KATRINA PAUMIER

CURRICULUM VITAE

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Place of Birth: Columbus, Ohio

Executive Summary

Independently motivated and highly organized neuroscientist with expertise in neurodegenerative disease. Strong, diplomatic leader and team player with a proven history of exceeding expectations. Creative and multi-disciplined scientist with well-developed problem-solving abilities and an array of *in vivo* and *in vitro* skills. Outgoing, reliable, adaptable, and collaborative professional with over ten years experience in academic and industry research.

Specialties

Experimental design, writing, speaking/presentations, meeting facilitation, networking, project management, data-mining, mentoring, ethics, behavioral research, various computer software programs (Microsoft Office, Adobe, etc.)

EDUCATION

2004-2010 **Ph.D. in Neuroscience**
University of Cincinnati, Cincinnati, Ohio Advisor: Timothy Collier
Dissertation: *The neuroprotective properties of chronic antidepressant treatment in the nigrostriatal system: the impact of antidepressant-mediated neuroplasticity*

1993-1995 **Bachelors of Science, Psychology**
University of Illinois, Champaign, Illinois

1991-1993 **Associate of Arts, Psychology**
Southwestern Illinois College, Belleville, Illinois

PROFESSIONAL EXPERIENCE

2013- **Assistant Professor**
Michigan State University, Grand Rapids, MI
Translational Science and Molecular Medicine

2010-2013 **Postdoctoral Fellow-Neuroscience Research Unit**
Pfizer, Inc., Groton, CT Advisor: John Dunlop/Warren Hirst
Investigating the role of autophagy in animal models of Parkinson's disease

- Investigate the effect of potential autophagy enhancers on the clearance of alpha-synuclein in mouse brain utilizing molecular and biochemical methods
- Characterize the A53T mouse model of Parkinson's disease by performing various behavioral tests (locomotor activity, Y maze, nesting, acoustic startle, rotarod, limb asymmetry, etc.) and examining levels of aggregated alpha-synuclein using fractionation, immunohistochemistry, ELISA and Western blotting methods
- Establish and manage collaborations across Pfizer and external organizations to support the autophagy project and the Neuroscience portfolio
- Worked closely with PK/PD colleagues to model compound exposure to guide *in vivo* efficacy studies.
- Schedule and track initiative timelines, milestones, and deliverables; disseminate findings via progress reports, presentations and manuscripts
- Attend key medical and scientific conferences, internal meetings

2011 **Scientific Editor, Part-time Contractor**

American Journal Experts, Durham, North Carolina

2003-2004 **Assistant Scientist-Neurology Department**

Rush University Medical Center, Chicago, Illinois

Cellular mechanisms influencing viability and differentiated function of neural cells

- Supervised laboratory affairs while managing shared departmental facilities and equipment
- Developed laboratory protocols, trained new students and personnel, interacted with sales representatives and purchasing agents
- Attended and presented data at domestic and international medical and scientific conferences, clinical investigator meetings, internal meetings, and patient advocacy group meetings
- Designed and conducted experimental studies to examine the effects of transplanted embryonic stem cells on the survival of both host and grafted dopamine cells
- Utilized immunohistochemistry and various microscopy techniques (stereology, fluorescence and brightfield) to examine dopaminergic cell loss in the substantia nigra and terminal loss in the striatum
- Employed ELISA and Western blotting techniques to evaluate changes in neurotrophic factors due to aging and/or insult
- Dissociated fetal tissue into single cell suspensions for transplantation studies
- Conducted perfusions, micro-dissections, brain extractions and histology
- Established and maintained rat primary (cortical and mesencephalic) and stem cell cultures
- Bred and maintained a transgenic rat colony (human placental alkaline phosphatase gene); performed PCR for genotyping

2001-2003 **Assistant Scientist-Research Pharmacology Discovery Group**

Pfizer Global Research, San Diego, California

Characterization of potential small molecule drug candidates for metabolic disease

- Maintained various cell lines through aseptic technique
- Homogenized tissue and performed membrane preps for filtration/binding, ELISA, RT-PCR, and radioimmunoassays
- Conducted drug inhibition experiments
- Performed High Throughput Screening (HTS) of various compounds for activity
- Analyzed data and presented results in lab and department meetings
- Managed a rat colony, performed surgeries (stereotaxic lesions and transplants, castration, jugular vein cannulation) and assisted in pharmacokinetic studies
- Collected blood/plasma at various time points (JV, tail snip and vein)

2002-2010 **Constructed-response Scoring Professional**

Educational Testing Service (ETS), Cincinnati, Ohio

- Evaluate performance by scoring written short answers and essays

1998-2001 **Marketing Director**

Sapphire Technologies, Chicago, Illinois

- Design, implement, and facilitate annual marketing plan for the region; Support and facilitate development and implementation of business/marketing plans
- Support development of regional marketing budgets
- Organize and oversee the charitable contributions of internal employees

- Develop and implement client relations including: client satisfaction surveys, client development activities, client skills training, and special events
- Supervise RFP process including soliciting RFPs from desirable prospective clients and writing proposals for new business; participate in planning and presentation sessions

1997-1998 **Behavioral Research Specialist**
University of Illinois, Chicago, Illinois
Neural mechanisms of learning, memory, and motivation

- Performed gustatory electrolytic lesion surgeries and perfusions
- Conducted conditioned taste aversion, reward comparison, and incentive learning behavioral tests in rats

PROFESSIONAL AWARDS AND ACHEIVEMENTS
Alzheimer's Drug Discovery Foundation (ADDF) Young Investigator Scholarship recipient, 2012
American Society for Neural Therapy and Repair Travel Award recipient, 2006, 2007, 2008, 2010
Society for Neuroscience Ohio Chapter Travel Award recipient, 2008
International Society for Neural Transplantation and Repair Travel Award recipient, 2005, 2008
Parkinson's Disease Foundation Travel Award recipient, 2005
Employee Recognition Award for Motivation and Teamwork, Pfizer, 2002, 2003, 2011
Completed a triathlon and raised over $10,000 for the Leukemia and Lymphoma Society 2001
Employee Award: *Best Team Player*, Sapphire Technologies, 2000

COMMITTEE POSITIONS
Postdoctoral Chair of Pfizer Pfresh Pfaces (PPP) 2012-Present
Member of the Genetics/Environmental Risk Working Group (PSG) 2009-Present
Student Representative for the Health Sciences Graduate Association (HGSA), 2008
Student Representative for the Neuroscience Graduate Program at University of Cincinnati, 2007, 2008
Student Councilor for the American Society for Neural Therapy and Repair, 2007

SCIENTIFIC MEMBERSHIP AND AFFILIATIONS
Parkinson's Study Group (PSG)
American Association for the Advancement of Science (AAAS)
American Society for Neural Therapy and Repair (ASNTR)
New York Academy of Sciences (NYAS)
Society for Neuroscience (SFN)

COMPLETED RESEARCH SUPPORT
"Antidepressant Induced Delay of Motor Symptoms in Parkinson's Disease (AIDS-PD)"
Agency: The Parkinson's Study Group (PSG) Role: 40% effort as Co-Investigator
TDC: $25,000.00 (03/01/2009-03/31/2010) P.I.: Timothy Collier, Ph.D.
Goal: To assess the extent in which antidepressant treatment has disease modifying effects in early PD patients. Utilizing an integrated database compiled from six previously completed clinical trials, we performed retrospective analyses to determine whether antidepressant treatment alters the temporal course of disease progression in early PD patients.

"Antidepressant-mediated Neuroprotection of the Nigrostriatal Pathway in Parkinson's disease"
Agency: The Davis Phinney Foundation (DPF) Role: 100% effort as Co-Investigator
TDC: $25,000.00 (10/01/2008-10/01/2009) P.I.: Timothy Collier, Ph.D.
Goal: To identify which classes of antidepressants best protect nigral DA neurons and determine whether antidepressants elicit trophic changes within the injured nigrostriatal system.

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INVITED PRESENTATIONS

"Effects of trehalose in the A53T mouse model of Parkinson's disease." Seminar at the Van Andel Institute, Grand Rapids, MI; May 2012

"Antidepressant treatment may have disease modifying-effects in early Parkinson's disease: a patient-level meta-analysis." 24th Annual PSG Symposium on Etiology, Pathogenesis, and Treatment of PD and Other Movement Disorders, Dallas, Texas; May, 2010

"Daily Antidepressant Treatment Protects Nigral Dopamine Neurons in a Rodent Model of Parkinson's Disease." Student Seminar at the University of Cincinnati, Ohio; February 2009

"Neuroprotective Strategies for Parkinson's Disease: A Trophic Tale." Student Seminar at the University of Cincinnati, Ohio; February 2008

"Neuroprotective Strategies for Parkinson's Disease and other Movement Disorders." International Essential Tremor Foundation Support Group, Columbus, Ohio; January 2008

"To Differentiate, or Not to Differentiate: An Alternative Approach to Stem Cell Therapy for Parkinson's disease." Student Seminar at the University of Cincinnati, Ohio; April 2007

"Cell Transplantation for Parkinson's Disease: Can it be a Viable Therapy?" Seminar at the University of Helsinki, Finland; February 2006

PUBLICATIONS

Paumier KL, Gonzales C, Chen Y, Stolyar P, Lotarski S, Rizzo S, Hsu C, Roof R, Richter KEG., Berger Z,Li L, Shen W, Monaghan M, Hirst WD, Zaleska MM, Dunlop J (2012). *Behavioral characterization of A53T mice reveals early and late stage deficits related to Parkinson's disease.* **Manuscript submitted to PlosOne (02/2013)**

L. Li, S. Nadanaciva, Z. Berger, K. Paumier, W. Shen, J. Schwartz, K. Mou, J. Dunlop, W.D. Hirst (2012). Parkinson's disease-associated a-synuclein mutation impairs mitochondrial trafficking in neurons. Manuscript submitted to PlosOne (01/2013).

Zdenek Berger, Katrina Paumier, Yi Chen, Paula Loos, Wei Shen, Li Li, Kewa Mou, Harry Samaroo, Joel Schwartz, John Dunlop, Warren D. Hirst (2012). Diverse effects of aggregate-prone proteins and potential autophagy enhancers on low levels of autophagy flux in primary neurons. Autophagy (currently in revision)

Paumier KL, Siderowf AD, Auinger P, Oakes D, Espay AJ, Revilla FJ and Collier TJ, for the Parkinson Study Group Genetics and Epidemiology Working Group (2012). Tricyclic antidepressants delay the need for dopaminergic therapy in Parkinson's disease. Movement Disorders; 27(7):880-7

Kordower J., Dodiya H., Kordower A., Terpstra B., Paumier K., Madhavan L., Sortwell C., Steece-Collier K., Collier T (2011). Transfer of host-derived alpha synuclein to grafted dopaminergic neurons in rat. Neurobiology of Disease; 43(3): 552-7

Anne L Spieles-Engemann, Michael M Behbehani, Timothy J Collier, Susan L Wohlgenant, Kathy Steece-Collier, **Katrina Paumier**, Brian F Daley, Sara Gombash, Lalitha Madhavan, George T Mandybur, Jack W

Lipton, Brian T Terpstra. *Stimulation of the Rat Subthalamic Nucleus is Neuroprotective Following Significant Nigral Dopamine Neuron Loss,* Neurobiology of Disease; 39 (2010) 105-115.

Madhavan L., Daley B., **Paumier K.**, Sortwell C., Collier T (2008). *Transplantation of subventricular zone neural precursors induces an endogenous precursor cell response in a rat model of Parkinson's disease*, Journal of Comparative Neurology; 515(1):102-15.

Lipton, JW, Tolod, E, Thompson, V, Pei, L, **Paumier, KL**, Terpstra, BT, Lynch, K, Collier, TJ, Sortwell, CE (2008). *3,4-Methylenedioxy-N-methamphetamine (Ecstasy) Promotes the Survival of Fetal Dopamine Neurons via the Dopamine Transporter,* Neuropharmacology; 55(5): 851-9.

Terpstra BT, Collier TJ, Marchionini DM, Levine ND, **Paumier KL**, Sortwell, CE (2007). *Increased cell suspension concentration augments the survival rate of grafted tyrosine hydroxylase immunoreactive neurons*, Journal of Neuroscience Methods; 166(1):13-9.

Paumier KL, Terpstra BT, and Collier TJ (2006). *To differentiate, or not to differentiate: an alternative approach to stem cell therapy for Parkinson's disease (Invited Review),* International Journal of Neuroprotection and Neuroregeneration; 3(1): 20-30.

PUBLICATIONS (in progress)

Paumier KL, Shen W, Chen Y, Berger Z, Li L, Richter KEG, McDonald T, Steyn S, Hirst W (2012). *Effects of trehalose on A53T mutant alpha-synuclein in vitro and in vivo.* Manuscript in preparation.

Paumier, KL, Daley, BF, Terpstra, BT, Sortwell, CE, Collier, TJ. (2012). *Amitriptyline Differentially Regulates Brain Derived Neurotrophic Factor and Glial Derived Neurotrophic Factor within the Intact and Degenerating Nigrostriatal System.* Manuscript in preparation.

Shen W, **Paumier KL**, Li L, Berger Z, Dunlop J, Hirst WD. (2012) *Inhibition of glucosylceramide synthase enhances autohpagy flux and clearance of mutant α-synuclein.* Manuscript in preparation.

L. Li, K.E.G.Richter, Z.Berger, **K.L.Paumier**, A.J.Milici, W.D.Hirst, J.Dunlop (2012). *Loperamide inhibits autophagic flux in H4 neuroglioma cells.* Manuscript in preparation.

ABSTRACTS (Partial List)

K. L. Paumier, C. Gonzales, S. Rizzo, P. Stoylar, S. Lotarski, C. Hsu, R. Roof, K. E. G. Richter, Z. Berger, L. Li, M. Monaghan, W. D. Hirst, M. M. Zaleska, J. Dunlop, *Age-dependant phenotypic analysis of the A53T mouse model of Parkinson's disease.* Accepted for the International Conference on Alzheimer's Drug Discovery, 2012. ***Young investigator scholarship winner***

K. L. Paumier, C. Gonzales, P. Stoylar, S. Lotarski, C. Hsu, R. Roof, K. E. G. Richter, Z. Berger, L. Li, M. Monaghan, W. D. Hirst, M. M. Zaleska, J. Dunlop, *Characterization of the phenotypic and age-dependent changes exhibited by the A53T mouse model of Parkinson's disease* Program No. 357.08/AA27. 2011 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience, 2011. Online

K.L. Paumier, A.D. Siderowf, C.E. Sortwell, B.T. Terpstra, P. Auinger, D. Oakes, L. Madhavan, N.D. Levine, K. Steece-Collier, A.J. Espay, F.J. Revilla, A. Sahay, T.J. Collier, *Chronic antidepressant treatment and the nigrostriatal system: The impact of antidepressant-mediated neuroplasticity.* Program No. 460.6/P10. 2010 Abstract Viewer/Itinerary Planner. San Diego, CA: Society for Neuroscience, 2010. Online

K.L. Paumier, A.D. Siderowf, P. Auinger, D. Oakes, A.J. Espay, F.J. Revilla, A. Sahay, T.J. Collier, for the Parkinson Study Group Genetics and Epidemiology Working Group. *Antidepressant Treatment Alters the Temporal Course of Need for Levodopa Therapy in a Population of Early Parkinson's Patients.* Accepted by the American Society for Neural Therapy and Repair, 2010. ***Travel Award Winner***

K.L. Paumier, C.E. Sortwell, B.F. Daley, B.T. Terpstra, L.M. Madhavan, N.D. Levine, A.M. K. Steece-Collier, T.J Collier, *Tricyclic antidepressant treatment protects dopamine neurons and increases neurotrophic factors within the nigrostriatal system.* Program No. 45.13/E34. 2009 Abstract Viewer/Itinerary Planner. Chicago, IL: Society for Neuroscience, 2009. Online

B. Terpstra, J.W. Lipton, T. J. Collier, H. Muratsubaki, N.D. Levine, S.L. Wohlgenant,A.D. Cole-Strauss, **K.L. Paumier**, S.E. Gombash, C.E. Sortwell. *Allantoin, not uric acid is responsible for inosine-mediated neuroprotection in a rodent model of Parkinson's disease.* Program No. 430.17/I13. 2009 Abstract Viewer/Itinerary Planner. Chicago, IL: Society for Neuroscience, 2009. Online

K.L. Paumier, C.E. Sortwell, B.F. Daley, B.T. Terpstra, L.M. Madhavan, N.D. Levine, A.M. Hemmerle, J.W. Dickerson, K.B. Seroogy, T.J Collier, *Chronic antidepressant treatment is neuroprotective in a rat model of Parkinson's disease.* Program No. 247.7/S2. 2008 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience, 2008. Online *****Abstract selected for the Society for Neuroscience Annual Meeting Press Book***

K. Paumier, C. Sortwell, B. Daley, B. Terpstra, L. Madhavan, N. Levine and T. Collier. *Can antidepressant drugs provide neuroprotection for the nigrostriatal pathway?* Accepted by the American Society for Neural Therapy and Repair, 2008. ***Travel Award Winner***

K. Paumier, B. Terpstra, C. Sortwell, B. Daley, L. Madhavan, N. Levine and T. Collier. *Undifferentiated Midbrain Progenitor Cells Increase Grafted Dopamine Neuron Survival When Transplanted to the Denervated Striatum.* Accepted by the American Society for Neural Therapy and Repair, 2007. ***Travel Award Winner***

K. Paumier, B. Terpstra, C. Sortwell, B. Daley, L. Madhavan, N. Levine and T. Collier. *Undifferentiated midbrain neural progenitors influence transplanted dopamine neurons.* Program No. 590.19/U8. 2007 Abstract Viewer/Itinerary Planner. San Diego, CA: Society for Neuroscience, 2007

K. Paumier, C. Sortwell, T. Collier, E. Tolod, N. Campbell, J. Lipton. *MDMA (Ecstasy) enhances dopamine cell survival and neurite outgrowth in vitro.* Program No. 756.16. 2006 Abstract Viewer/Itinerary Planner. Atlanta, GA: Society for Neuroscience, 2006. Online. *****Abstract selected for the Society for Neuroscience Annual Meeting Press Book***

K. Paumier, C. Sortwell, B. Daley, K. Johe, and T. Collier. *Midbrain Derived Human Progenitor Cells Provide Neuroprotection when Grafted Adjacent to Rat Substantia Nigra.* Accepted by the American Society for Neural Therapy and Repair, 2006. ***Travel Award Winner***

K. Paumier, C. Sortwell, B. Daley, K. Johe, and T. Collier. *Comparison of Undifferentiated Human Spinal and Midbrain Progenitor Cells and their Ability to Preserve Host Dopamine Neurons in a Rat Model of Parkinson's Disease.* Accepted by the Global College of Neuroprotection and Neurorepair, 2006.

K. Paumier, C. Sortwell, N. Kanaan, J. Koprich, S. Wohlgenant, B. Terpstra and T. Collier. *Neuroprotective effects of undifferentiated midbrain progenitor cells in a rat model of Parkinson's Disease.* Accepted by the International Society for Neural Transplantation and Repair, 2005. ***Travel Award Winner***

K. Paumier, C. Sortwell, N. Kanaan, J. Koprich, S. Wohlgenant, B. Terpstra and T. Collier. *Transplanted undifferentiated midbrain neural progenitor cells preserve host dopamine neurons in the rat intrastriatal 6-OHDA model of Parkinson's Disease.* Accepted by the American Society for Neural Transplantation and Repair, 2005. ***Travel Award Winner***