.