

## Curriculum Vitae

### Nikolaus Renz McFarland, MD, PhD, FAAN

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Associate Professor of Neurology  
Wright-Falls-Simmons Professorship in PSP/Atypical Parkinsonism  
Chief, Movement Disorders Division  
Director, UF HDSA Center of Excellence and CurePSP Center of Care  
University of Florida, College of Medicine

(Last revised: June 30, 2020)

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### Personal Information

Birth: November 15, 1969 in Kansas City, MO  
Home Address: 9416 SW 32<sup>nd</sup> Ln  
Gainesville, FL 32608  
Work Address: Center for Translational Research in Neurodegenerative Disease  
1275 Center Dr, BMS J-489, P.O. Box 100159  
Gainesville, FL 32610  
Phone: Office (352) 273-9665, Mobile (352) 327-1359, Clinic (352) 294-5400  
Fax: (352) 294-5060, Clinic (352) 294-5399  
Email: [nikolaus.mcfarland@neurology.ufl.edu](mailto:nikolaus.mcfarland@neurology.ufl.edu)  
Website: <http://ctrnd.med.ufl.edu/faculty/dr-nikolaus-mcfarland/>

### Education

M.D. in Medicine, 2002, University of Rochester School of Medicine & Dentistry, Rochester, NY  
Ph.D. in Neurobiology & Anatomy, 2001, University of Rochester School of Medicine & Dentistry, Rochester, NY  
M.S. in Neurobiology & Anatomy, 1999, University of Rochester School of Medicine & Dentistry, Rochester, NY  
B.A. in Biological Sciences with Honors, 1992, University of Chicago, Chicago, IL

### Postgraduate Training

2006-2008: Clinical/Research Fellowship in Movement Disorders, Department of Neurology, Massachusetts General Hospital and MassGeneral Institute for Neurodegenerative Disease, Boston, MA  
2003-2006: Neurology Residency in Department of Neurology, University of Virginia Health System, Charlottesville, VA  
2002-2003: Internship, Preliminary Medicine (PGY-1) in Department of Internal Medicine, University of Virginia Health System, Charlottesville, VA

### Current Position

2019: Director, Fixel Institute Biomarker lab, University of Florida  
2019-present: Clinical Associate Professor of Neurology at the University of Florida, College of Medicine, Department of Neurology (with adjunct graduate appointment in Department of Neuroscience), Movement Disorders, Norman Fixel Institute for Neurological Disease  
2015-2019: Chief, Movement Disorders & Neurodegeneration Division, Department of Neurology, University of Florida  
2018-present: Director, University of Florida CurePSP Center of Care  
2016-present: Director, University of Florida Huntington Disease Society of America (HDSA) Center of Excellence  
2013: Wright/Simmons/Falls Professorship and Director of the Progressive Supranuclear Palsy (PSP) and Atypical Parkinsonism Program, Center for Movement Disorders & Neurorestoration, Department of Neurology, University of Florida

### Faculty Academic Appointments

- 2010-2019: Assistant Professor of Neurology at the University of Florida, College of Medicine, Department of Neurology, Movement Disorders, Gainesville, FL
- 2008-2010: Instructor in Neurology, Department of Neurology, Massachusetts General Hospital and Harvard Medical School, Boston, MA
- 2006-2008: Clinical/Research Fellow in Neurology, Department of Neurology, Movement Disorders Unit, Massachusetts General Hospital and Harvard School of Medicine, Boston, MA

### Appointments at Hospitals/Affiliated Institutions

- 2008-2010: Assistant in Neurology, Department of Neurology, Movement Disorders Unit, Massachusetts General Hospital, MGPO
- 2007-2008: Graduate Assistant in Neurology, Department of Neurology, Movement Disorders Unit, Massachusetts General Hospital
- 2006: On-Duty Physician, Western State Hospital, Staunton, VA

### Other Professional Positions

- 2006-2010: Postdoctoral Fellow in lab of Bradley Hyman, MD, PhD, Professor, Department of Neurology, MassGeneral Institute for Neurodegenerative Disease (MIND), Alzheimer's Disease Research Unit, Charlestown, MA
- 2006: Research during residency in lab of Scott Zeitlin, PhD, Assistant Professor, Department of Neuroscience, University of Virginia, Charlottesville, VA
- 1993-2001: Graduate Student, University of Rochester School of Medicine, Rochester, NY  
Suzanne Haber, PhD, Professor, Department of Neurobiology and Anatomy  
Dissertation: "Anatomic Evidence Indicating a Dual Role for Specific Thalamic Relay Nuclei in Basal Ganglia Circuitry"
- 1990-1992: Summer Biological Sciences Collegiate Division Research Fellow, University of Chicago Medical Center, Chicago, IL; advisor - Donna L. Hammond, PhD, Assistant Professor of Anesthesia & Committee on Neurobiology, Department of Anesthesia and Critical Care
- 1989: Research Assistant, University of Kansas Medical Center, Kansas City, KS  
Frederick Samson, PhD, Emeritus Professor, Department of Physiology

### Certifications

- Diplomate in Neurology, American Board of Psychiatry and Neurology – since 5/2007; *recertified 2/2017*
- Florida State Medical License (ME 107338), 8/1/2010 – 1/31/2018
- Commonwealth of Massachusetts, Board of Registration in Medicine (Lic#227528), 6/2006 – Exp. 11/2010
- Virginia Board of Medicine, License to Practice Medicine (#0101239290), 12/2005 – Exp. 11/2010
- United States Medical Licensing Exam, Parts 1, 2, & 3 – passed 1994, 2002, 2003

### Professional Memberships and Activities

- 2011-present: American Neurological Association, Member
- 2007-present: Movement Disorders Society, Member
- 2003-present: American Academy of Neurology, Fellow Member
- 2016-7: America Medical Association, Member
- 1997-2000: International Basal Ganglia Society, Member
- 1994-present: Society for Neuroscience, Member
- 1992-present: Sigma Xi Research Society, Associate Member

### Honors and Awards

- 2017-19: UF Customer Service Key Awards (numerous)
- 2017: Elected Fellow Member of the American Academy of Neurology
- 2014: UF Excellence Award for Assistant Professors, University of Florida

- 2013-present: Wright/Falls/Simmons Professorship in PSP/Atypical Parkinson’s disease, University of Florida, College of Medicine
- 2013: Didactic Teacher of the Year Award, awarded by neurology residents, University of Florida, College of Medicine
- 2010: PD Physician Referral List, Parkinson Disease Foundation
- 2010: National Parkinson Foundation, Parkinson disease physician
- 2009: America’s Top Physicians, Consumers’ Research Council of America
- 2008-2010: Robert N. Koch Jr. Fellowship in Parkinson’s Disease Research, Massachusetts General Hospital, MassGeneral Institute for Neurodegenerative Disease
- 2006-2007: Schumann/Udall Fellowship, Movement Disorders Unit, Dept Neurology, Massachusetts General Hospital, MassGeneral Institute for Neurodegenerative Disease
- 2006: Neurology Resident Teaching Award, Neurology Department, University of Virginia Health System
- 1997: Graduate Student Merit Award, University of Rochester School of Medicine & Dentistry
- 1992-2002: Medical Scientist Training Program (MD/PhD), University of Rochester, School of Medicine
- 1996-1999: Individual Pre-doctoral NRSA, NIMH, University of Rochester, School of Medicine & Dentistry
- 1992: Associate Member of Sigma Xi, University of Chicago
- 1992: Sigma Xi Award for Excellence in Science, University of Chicago
- 1992: General Honors in the College, University of Chicago
- 1992: Honors Degree in Biological Sciences, University of Chicago  
Senior Honors Paper, *An Examination of the Possible Co-existence of GABA in Spinally Projecting Noradrenergic Neurons in the Brainstem of the Rat.*
- 1990, 1991: Summer Biological Sciences Collegiate Division Research Fellowship, University of Chicago
- 1989-1992: Dean’s List – University of Chicago

**Committee Assignments and Administrative Services**

- 2016-2018: MSA Coalition Grant Review Committee
- 2015-present: Neurology Residency Competency Committee – Dept Neurology, University of Florida
- 2014-present: NIH Study Section Member – NST-1
- 2014: Ad Hoc Reviewer, Medical Research Council (MRC), United Kingdom
- 2012-present: Resident Research Advisory Committee – Dept Neurology, University of Florida
- 2011: CAM-CTRP Director and Associate Director Search Committee, University of Florida, College of Medicine
- 2010-2011: Ethics Review Board Member, DBS Trial for Tourette’s Syndrome Study (PI – Dr. Michael Okun), University of Florida, Department of Neurology
- 2010: Ad Hoc Reviewer, University Health Network Animal Care Committee, Toronto, Ontario
- 2009: Ad Hoc Reviewer, Association Française contre les Myopathies (AFM)
- 1995-1996: Educational Curriculum Committee, Department of Neurology, University of Virginia Health System

**Educational Activities**

Teaching of Students in Courses:

Course	Institution	Role	Year
Higher Cortical/Brain Function	University of Florida	Lecturer, “Parkinson disease & Parkinsonisms”	2015-2020
GMS6029 Neurodegenerative Research: From Bench-to-Bedside	University of Florida	Guest Lecturer	2012, 2016, 2017,2019
HSC2000: Intro to Health Professions	University of Florida	Invited Lecturer, “Becoming a Clinician-Scientist: A Neurologist’s Story”	2012
GMS6029: Brain Journal Club	University of Florida	Lecturer	2011-2012

Translational Neuroscience Research course (MDU4001)	University of Florida	Lecturer, "Parkinsonism: Mechanisms and Manifestations of Disease," "Huntington's" etc.	2011, 2015, 2016, 2018-2020
Medical Neuroscience Course	University of Florida	Lecturer, "Basal Ganglia: Anatomy and Function", "Cerebellum"	2011-2019
MGH Neurology Clerkship: exam skills assessment	Harvard Medical School	Examiner	2009
Patient-Doctor II OSCE course	Harvard Medical School	Preceptor	2008, 2009
Patient-Doctor II Neurology Clinical Skills course	Harvard Medical School	Preceptor	2007-2009

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs):

- 2011-present: Movement Disorders Journal Club (monthly), University of Florida, Center for Movement Disorders & Neurorestoration.
- 2010-present: Lecturer, Didactic Series, Movement Disorders Fellowship Program, University of Florida
- 2010-present: Lecturer, Neurology Resident Education Series, University of Florida
- 2010-2013: Movement Disorders Video Seminar Series, University of Florida, Movement Disorders Center. Monthly seminar highlighting movement phenomenology and disorders for students, residents, and fellows
- 2009 – 2010: Preceptor, General Neurology Resident Clinic, Massachusetts General Hospital, Dept Neurology
- 2007-2010: Movement Disorders Video Conference Series, Massachusetts General Hospital, Dept Neurology. This conference is directed and organized by myself for resident and student teaching of movement disorder presentations and features. Monthly conferences feature videos of specific movement disorders, guest faculty participation, and didactic information.
- 2005-2006: Neurology Resident Teaching Assistant, Medical Neuroscience Course, Department of Neuroscience, University of Virginia Health System, Charlottesville, VA
- 1994: Teaching Assistant, Medical Neuroscience Course, Department of Neurobiology and Anatomy, University Rochester School of Medicine, Rochester, NY

Clinical Supervisory and Training Responsibilities:

- 2010-present: Supervision and training of movement disorder fellows, residents and medical students in clinic and during ward rotations. Weekly movement disorders case conference.
- 2010-present: Didactic Movement Disorders Phenomenology Video Series
- 2010-present: Monthly Journal Club for movement disorders fellows, students

Laboratory and Other Research Supervisory and Training Responsibilities:

- 2010-present: Supervision of biological scientist, technicians, graduate and undergraduate students in my research lab, University of Florida, CTRND – 50% effort
- 2009-2010: Supervision of research technicians, postdocs engaged in personal research at MGH, Charlestown, MA – 50% effort

Graduate Faculty Status – yes (Neuroscience)

Graduate Committee Activities:

Role	Student	Home Department	Degree, Date
Member	Jayoung Kim	Dept, Speech & Language Pathology	Ph.D. candidate
Member	Shangru Lyu	IDP, Dept Neuroscience	Ph.D. candidate
Member	Marshall Goodwin	IDP, Dept Neuroscience	Ph.D. candidate
Member	Yuning Liu	IDP, Dept Neuroscience	Ph.D. candidate
Member	Kristen Sowalski	Dept Applied Physiology & Kinesiology	Ph.D. 2017
Member	Nicole Rutherford	IDP, Dept Neuroscience	Ph.D. 2016
Member	Keith Crosby	IDP, Dept Neuroscience	M.S. 2014

Member	Joo-in Jung	IDP, Dept Neuroscience	Ph.D. 2014
Member	Amanda Sacino	IDP, Dept Neuroscience	Ph.D. 2014
Member	Shinichi Amano	Dept Applied Physiology & Kinesiology	Ph.D. 2013
Thesis Advisor	Mandy Herring	IDP, Dept Neuroscience	M.S. 2013

Formally Supervised Trainees:

Name	Institution/Status	Role	Date	Current Position
Mayur Parmur, PhD	UF Postdoc	Postdoctoral fellow	2015-2019	NOVA SE, Asst Professor
Hyo-Jin Park, PhD	UF Biological Scientist	Biological Scientist	2013-2015	Asst Professor, UF
Yang Zhang, PhD	UF Postdoc	Associate Scientist	2015-2016	Houston, TX
Ibrahim Ragbad	UF undergraduate	Student volunteer, lab	2018-present	
Shivang Javandi	UF undergraduate	Student volunteer, lab	2018-present	
Gregory Miller	UF SNIP student	Student rotator	2017	
Gina Bae	UF undergraduate	Student volunteer, lab	2016-present	
Nathaniel Ma	UF undergraduate	Student volunteer, lab	2017-2018	
James Joseph	UF undergraduate	Student volunteer, lab	2016-2017	
Sofia Anagnostis	UF undergraduate	Senior Honors student	2016-present	
Rachel Foels	UF undergraduate	Student volunteer, lab	2015-2017	Medical student
Lyndsey Powell	UF undergraduate	Student volunteer, lab	2015-2016	Intern, UF
Jordan Ross	UF undergraduate	Student volunteer, lab	2014-2015	
Nicholas Pasternack	UF undergraduate	Senior honors student	2014-2015	
Marissa Venero	UF undergraduate	Student volunteer, clinical	2013-2014	Medical student
Raj Shukla	UF undergraduate	Student volunteer, lab	2013-2014	
Natalia Ravelo	UF undergraduate	Student employee, lab	2012-2015	Medical student
Ryan Coultas	UF undergraduate	Student employee, lab	2012-2015	Medical student
Lauren Ricchiuti	UF undergraduate	Student volunteer, lab	2012-2014	
Marcelle Altshuler	UF undergraduate	Student volunteer, clinical	2012-2013	Medical student
Zachary Ryan	UF undergraduate	Student volunteer, lab	2011-2012	Medical student
Bradley Goetz	UF medical student	Summer Research Fellow (MSRF, NIH T35 funded)	2011	
Amanda Herring	UF graduate student	Graduate assistant	2011-2013	Broad Institute
Laura Kibuuka	MGH-MIND, Boston, MA	Research Technician	2009-2010	Medical student
Michael Danzer, PhD	MGH-MIND, Boston, MA	Research Technician	2009	Germany
Melanie Malloy	MGH-MIND, Boston, MA	Summer Intern	2009	

Formal Teaching of Peers:

- 2/2020: SE HDSA Conference, Case presentation on prodromal HD. Nashville, TN.
- 9/2019: Host and speaker for MSA Coalition annual Patient-Caregiver Conference. Orlando, FL.
- 4/2019: Seventh Annual PSP-Lewy body disease Symposium/Think Tank: "Advances in Translational Research, Imaging, and Clinical Considerations" McKnight Brain Institute, University of Florida. Organizer/director.s
- 10/2018: PJ Parkinson's Symposium CME. Knoxville, TN.
- 8/2018: SOMA (Society for Movement Disorders in Mexico) Conference. Lectures on Huntington disease and Atypical Parkinsonism. Mexico City, Mexico.
- 6/2018: Help4HD International, HIPE (Highly interactive patient event) Symposium, Gainesville, FL.
- 3/2018: Atypical Parkinson Disease Patient-Caregiver Symposium, University of Florida. Organizer.
- 10/2017: Help4HD International, HIPE Symposium, Tampa, FL.

- 4/2017: Sixth Annual PSP-Lewy body disease Symposium/Think Tank: "New Ideas and Frontiers" Harrell Medical Education Building, University of Florida. Organizer/director.
- 4/2016: Fifth Annual PSP-Lewy body disease Symposium/Think Tank: "Bridging Disciplines to Advance Care." Harrell Medical Education Building, University of Florida. Organizer/director.
- 4/2015: Fourth Annual PSP/Atypical Parkinsonism Symposium/Think Tank: "From Tau to Lewy Bodies." McKnight Brain Institute, University of Florida. Organizer/director.
- 4/2014: Third Annual PSP Symposium/Think Tank, "Progress in Research: Understanding the Pathological Mechanisms of Progressive Supranuclear Palsy", McKnight Brain Institute, organized/directed
- 3/2014: UF Movement Disorders Practicum for Abbvie, University of Florida, "The Advanced PD Patient & Differentiating From PD Look-a-likes"
- 4/2013: Second Annual PSP Symposium/Think Tank, "Progress in Research: Understanding the Pathological Mechanisms of Progressive Supranuclear Palsy", McKnight Brain Institute, organized/directed
- 2/2012: First Annual PSP Symposium/Think Tank, McKnight Brain Institute, University of Florida, organized and directed symposium for over 100 participants
- 2011: Dystonia & Spasticity Workshop, Gainesville, FL, described use of botulinum toxin for dystonia, patient demonstration, CME course sponsored by University of South Florida

## Grants and Contract Awards

### Current Funded Projects:

- 8/2017-7/2020: Co-Investigator – U01 (NIH/NINDS)  
"Neuroimaging Biomarkers in Parkinsonism: Differentiating Subtypes and Tracking Disease Progression" (in PD, MSA-parkinsonism, and PSP patients). P.I.: Dr. David Vaillancourt
- 7/2015-5/2020: Co-Investigator – NIH R01-NS058487 (NINDS)  
"Role of the Cortex and Cerebellum in Visually-Guided Motor Behavior." P.I.: Dr. Vaillancourt
- 7/2016-12/2020: P.I. – Huntington Disease Society of America Center of Excellence \$25,000/yr  
Director of the UF Huntington Disease Society of America (HDSA) Center of Excellence. This project supports our multidisciplinary Huntington Disease COE to help promote patient care, outreach, education, and research.
- 7/2016-12/2020: P.I. – CurePSP Center of Care  
This project supports our multidisciplinary center for PSP and other atypical parkinson disorders and helps promote patient care, outreach, education, and research.
- 7/2016-6/2020: Co-Investigator – National Parkinson Foundation (NPF) Center of Excellence \$50,000  
This project supports excellence in Parkinson disease care, outreach, education, and research through support of NPF Centers of Excellence. PI: Dr. Irene Malaty

### Past Funded Projects:

- 2016-2017: Co-Investigator – NIH R01-NS058487  
NIH/NINDS. "Role of the cortex and cerebellum in visually-guided motor behavior." Patient recruitment. PI.: Dr. David Vaillancourt.
- 2016-2017: Co-Investigator – NIH R01-NS052318  
NIH/NINDS. "Scaling and sequencing motor output in humans: fMRI study." Patient recruitment. P.I.: Dr. David Vaillancourt.
- 2013-2017: Co-Investigator – NIH R01-075012 \$10,385(?)  
NIH/NINDS. "Non-invasive markers of neurodegeneration in movement disorders." Patient enrollment & evaluation. PI: Dr. David Vaillancourt, Co-PI. Dr. Michael S. Okun
- 11/2015-4/2017: P.I. –Target Validation Grant \$100,000  
Michael J. Fox Foundation. "Targeting RER1 in Models of Parkinson's disease." The goal of this project is to examine the effect of viral expression of RER1 in vivo on  $\alpha$ -synuclein toxicity in a transgenic mouse model of Parkinson's disease
- 2015- Investigator – Florida Consortium for African-American Alzheimer's Disease Studies (FCA<sup>3</sup>DS)

Multi-site project (Mayo Clinic Jacksonville, Mt Sinai Medical Center in Miami, University of Florida, and University of South Florida) aimed at studying the genetic causes of Alzheimer's disease in African-Americans. (Site P.I. Dr. Meredith Wicklund)

- 8/2010-7/2016: P.I. – NIH K08-NS067024-01A1 \$868,112  
NIH/NINDS. "Rab Proteins and alpha-Synuclein Toxicity in Neurodegenerative Disease." The goal of this project is to examine specific Rab protein interactions with alpha synuclein in both cellular and a rat model of Parkinsonism, as well as in neuropathological tissue from Parkinson disease and related disorders.
- 4/2009-3/2010: P.I. – 2009 Neurodegenerative Disease Pilot Grant \$32,965  
*Harvard NeuroDiscovery Center & Alzheimer's Disease Research Center.*  
"Examination of Brain Urate Metabolites in Neurodegenerative Disease." Recent data indicate correlation of elevated blood urate levels and decreased severity of Parkinson disease. In this study we plan to directly measure urate levels and metabolites in various brain regions in Parkinson disease and related neurodegenerative disorders. Site/Co-P.I.: Michael A. Schwarzschild, MD, PhD
- 2/2009-1/2010: P.I. – Rapid Response Innovation Award \$75,000  
*Michael J. Fox Foundation.* "Effect of novel Sirtuin-2 inhibitors on alpha-synuclein toxicity in a rat model of Parkinsons." The goal of this project is to determine if novel SIRT2 inhibitors can reduce dopaminergic nigrostriatal toxicity in a viral model of Parkinson disease in the rat. Site/Co-P.I.: Bradley T. Hyman, MD, PhD
- 9/2007-8/2008: P.I. – Post-doctoral Fellowship (APDA) \$35,000  
*American Parkinson Disease Association.* "Alpha-synuclein phosphorylation and toxicity in a rat model of Parkinsons." The goal of the project was to evaluate the effect of S129 phosphorylation state on alpha-synuclein toxicity in the rat nigrostriatal system. Site/Co-P.I.: Bradley T. Hyman, MD, PhD
- 9/1998-8/2000: P.I. – NRSA Pre-doctoral fellowship (MH11661) \$42,252  
*National Institutes of Mental Health.* "The thalamostriatal projection: A direct feedback loop." Examination thalamic projections to the striatum in the macaque monkey. Site/Co-P.I.: Suzanne N. Haber, PhD

Current Unfunded Projects:

2013-present: Co-Investigator – Distinguishing Parkinson disease from Essential Tremor and Atypical Parkinsonisms using Functional MRI and Diffusion Tensor Imaging. *NIH-NINDS.* Patient evaluation/diagnosis, enrollment. P.I. Dr. David Vaillancourt, University of Florida

Past Unfunded Projects:

- 4/2017: P.I. – American Parkinson Disease Association  
"Neuroprotective effects of Rab8A on alpha-synuclein pathology in a rat model of Parkinsonism"
- 2/2017: P.I. – R21 (NIH/NINDS)  
"Analysis of differential effects of ALS--FTD linked UBQLN2 mutations on RNA homeostasis"
- 6/2008-8/2010: Co-Investigator – Brain Imaging Markers in Mildly Impaired Cognition, *NIH-NINDS.* Patient enrollment. P.I.: Dr. Eric Smith
- 1/2007-8/2010: Co-Investigator – Neuroimaging and Neuropsychological Studies of Patients with Memory Problems, *NIH-NIA.* Patient enrollment. P.I.: Deborah Blacker, MD.
- 1/2007-8/2010: Co-Investigator – Alzheimer's Disease Research Center, *NIH-NIA.* "Partners DNA and tissue bank for molecular studies of Alzheimer's disease and related disorders." P.I.: Dr. Bradley T. Hyman
- 1/2007-8/2010: Co-Investigator – Alzheimer's Disease Research Center, *NIH-NIA.* *Massachusetts General Hospital ADRC.* Patient enrollment, evaluation, and examination. Prospective longitudinal study of normal aging and dementia. P.I.: Dr. Bradley T. Hyman.
- 7/2006-8/2010: Co-Investigator – MGH/MIT Moris Udall Center for Excellence in PD Research. Research related patient database. P.I.: Dr. John Growdon

## Clinical Trials

### Current Clinical Trial Participation

- 2020- TOPAZ: Trial of Parkinson's and Zolendronic Acid (SAB: McFarland)
- 2019-present: Quadrant Biosciences: miRNA biomarker study in Parkinson disorders
- 2019-present: Biohaven Pharmaceutical: M-Star trial (Site PI: McFarland)  
Phase 3 study of verdiperstat (BHV-3241), a myeloperoxidase inhibitor, in Multiple System Atrophy (NCT03952806)
- 2018-present: SIGNAL trial: Huntington Disease Study Group/Vaccinex (Site PI: McFarland)  
Phase II trial of V15/2503 antibody for Huntington disease (NCT02481674)
- 2017-present: CHDI Foundation: Enroll-HD (Site PI: McFarland)  
A Prospective Registry Study in a Global Huntington's Disease Cohort (NCT01574053)
- 2009-present: QII (PI: Malaty) (Co-I: McFarland)  
NPF. National Parkinson Foundation Quality Improvement Initiative (NPF QII)

### Completed Clinical Trials

- 2017-2020: Biogen: PASSPORT Study (Site PI: McFarland)  
Phase II/III Study of BIIB092 in patients with Progressive Supranuclear Palsy (NCT03068468)
- 2017-2020: AbbVie phase II trial: M15-562 (Site PI: McFarland)  
A Randomized, Double-Blind, Placebo-Controlled Multiple Dose Study to Assess Safety, Pharmacokinetic and Preliminary Efficacy of ABBV-8E12 in Progressive Supranuclear Palsy. (NCT02985879)
- 2016-2019: CN002004 (Site PI: McFarland)  
Biogen (formerly Bristol-Myers Squibb). Phase II extension study of BIIP092 (BMS-986168) in patients with Progressive Supranuclear Palsy who participated in CN002003. (NCT02658916)
- 2015-2018: INTREPID (PI: Okun) (Co-I: McFarland), Sponsor: Boston Scientific Co.  
Deep Brain Stimulation (DBS) for the Treatment of Parkinson's Disease. The purpose of this study is to evaluate the safety and effectiveness of Boston Scientific's Vercise Deep Brain Stimulation (DBS) system in the treatment of patients with advanced, levodopa-responsive bilateral Parkinson's disease (PD) which is not adequately controlled with medication. (NCT01839396)
- 2016-2017: Axovant RVT 101-2003 Study (Site PI: McFarland)  
A Phase 2, double-blind, randomized, placebo-controlled crossover study evaluating the effect of RVT-101 on gait and balance in subjects with Alzheimer's disease, Dementia with Lewy bodies, or Parkinson's disease dementia. (NCT02910102)
- 2015-2017: Amaryllys (PI: Shukla) (Co-I: McFarland)  
Open Label Extension Study to Investigate Long Term Safety, Tolerability and Efficacy of PF-02545920 in Subjects with Huntington's Disease Who Completed Study A8241021. (NCT02342548)
- 2015-2016: CN002003 (Site PI: McFarland)  
Covance/Bristol-Myers Squibb. Phase 1 Multiple Ascending Dose Study of Intravenously Administered BMS-986168 in Patients With Progressive Supranuclear Palsy. (NCT02460094)
- 2015-2016: C2N-8E12 (Site PI: McFarland)  
C2N Diagnostics. Safety, Tolerability, and Pharmacokinetics of C2N-8E12 in Subjects With Progressive Supranuclear Palsy (NCT02494024)
- 2013-2015: PI: Vaillancourt (Co-I: McFarland)  
NIH-NINDS. Distinguishing Parkinson disease from Essential Tremor and Atypical Parkinsonisms using Functional MRI and Diffusion Tensor Imaging.
- 2011-2013 MOTION: Safinamide in Early IPD, as add-on to Dopamine Agonist (Sub-I: McFarland)  
Sponsor: Newron Pharmaceuticals SPA  
Double-blind, placebo-controlled, parallel-group, randomised, multi-centre, multi national, Phase III trial, comparing two doses of safinamide versus placebo as add-on therapy to a stable dose of a single dopamine agonist in subjects with early idiopathic Parkinson's Disease. (NCT00605683)



- 2011-2013 SETTLE: Safinamide in Idiopathic Parkinson's Disease (IPD) With Motor Fluctuations, as add-on to Levodopa (Sub-I: McFarland), Sponsor: Newron Pharmaceuticals SPA  
Phase III trial to evaluate the efficacy and safety of safinamide compared to placebo as add-on therapy to a stable dose to levodopa in subjects with advance idiopathic Parkinson's Disease. (NCT00627640)
- 2009- 3/2012: Apokyn (PI: Malaty) (Co-I: McFarland)  
Merz. A Randomized, Double-Blind, Placebo-Controlled Study of the Efficacy and Safety of Trimethobenzamide (Tigan®) in the Control of Nausea and Vomiting during initiation and continued treatment with subcutaneous apomorphine (Apokyn®) in apomorphinenaïve subjects with Parkinson's Disease suffering from acute intermittent "off" episodes, with phased withdrawal of subjects from Tigan® to placebo

### Editorial Board Appointments

- 2011-present: Editorial Board Member *Journal of Neurology and Neurophysiology*  
2008-present: Ad Hoc Reviewer (multiple journals)

*BMC Neurology*  
*Brain*  
*Experimental Biology and Medicine*  
*JAMA Neurology*  
*Journal of Microencapsulation*  
*Journal of Neurology, Neurosurgery, and Psychiatry*  
*Journal of Neurochemistry*  
*Journal of Parkinson Disease*  
*Movement Disorders*  
*Neurobiology of Aging*  
*Neuroscience*  
*Neurotoxicity Reviews*  
*PloS ONE*

<a href="#">Citation indices</a>	All	Since 2013
<a href="#">Citations</a>	3378	1694
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From  
<<http://scholar.google.com/citations?user=KJUnhAEAAAAJ&hl=en>>

### Publications

Peer-reviewed publications:

1. Giménez-Amya J, **McFarland NR**, de la Herras S and Haber SN. Organization of thalamic projections to the ventral striatum in primates. *J.Comp.Neurol.* 1995; 349:127-149.
2. Chikama M, **McFarland NR**, Amaral DG and Haber SN. Insular Cortical Projections to Functional Regions of the Striatum Correlate with Cortical Cytoarchitectonic Organization in the Primate. *J. Neurosci.* 1997; 17(24):9686-9705.
3. Haber SN, Fudge JL, and **McFarland NR**. Striatonigrostriatal pathways in primates form an ascending spiral from the shell to the dorsolateral striatum. *J Neurosci* 2000; 20(6):2369-82.
4. **McFarland NR** and Haber SN Convergent Inputs from thalamic motor nuclei and frontal cortical areas to the dorsal striatum in the primate. *J Neurosci* 2000; 20(10):3798-3813.
5. **McFarland NR** and Haber SN. Organization of thalamostriatal terminals from the ventral motor nuclei in the macaque. *J Comp Neurol* 2001; 429:321-336.
6. **McFarland NR** and Haber SN. Thalamic Relay Nuclei of the Basal Ganglia Form Both Reciprocal and Nonreciprocal Cortical Connections, Linking Multiple Frontal Cortical Areas. *J Neurosci* 2002; 22(18):8117–8132.
7. **McFarland NR**, Login IS, Vernon S, and Burns TM. Improvement with corticosteroids and azathioprine in GAD65-associated cerebellar ataxia. *Neurology.* 2006;67:1308-1309.

8. **McFarland NR**, Lee J-S, Hyman BT, McLean PJ. Comparison of transduction efficiency of recombinant AAV serotypes 1, 2, 5, and 8 in the rat nigrostriatal system. *J Neurochem* 2009;109(3):838-45.
9. **McFarland NR**, Fan Z, Xu K, et al. Alpha-synuclein S129 phosphorylation mutants do not alter nigrostriatal toxicity in a rat model of Parkinson disease. *J Neuropathol Exper Neurology* 2009; 68(5):515-524.
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#### Submitted Articles:

1. Parmar M, Hyo-Jin P, Ryu D, Powell L, Foels R, Herring M, **McFarland NR**. Rab8a expression attenuates alpha-synuclein toxicity in a rat model of Parkinsonism.
2. Archer DB, Yang J, Mitchell T, Jeromin A, **McFarland NR**, Okun MS, Vaillancourt DE. Comparing Diffusion Imaging and Plasma-NfL in Differentiating Parkinsonism. *Annals of Neurology*.
3. Chu WT, Archer DB, Burciu RG, Lai S, Wu S, Okun MS, **McFarland NR**, Vaillancourt DE. Test-Retest Reproducibility of Free Water Imaging in Parkinson's Disease.
4. Quattrone A, Antonini A, Vaillancourt DE, Seppi K, Ceravolo R, Strafella AP, Morelli M, Nigro S, Vescio B, Bianco MG, Vasta R, Arcuri PP, Weis L, Fiorenzato R, Biundo R, Burciu RG, Krismer F, **McFarland NR**,

Mueller C, Gizewski ER, Cosottini M, Del Prete E, Mazzucchi S, Quattrone A. Development and validation of a new MRI measurement to differentiate de novo Parkinson's disease from early-stage progressive supranuclear palsy in clinical practice: an international cohort study. *Lancet Neurology*

#### Reviews, Book Chapters, Editorials:

1. Kenny A and **McFarland NR**. About the Cover: John Romano and the R-Wing. *Journal of the University of Rochester Medical Center* 1994; 6(2):2.
2. Haber SN and **McFarland NR**. The concept of the ventral striatum in nonhuman primates. In: *Advancing from the ventral striatum to the extended amygdala* (McGinty JF, ed.). New York: The New York Academy of Sciences; 1999. p. 33-48.
3. Haber SN and **McFarland NR**. The Place of the Thalamus in Frontal Cortical-Basal Ganglia Circuits. *Neuroscientist* 2001; 7(4):315-24.
4. **McFarland NR** and Schwarzschild, MA. Is mortality increased in essential tremor? *Journal Watch Neurology* 2008.
5. Barkhoudarian MK, Mejia NI, Awad KM. Movement Disorders (Ch. 13). In: **McFarland NR**, ed. *Pocket Neurology*. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, 2010.
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7. Golde TE, Lewis J, **McFarland NR**. Anti-tau antibodies: hitting the target. *Neuron*. 2013;80(2):254-6.
8. Planetta PJ, **McFarland NR**, Okun MS, Vaillancourt DE. MRI reveals brain abnormalities in drug-naïve Parkinson's disease. *Exerc Sport Sci Rev*. 2014;42(1):12-22. PMID: 3885158.
9. **McFarland NR**. Diagnostic Approach to Atypical Parkinsonian Syndromes. *Continuum (Minneapolis)*. 2016;22(4 Movement Disorders):1117-42. doi: 10.1212/CON.0000000000000348. PubMed PMID: 27495201.
10. **McFarland NR**, Christopher Hess. Recognizing Atypical Parkinsonisms: "Red Flags" and Therapeutic Approaches. *Seminars in Neurology*, 2017; Apr;37(2):215-227. doi: 10.1055/s-0037-1602422. Epub 2017 May 16. PubMed PMID: 28511262.
11. **McFarland NR**, McFarland KN, Golde TE. Parkinson Disease and Autoimmune Disorders-What Can We Learn From Genome-wide Pleiotropy? *JAMA Neurol*. 2017 Jul 1;74(7):769-770. doi: 10.1001/jamaneurol.2017.0843. PubMed PMID: 28586798.
12. Armstrong MJ, **McFarland NR**. Recognizing and treating atypical Parkinson disorders. *Handb Clin Neurol*. 2019;167:301-320. doi: 10.1016/B978-0-12-804766-8.00016-9. Review. PubMed PMID: 31753139.

#### Educational Material:

1. Chung D, Shah MN and **McFarland NR**. *A Condensed Guide to Organic Reactions, Volume I*. University of Chicago Course Packet. 1990.

#### Thesis dissertation:

Anatomic Evidence Indicating a Dual Role for Specific Thalamic Relay Nuclei in Basal Ganglia Circuitry [dissertation]. Rochester (NY): University of Rochester School of Medicine & Dentistry; 2001.

### Abstracts and Presentations

#### Oral Presentations

National/International Presentations (\*Invited) and Courses:

1. \*October 2019. "Rab proteins in Neurodegenerative Disease" – *Nathan L. Cohen Resident Guest Lecture*, Neurology Grand Rounds, Johns Hopkins School of Medicine, Baltimore, MD.
2. \*September 2019. "MSA Coalition 2019: Clinical Features, Summary and Panel," "Sleep disorders in MSA" – Clinical Host for MSA Coalition national meeting in Orlando, FL.
3. October 2018. "Gait disorders in atypical parkinsonism" – 2018 Ruijin International Forum on Gait Disorders in Parkinson disease. Forum, Ruijin Hospital / Shanghai Jiao Tong University School of Medicine.
4. \*August 2018. "Update on the approach and treatment of Huntington Disease and Huntington Disease-like Syndromes" – First International Symposium on Movement Disorders, Centro Medico ABC, Mexico City, Mexico.
5. \*August 2018. "Update on the treatment of Atypical Parkinsonian Syndromes: What's in the pipeline?" – First International Symposium on Movement Disorders, Centro Medico ABC, Mexico City, Mexico.
6. \*August, 2018. "Huntington disease: Past, Present, Future" – Help4HD International Symposium, University of Puerto Rico School of Medicine, San Juan, Puerto Rico.
7. \*Feb, 2018. "*Alpha-Synuclein Toxicity Molecular pathology in Parkinson disorders*," Neurotherapeutics Symposium, 2018. Orlando, FL.
8. \*April, 2017. Co-Chair for S21: Aging and Dementia: Clinical and Translational Studies in Neurodegenerative Diseases. 2017 American Academy of Neurology Annual Meeting in Boston, MA.
9. \*October, 2016. "*The Parkinson Syndrome: Atypical disorders*," Changchun, China regional hospital and community centers.
10. \*April, 2016. Co-Chair for S21: Aging and Dementia: Genetics. 2016 American Academy of Neurology Annual Meeting in Vancouver, BC, Canada.
11. April, 2016. Moderator for the Aging and Dementia Poster Discussion Session. 2016 American Academy of Neurology Annual Meeting in Vancouver, BC, Canada.
12. \*March, 2016. "*Parkinsonisms: A Hallway View*," 2016 American Academy of Geriatric Psychiatry, Symposium (Washington, DC): session "The Exam Begins in the Hallway: Movement Disorders in Geriatric Psychiatry."
13. \*April, 2015. "*Parkinson disease update*" – Movement Disorders Course, American Academy of Neurology, 67<sup>th</sup> Annual Meeting, Washington, DC.
14. \*March, 2015. "*Approaching Parkinsonisms: Observations from the Hallway*," 2015 American Academy of Geriatric Psychiatry, Symposium (New Orleans, LA): session "The Exam Begins in the Hallway: Movement Disorders in Geriatric Psychiatry."
15. \*Nov, 2014. Chairman of Nanosymposium: "*Alpha-synuclein and LRRK2 Mechanisms in Parkinson disease*" - Society for Neuroscience Annual Meeting (Washington, DC).
16. Nov, 2014. "*Rab protein effects on alpha-synuclein homeostasis and oligomer formation*," Society for Neuroscience Annual Meeting (Washington, DC), session 484.02.
17. April, 2014. "*RER1: A Potential Novel Regulator of Alpha-Synuclein*," Data Blitz (11I-2.001), 2014 American Academy of Neurology Meeting, Philadelphia, PA.
18. April, 2014. "*RER1: A Potential Novel Regulator of Alpha-Synuclein*," Plenary Session (S17.003), 2014 American Academy of Neurology Meeting, Philadelphia, PA.
19. \*April, 2014. "*Clinical and Video Review of Atypical Parkinsonian Syndromes*" – Movement Disorders Course, American Academy of Neurology, 66<sup>th</sup> Annual Meeting, Philadelphia, PA.

20. \*March, 2014. *"Parkinsonism: Approach to Atypical versus Typical PD,"* 2014 American Academy of Geriatric Psychiatry, Symposium (Orlando, FL): session "The Exam Begins in the Hallway: Movement Disorders in Geriatric Psychiatry."
21. \*March, 2013. *"Clinical and Video Review of Atypical Parkinsonian Syndromes"* – Movement Disorders Course, American Academy of Neurology, 65<sup>th</sup> Annual Meeting, San Diego, CA
22. April, 2012. *"Update on UF DBS, Dystonia, and TSA Registry"* – CPRIF Dystonia and CP Workshop, Washington, DC
23. April, 2012. *"Update on Translational Research in Parkinsonisms"* – University of Florida Annual Neuroscience Retreat
24. \*March, 2010. *"Targeting  $\alpha$ -Synuclein: Mechanisms of Pathology in Parkinson disease"* –Neurology Grand Rounds, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA
25. \*Feb, 2010. Movement Disorders Seminar/Neurology Grand Rounds, University of Florida, College of Medicine, Gainesville, FL
26. \*Sept, 2009. *"Targeting  $\alpha$ -Synuclein: Mechanisms of Toxicity in Parkinson Disease"* –Neurology Department Grand Rounds, University of Virginia Health System, Charlottesville, VA.
27. \*Nov, 2009. Grand Rounds, Neurology, University of Massachusetts Medical School, Worcester, MA.

Regional Presentations (\*Invited):

1. March 2020. "Introduction to Movement Disorders Phenomenology" - Translational Neuroscience Research course (MDU4001), University of Florida, College of Medicine, Gainesville, FL.
2. March 2020. "The Parkinson Syndrome: PD and atypical disorders" – Higher Brain and Cortical Function course, University of Florida, College of Medicine, Gainesville, FL.
3. \*February 2020. "The Parkinson Spectrum, What's New in Research and Treatment" – Parkinson Disease Hope Conference in Fort Meyers, FL.
4. \*February 2020. "Huntington disease case presentation: Prodromal HD" – Southeast Regional HDSA Conference, Vanderbilt University, Nashville, TN.
5. October 2019. "Neuroimaging of Movement Disorders" – GMS6705 course lecture, University of Florida, College of Medicine, Gainesville, FL.
6. September 2019. "PD Biomarkers" – lecture, GMS6029 Neurodegenerative Research, University of Florida, College of Medicine, Gainesville, FL.
7. June 2019. "Cerebellar anatomy and function" – Medical Neuroscience course, University of Florida, College of Medicine, Gainesville, FL.
8. June 2019. "Basal ganglia anatomy and function" – Medical Neuroscience course, University of Florida, College of Medicine, Gainesville, FL.
9. April 2019. "Huntington disease and Chorea" - Neurology resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
10. April 2019. "Managing Atypical Parkinsonisms" – Neurology resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
11. \*Feb 2019. "Parkinson disease and look-alikes" – Neurochallenge Parkinson disease support group, Sebring, FL.
12. April 2018. "Parkinson disease and the Parkinsonisms" – Higher Cortical Function course. University of Florida, College of Medicine, Gainesville, FL.



13. April 2018. "HD and Chorea" – Neurology resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
14. April 2018. "Management of Atypical Parkinsonisms" – Neurology resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
15. March, 2018. "Atypical Parkinsonisms: Therapeutics and Research" – Atypical Parkinsonism Patient-Caregiver Symposium. University of Florida, College of Medicine, Gainesville, FL.
16. \*October, 2017. "Huntington disease: Overview and Challenges" – Help4HD International: HIPE Symposium, Tampa, FL.
17. \*May, 2017. "Targeting trafficking proteins in Lewy body disease" – Neurology Dept Grand Rounds, University of Florida, College of Medicine, Gainesville, FL.
18. May, 2017. "Huntington disease and Chorea" – Neurology resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
19. April, 2017. "Progressive supranuclear palsy: Clinical-research update" – 6<sup>th</sup> Annual PSP/Lewy body disease Symposium/ThinkTank, University, College of Medicine, Gainesville, FL.
20. February, 2017. "Atypical Parkinsonian Disorders" – Neurology resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
21. January, 2017. "Targeting Rab Proteins in Synucleinopathies" – Neurology Dept Research Day, University of Florida, College of Medicine, Gainesville, FL.
22. April, 2016. "Gait disorders." – Resident lecture, University of Florida, College of Medicine, Gainesville, FL.
23. March, 2016. "Parkinsonism: Manifestations and Mechanisms of Disease" – Translational Neuroscience course, University of Florida, College of Medicine, Gainesville, FL.
24. March, 2016. "Parkinsonism vs Atypical PD" – Higher Brain Function course, BMS, University of Florida, College of Medicine, Gainesville, FL.
25. \*November, 2015. "The Parkinsonism Soup" – UF Center for Movement Disorders & Neurorestoration support group lecture series.
26. Oct, 2015. "Advanced PD & Differentiating from PD Look-alikes" – Resident lecture, University of Florida, College of Medicine, Gainesville, FL.
27. May, 2015. "Huntington Disease/Choreas" – Resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
28. April, 2015. "Advanced PD and PD Look-alikes" – Acadia Executive Training Seminar, UF Hilton, Gainesville, FL.
29. April, 2015. "Parkinson-Plus disorders/Atypical Parkinsonisms" – Resident lecture series, University of Florida, College of Medicine, Gainesville, FL.
30. March, 2015. "NBIA Disorders: Clinical-Video Update" – Neurology Grand Rounds, University of Florida, College of Medicine, Gainesville, FL.
31. \*Feb, 2015. "Atypical Parkinsonism: Stages of PSP, CBD, and MSA," CurePSP Southeastern patient and family symposium (Gainesville, FL).
32. \*November, 2014. "What is Parkinsonism?" – Parkinson disease support group, St. Augustine, FL.
33. Sept, 2014. "Atypical Parkinsonisms" - University of Florida, College of Medicine, Gainesville, FL.
34. \*May, 2014. "Rabs and RER1: Regulating alpha-synuclein trafficking and accumulation" – Neurology Grand Rounds, Mayo Clinic, Jacksonville, FL.

35. May, 2014. *"Protein trafficking & homeostasis in neurodegenerative disease: Rabs and RER1"* – Neurology Grand Rounds, University of Florida, College of Medicine, Gainesville, FL.
36. September, 2013. *"Progressive supranuclear palsy: variations on a theme"* – Neurology Grand Rounds, University of Florida, College of Medicine, Gainesville, FL.
37. May, 2013. *"Typically Atypical Parkinsonian Syndromes: A Clinical and Video Review"* – Neurology Grand Rounds, University of Florida, College of Medicine, Gainesville, FL
38. \*April 2013. A Conversation with Experts about Parkinson's Disease, University of North Florida Herbert University Center, Rountable Expert Participant.
39. \*March, 2012. *"Parkinsonism: Typical or Atypical and Beyond"* – LifeStream, Inverness, FL
40. Sept, 2011. *"History of Neuroprotection in Brain and Spinal Cord Research over the Last 20 Years"* – Symposium on Neuroprotection, Center for Vision Research, University of Florida Neuroscience Retreat
41. \*April, 2012. *"A Tale of Parkinsonisms"* – AD/PD Support Group, Vero Beach, FL
42. April, 2012. *"Parkinson disease vs Atypical Parkinsonism: Getting the Right Diagnosis"* – 10<sup>th</sup> Annual PD Symposium, Center for Movement Disorders & Neurorestoration
43. March, 2012. *"Parkinsonisms and Frontiers"* – Parkinson Disease Support Group, UF Center for Movement Disorders & Neurorestoration
44. \*August, 2011. *"Parkinsonisms, Research/frontiers, Therapies"* – Greater Daytona Parkinson Disease Association, Ormond Beach, Florida
45. \*April, 2011. *"Parkinson Disease, Parkinsonisms, and Frontiers"* – 9<sup>th</sup> Annual PD Symposium, Center for Movement Disorders & Neurorestoration
46. \*March, 2011. *"Parkinson disease: To Be or Not PD"* – PSP support gathering, St. Petersburg, Florida
47. March 2011. *"Synuclein Pathology in Models of Parkinsonism"* – Neuroscience Seminar, University of Florida, McKnight Brain Institute
48. February, 2011. *"Non-motor Symptoms of Parkinson's Disease"* – Parkinson Disease support group, Fort Myers, Florida (teleconference)
49. June, 2009. *"Genes, Parkinson Disease, and Where We're Headed"* – Parkinson Disease Support Group, Nantucket Cottage Hospital, MA. Massachusetts General Hospital, Neurology, Movement Disorders Outreach Program
50. September, 2008. *"Deep Brain Stimulation Surgery for Parkinson Disease"* – Elder Services of the Merrimack Valley. Massachusetts General Hospital, Neurology, Movement Disorders Outreach Program.
51. \*October, 2008. MIND Seminar, *"Alpha-Synuclein Phosphorylation and Toxicity in a Rat Model of Parkinson's Disease."* Dept Neurology, MassGeneral Institute for Neurodegenerative Disease, MGH
52. \*Sept, 2006. *"Genes, Genes, Parkinson Disease"* – Parkinson Disease Support Group, Martha's Vineyard, MA. Massachusetts General Hospital, Neurology, Movement Disorders Outreach Program

### **Press Coverage of Work**

Do You Have Parkinson's Disease or a Parkinsonism? How to know the difference – and get help.

<http://health.usnews.com/health-news/patient-advice/articles/2014/10/27/do-you-have-parkinsons-disease-or-a-parkinsonism>.

Beacon Students Impress at LifeStream Conference. [http://www.beaconcollege.edu/wp-content/uploads/2012/10/Vol2\\_Issue4.pdf](http://www.beaconcollege.edu/wp-content/uploads/2012/10/Vol2_Issue4.pdf)

## Abstracts/Poster Presentations

### National/International Meetings:

1. Parmar MS, Koren SA, Bae G, Filoramo MR, Abisambra JF, **McFarland NR**. Rab35 in tauopathy disorders. Society for Neuroscience, 2019, Chicago, IL.
2. Parmar MS, Bae G, Ma N, Jadvani S, **McFarland NR**. Rab GTPase Expression Changes in  $\alpha$ Synucleinopathy and Tauopathy Disorders. Neurology (AAN Meeting 2019).
3. Boxer A, Qureshi I, Grundman M, Tirucherai GS, Bechtold C, Ahlijanian M, Kolaitis G, Golbe LI, Honig LS, Isaacson S, Grossman M, **McFarland NR**, Litvan I, Geldmacher DS, Xie T, Bordelon Y, Tuite P, O'Suilleabhain P, Zesiewicz T. Multiple Ascending Dose Study of the Tau-Directed Monoclonal Antibody B1B092 in Patients with Progressive Supranuclear Palsy. Neurology 90 (15 Supplement), S27.004
4. **McFarland NR**, Parmar M, Park HJ, Ryu D, Powell L, Roels R, Anagnostis S. Rab8a protects against alpha-synuclein toxicity in a rat model of Parkinsonism. Neurology 90 (15 Supplement), P3.049. 2018 AAN Meeting.
5. Barmore R, Hess C, **McFarland NR**, Okun MS. A Case of Tardive Dyskinesia and Parkinsonism Following Use of Phentermine for Weight Loss. Neurology 90 (15 Supplement), P4.082. 2018 AAN Meeting.
6. Ofori R, Krismer F, Burciu RG, Pasternak O, McCracken JL, Lewis MM, Du G, **McFarland NR**, Okun MS, Poewe W, Mueller C, Gizewski ER, Schocke M, Kremser C, Li H, Huang X, Seppi K, Vaillancourt DE. Free water improves detection of changes in the substantia nigra in parkinsonism: A multisite study. Movement Disorders 32 (10), 1457-1464. (Vancouver) 2017.
7. Parmar MS, Park HJ, Ryu D, McFarland KN, Joseph J, Foels R, Powell L, Anagnostis S, **McFarland NR**. Testing the effect of retention in endoplasmic reticulum (RER1) on synucleinopathy in a mouse model of Parkinsonism. Society for Neuroscience, 2017: 48.13.
8. **McFarland NR**, Parmar MS, Park HJ, Ryu D, Powell L, Roels R, Anagnostis S, Herring M. Rab8a expression mitigates alpha-synuclein toxicity in a rat model of Parkinsonism. Society for Neuroscience, 2017: 44.22.
9. Qureshi I, Grundman M, Tirucherai G, Bechtold C, Ahlijanian M, Kolaitis G, Golbe L, Honig L, Isaacson S, Grossman M, **McFarland NR**, Litvan I, Geldmacher D, Xie T, Bordelon Y, Tuite P, O'Suilleabhain P, Zesiewicz T, Boxer A. Ascending Dose Study of the Tau-Directed Monoclonal Antibody BMS-986168 in Patients with Progressive Supranuclear Palsy. *Movement Disorders*, (Vancouver) 2017.
10. Patterson A, de Almeida LB, **McFarland NR**, Okun MS, Malaty I. Understanding of palliative care among Parkinson disease patients at the University of Florida. Neurology (AAN Meeting 2017), S22.006.
11. Boxer A, Holzman, D, Ryman D, Roberson R, Litvan I, Bateman R, Bordelon Y, et al. Results of a phase 1 study of ABBV-8E12 in patients with progressive supranuclear palsy and phase 2 study design in Alzheimer's disease and PSP. Neurology (AAN Meeting 2017), ES1.006.
12. **McFarland NR**, Park H-J, Ryu D, Powell L, Foels R, Parmur M, Sahara T. Rab8A effects on alpha-synuclein toxicity in a rat model of Parkinsonism. Society for Neuroscience, 2016:414.05/S11.
13. Burciu RG, Shukla P, Ofori E, Chung J, Hess C, **McFarland NR**, Wagle-Shukla A, Okun MS, Vaillancourt D. MR imaging following a single low dose of trihexyphenidyl in patients with cervical dystonia. Society for Neuroscience, 2016:137.18.
14. West T, Braunstein JB, Fogelman I, Boxer AL, Hu H, Verghese PB, John E, Holzman DM, Bateman RJ, Boeve B, Bordelon YM, Brosch J, Claasen D, Connor Jm Driver-Dunckley E, Honig LS, Litvan I, **McFarland NR**, et al. Safety, tolerability and pharmacokinetics of ABBV-8E12, a humanized anti-tau monoclonal antibody, in a phase 1, single ascending dose, placebo-controlled study in subjects with progressive supranuclear palsy. The Journal of Prevention of Alzheimer's Disease, 2016; 3(suppl 1), 285.

15. Burciu RG, Ofori E, Shukla P, Chung JW, DeSimone J, Hess CW, **McFarland NR**, Wagle Shukla A, Okun MS, Vaillancourt DE. Motor-related brain changes associated with acute administration of trihexyphenidyl in patients with cervical dystonia. *Movement Disorders*, (Berlin) 2016.
16. Shahgholi L, De Jesus S, Paterson A, Deeb W, **McFarland NR**, Hegland K. Subjective report does not predict objective swallow impairment in atypical Parkinsonian syndromes. *Movement Disorders*, (Berlin) 2016.
17. Almeida L, Ahmed B, Walz R, De Jesus S, Patterson A, Martinez-Ramirez D, Vaillancourt D, Bowers D, Ward H, Okun MS, Armstrong M, **McFarland NR**. Greater incidence of depressive symptoms in atypical parkinsonism: importance of early screening. *Movement Disorders*, (Berlin) 2016.
18. Armstrong M, Monari E, Almeida L, **McFarland NR**, Malaty I, Okun M. Initial Patterns and Correlates of Quality of Life in Dementia with Lewy Bodies. *Neurology* 88(18 Supplement):234.
19. Almeida L, Ahmed B, Walz R, De Jesus S, Patterson A, Martinez-Ramirez D, Vaillancourt D, Bowers D, Ward H, Okun MS, Armstrong M, **McFarland NR**. Greater incidence of depressive symptoms in Atypical Parkinsonism: importance of early screening. *Neurology* 86(16 Supplement):S19.005.
20. Burciu RG, Chung JW, Shukla P, Ofori E, **McFarland NR**, Okun MS, Vaillancourt DE. Longitudinal changes in basal ganglia and cortex using task-based fMRI in early Parkinson's disease. *Soc Neurosci Abst*, 2015.
21. Kurani AS, Burciu RG, Seidler R, Okun MS, **McFarland NR**, Vaillancourt DE. Striatal - motor cortex functional connectivity in moderate PD and PSP. *Soc Neurosci Abst*, 2015.
22. Burciu RG, Ofori E, Shukla P, Pasternak O, Chung JW, **McFarland NR**, Okun MS, Vaillancourt DE. In vivo nigrostriatal changes associated with MAO-B inhibitor therapy in Parkinson's disease. *Soc Neurosci Abst*, 2015.
23. Almeida L, Okun MS, Bowers D, Ward H, Fayad S, Jacobson C, **McFarland NR**. Prevalence of depression in atypical Parkinsonian disorders versus Parkinson's disease. *Movement Disorders* (San Diego, CA), 2015.
24. Almeida L, Okun MS, Bowers D, Ward H, Fayad S, Jacobson C, **McFarland NR**. Prevalence of anxiety in atypical Parkinsonian patients. *Movement Disorders* (San Diego, CA), 2015.
25. Almeida L, Okun MS, Vaillancourt DE, **McFarland NR**. Prevalence of depression and anxiety in atypical Parkinsonian syndromes. 67<sup>th</sup> American Academy of Neurology, Washington, DC, 2015.
26. **McFarland NR**, Sahara T, Herring M, Park H-J, Ryu D, Coultas R. Rab protein effects on alpha-synuclein homeostasis and oligomer formation. *Soc Neurosci Abst*, 2014.
27. Park H-J, Ryu D, Ricchiuti L, Giasson B, **McFarland NR**. Retention in endoplasmic reticulum (Rer1) promotes alpha-synuclein degradation. *Soc Neurosci Abst*, 2014.
28. Ceballos-Diaz C, Rosario AM, Chakrabarty P, Sacino A, Cruz PE, Siemienski Z, Lara N, Moran C, Ravelo N, Park H-J, Golde TE, and **McFarland NR**. ALS-linked ubiquilin-2 mutants cause inclusion pathology in a somatic brain transgenic mouse model. *Annals of Neurology*. 76:S64. 2014.
29. Planetta PJ, Kurani AS, Shukla P, Prodoehl J, Corcos DM, Comella CL, **McFarland NR**, Okun MS, Vaillancourt DE. Functional and macrostructural MRI in Parkinson's disease and multiple system atrophy. *Movement Disorders*, (Stockholm) 2014.
30. Burciu RG, Ofori E, Snyder AD, Planetta PJ, Okun MS, **McFarland NR**, Vaillancourt DE. Functional and macrostructural anatomy of progressive supranuclear palsy and Parkinson disease. *Movement Disorders*, (Stockholm) 2014.
31. Falchook A, Salazar L, Neal D, Kesayan T, Williamson J, Malaty I, **McFarland NR**, Okun MS, Rodriguez R, Wagle-Shukla A, Heilman K. Spatial neglect and Parkinson disease. *Neurology* 82 (10 Supplement), P7.294, 2014. (AAN abstract)
32. Estupinan D, **McFarland NR**. Subacute Sclerosing Panencephalitis: Case study and literature review. *Neurology* 82 (10 Supplement) P4.039, 2014. (AAN abstract)

33. **McFarland NR**, Park H-J, Lauren Ricchiuti. Rer1: a novel regulator of alpha-synuclein. *Neurology* 82 (10 Supplement) S17.003, 2014. (AAN abstract)
34. **McFarland NR**, Park H-J, Lauren Ricchiuti. Rer1: a novel regulator of alpha-synuclein. *Neurology* 82 (10 Supplement) 11I-2.001, 2014. (AAN abstract)
35. Stegemoller EL, Tillman MD, Hass CJ, **McFarland NR**, Subramony SH, Okun MS. Repetitive finger movement performance differs between movement disorders. *Soc Neurosci Abst*, 2013.
36. Amano S, Skinner J, Lee H, Stegemoller E, Hack N, Akbar U, **McFarland NR**, Hass CJ. Altered motor strategy during gait initiation in persons with progressive supranuclear palsy. *Soc Neurosci Abst*, 2013.
37. Classen S, Crizzle AM, Lanford D, Malaty I, Rodriguez RL, **McFarland NR**, Okun MS. Self or proxy risk impression indexes and clinical tests to predict driving performance in Parkinson's disease. *Movement Disorders*, (Sydney) 2013.
38. Hack N, Romrell J, Hardwick A, **McFarland NR**, Wagle-Shukla A, Rodriguez RL, Okun MS. Outcomes from a large clozapine Parkinson's registry. *Movement Disorders*, (Sydney) 2013; 28: S220.
39. Crizzle AM, Classen S, Wang Y, Lanford D, Malaty I, Rodriguez RL, **McFarland NR**, Okun MS. Indicators of disease severity as predictors of driving performance in Parkinson's disease. *Movement Disorders*, (Sydney) 2013.
40. Crizzle AM, Classen S, Lanford D, Malaty I, Rodriguez RL, **McFarland NR**, Okun MS. Driving performance and behaviors: A comparison of gender differences in drivers with Parkinson's disease. *Movement Disorders*, (Sydney) 2013.
41. Kalia LV, Dimant H, Kalia SK, Kibuuka LN, Ebrahimi-Fakhari D, **McFarland NR**, McLean PJ. A rodent model for direct visualization of -synuclein oligomers in the nigrostriatal system. *Movement Disorders*, (Sydney) 2013.
42. Hack N, Romrell J, Hardwick A, **McFarland NR**, Wagle-Shukla A, Rodriguez JR, Okun MS. Outcomes from a large clozapine Parkinsons registry. *AAN Conference*, 2013.
43. **McFarland NR**, Sahara T, Kibuuka L. Rab protein expression mediates alpha-synuclein oligomer formation and cytotoxicity. *Soc Neurosci Abst*, 2012.
44. Crizzle AM, Classen S, Wang Y, Lanford D, Malaty II, Rodriguez RL, **McFarland NR**, Okun MS. Predictors of on-road pass/fail outcomes in Parkinson's disease. *GSA Abstract*, 2012
45. Crizzle AM, Classen S, Lanford D, Malaty II, Rodriguez RL, **McFarland NR**, Okun MS. Speed regulation errors in drivers with Parkinson's disease. *GSA Abstract*, 2012
46. Classen S, Crizzle AM, Lanford D, Malaty II, Rodriguez RL, **McFarland NR**, Okun MS. Self or proxy risk impression indexes and clinical tests to predict driving performance in Parkinson's disease. *Movement Disorders*, (Dublin) 2012.
47. Classen S, Crizzle AM, Lanford D, Malaty II, Rodriguez RL, **McFarland NR**, Okun MS. Can the cardinal symptoms of Parkinson's disease predict on road pass/fail outcomes? *Movement Disorders*, (Dublin) 2012.
48. Crizzle AM, Classen S, Lanford D, Malaty II, Rodriguez RL, **McFarland NR**, Okun MS. Driving performance and behaviors: a comparison of gender differences in drivers with Parkinson's disease. *Movement Disorders*, (Dublin) 2012.
49. Crizzle AM, Classen S, Wang Y, Lanford D, Malaty II, Rodriguez RL, **McFarland NR**, Okun MS. Indicators of disease severity as predictors of driving performance in Parkinson's disease. *Movement Disorders*, (Dublin) 2012.
50. Dimant H, Kalia LV, Kalia SK, Kibuuka L, Ebrahimi-Fakhari D, **McFarland NR**, McLean PJ. Visualization of alpha-Synuclein Oligomers in the Rat Nigrostriatal System Using Protein Complementation. *Soc Neurosci Abst*, 2011.

51. Kalia LV, Dimant H, Kalia SK, Kibuuka LN, Ebrahimi-Fakhari D, **McFarland NR**, McLean PJ. A rodent model for direct visualization of alpha-synuclein in oligomers in the substantia nigra. *Movement Disorders Abst*, 2011.
52. **McFarland NR**, Kibuuka L, Fan Z, Kazantsev A, Schwarzschild MA, Hyman BT, McLean PJ. Effect of Novel Sirtuin-2 Inhibitors on Alpha-Synuclein Induced Nigrostriatal Toxicity in the Rat. *Soc Neurosci Abst*, 2010.
53. **McFarland NR**, Burdett T, Desjardin C, Frosch M, Schwarzschild MA. Postmortem Brain Urate Levels are Reduced in Parkinson Disease. *Movement Disorders* 25 (Suppl. 2): Late Breaking Abst. 2010.
54. Hart B, Maher NE, Chang S, **McFarland NR**, et al. The Harvard NeuroDiscovery Center Biomarker Study: accelerating biomarkers, CR Scherzer and The Harvard NeuroDiscovery Center Biomarker Study Group\*, *Parkinsonism & Related Disorders*, 15, Supplement 2, S95, 2009
55. **McFarland NR**, Putcha P, Danzer K, Danzer M, Scott A, Silinski M, Mabbett S, Hicks CD, Veal JM, Steed PM, Hyman BT, and McLean PJ. Novel Small Molecule Hsp90 Inhibitors Reduce Toxicity in Alpha-Synuclein Models. *11<sup>th</sup> Annual Meeting of Udall Centers of Excellence for Parkinson's Disease Research*. 2009.
56. **McFarland NR**, Sudarsky LR, Corwin L, Friedman JH. Olfactory impairment in Machado-Joseph Disease (SCA3). *Movement Disorders* 23(Suppl. 1): S149-150, 2008.
57. **McFarland NR**, Fan Z, Lee J-S, Sena-Esteves M, Stern EA, McLean PJ, and Hyman BT. Comparison of adeno-associated viral serotypes and lentivirus for gene delivery to the nigrostriatal system. *Soc Neurosci Abst*, 2007.
58. **McFarland NR**, Ghitani N and Zeitlin SO. Characterization of mutant and wild-type huntingtin interactions in a CAG140 knockin HD mouse model. *Soc Neurosci Abst*, 2006.
59. **McFarland NR**, Ghitani N and Zeitlin SO. Characterization of interactions between mutant and epitope-tagged wild-type Huntingtin in the CAG140 knockin HD mouse model. *HDF Meeting Abst, HD: CAGn*, 2006.
60. Kim K, **McFarland NR** and Haber SN. Transposition of frontal cortical functional hierarchy onto the striatum. *Soc Neurosci Abst*, 2001.
61. **McFarland NR**, Kim K and Haber SN. VA/VL thalamocortical relays: reciprocal and non-reciprocal projections. *Soc Neurosci Abst*, 2001.
62. **McFarland NR** and Haber SN. New Ideas Regarding the Thalamus in Basal Ganglia Function. National MSTP (MD/PhD Program) Meeting, Aspen, CO, 2000.
63. **McFarland NR**, Patnik M, Huxlin K, and Haber SN. Differential distribution of GAP-43 message in infra- and supragranular layers of the orbital and medial prefrontal cortex. *Soc Neurosci Abst* 30(2):644.14, 2000.
64. **McFarland NR** and Haber SN. Functional striatal territories: examination of cortico-striatal afferents using retrograde techniques. *Soc Neurosci Abst*, 1999.
65. **McFarland NR** and Haber SN. The ventral thalamostriatal projection: examination of afferents from the basal ganglia and cortex. *International Basal Ganglia Society Abst*, 1998.
66. **McFarland NR** and Haber SN. An examination of the relationship between pallidal and nigral afferents and the VA/VL thalamostriatal projection. *Soc Neurosci Abst* 24(1):662, 1998.
67. **McFarland NR** and Haber SN. Organization of striatal and cortical projections from the ventral thalamic 'motor' nuclei in the primate. *Soc Neurosci Abst*, 1997
68. **McFarland NR** and Haber SN. Organization of thalamic projections to the sensorimotor striatum in primates: a comparison to ventral striatum. *Soc Neurosci Abst*, 1995.

Local/Regional Meetings:

1. Parmar MS, Park HJ, Ryu D, McFarland KN, Joseph J, Foels R, Powell L, Anagnostis S, **McFarland NR**. Testing the effect of retention in endoplasmic reticulum (RER1) on synucleinopathy in a mouse model of Parkinsonism. *UF COM Celebration of Research*, 2018.
2. **McFarland NR**, Parmar MS, Park HJ, Ryu D, Powell L, Roels R, Anagnostis S, Herring M. Rab8a expression mitigates alpha-synuclein toxicity in a rat model of Parkinsonism. *UF COM Celebration of Research*, 2018.
3. **McFarland NR**, Park H-J, Ryu D, Powell L, Foels R, Parmur M, Sahara T. Rab8A effects on alpha-synuclein toxicity in a rat model of Parkinsonism. *UF COM Celebration of Research*, 2017.
4. Almeida L, Ahmed B, Walz R, De Jesus S, Patterson A, Martinez-Ramirez D, Vaillancourt D, Bowers D, Ward H, Okun MS, Armstrong M, **McFarland NR**. Incidence of depressive symptoms in atypical Parkinsonism is greater than Parkinson's disease. *UF COM Celebration of Research*, 2016.
5. **McFarland NR**, Hyo-Jin P, Ryu D, Powell L, Foels R, Parmur M, Sahara T. Effects of viral RAB8A expression on alpha-synuclein toxicity in rodent models of Parkinsonism. *UF COM Celebration of Research*, 2016.
6. Shahgholi L, De Jesus S, Paterson A, Deeb W, **McFarland NR**, Hegland K. Subjective report does not predict objective swallow impairment in atypical Parkinsonian syndromes. *UF COM Celebration of Research*, 2016.
7. Almeida L, Okun MS, **McFarland NR**. Prevalence of depression and anxiety in atypical Parkinsonism patients. *UF COM Celebration of Research*, 2015.
8. Park H-J, Ryu D, Ricchiutti L, Giasson B, **McFarland NR**. Retention in endoplasmic reticulum (Rer1) promotes alpha-synuclein degradation by ubiquitin proteasome system (update). *UF COM Celebration of Research*, 2015.
9. Ceballos C, Rosaria AM, Chakrabarty P, Sacino A, Cruz PE, Siemienski Z, Lara N, Moran C, Ravelo N, Park H-J, Golde TE, **McFarland NR**. ALS-linked ubiquilin-2 mutants cause inclusion pathology in a somatic brain transgenic model. *UF COM Celebration of Research*, 2014.
10. Park H-J, Ryu D, Ricchiutti L, Giasson B, **McFarland NR**. Retention in endoplasmic reticulum (RER1) promotes alpha-synuclein degradation by ubiquitin proteasome system. *UF COM Celebration of Research*, 2014.
11. **McFarland NR**, Park H-J, Herring M, Sahara T, Coultas R, Ryu D. Alpha-synuclein accumulation and pathology are attenuated by Rab protein expression in models of Parkinson disease. *UF COM Celebration of Research*, 2014.
12. Herring A, Sahara T, Kibuuka L, **McFarland NR**. Rab protein expression alters alpha-synuclein oligomer formation and cytotoxicity. *UF COM Celebration of Research*, 2013.
13. Coultas R, Herring A, Sahara T, **McFarland NR**. Pesticide Effects on Alpha-Synuclein Oligomerization and Aggregation in a Protein Complementation Model. *UF COM Celebration of Research*, 2013.
14. Goetz B, Ryan Z, **McFarland NR**. Comparison of brain iron accumulation in neurodegenerative disease. *UF College of Medicine, Celebration of Research Abstract*, 2012.
15. **McFarland NR**, Kibuuka L, Fan Z, Kazantsev A, Schwarzschild MA, Hyman BT, McLean PJ. Effect of Novel Sirtuin-2 Inhibitors on Alpha-Synuclein Induced Nigrostriatal Toxicity in the Rat. *UF Celebration of Research Abst*, 2011.

### Other Creative Products

Patient Brochures (UF Center for Movement Disorders & Neurorestoration):

1. Progressive Supranuclear Palsy
2. Multiple System Atrophy
3. Lewy Body Dementia
4. Corticobasal Degeneration

**Patents and Technology Transfer**  
n/a



## Narrative

My work and primary interests focus on the basal ganglia, cortical function, and pathophysiology as it relates to movement disorders, Parkinson disease, and dementia. Through basic and translational research I endeavor to further understand the mechanisms of Parkinson's disease and related neurodegenerative disorders and to ultimately discover novel therapies. My early scientific training, clinical education, and role as a Parkinsons and Movement Disorders neurologist at the University of Florida echo this commitment. I completed my graduate training in the MD/PhD program at the University of Rochester School of Medicine & Dentistry and received a merit award for outstanding graduate research in thalamic and basal ganglia anatomy. On completion of neurology residency at the University of Virginia, I came to the Massachusetts General Hospital to pursue fellowship training in Movement Disorders and continued research in movement disorders and Parkinson disease in the lab of Dr. Bradley Hyman at the MassGeneral Institute for Neurodegenerative Disease (MIND). My research focused on optimizing a viral-vector based rat model of Parkinson disease to study mechanisms of  $\alpha$ -synuclein toxicity. Studies utilized both cellular and transgenic rat models to study genes and molecules that affect  $\alpha$ -synuclein toxicity and which may lead to the discovery of novel therapies for Parkinson disease. As a Udall fellow I was supported by an American Parkinson Disease Association Postdoctoral Fellowship, and then was named the first Robert Koch Parkinson Disease research fellow. In 2010 I received a K08-award from NIH-NINDS and moved to the University of Florida as Assistant Professor of Neurology to start my own research group in the newly formed Center for Translational Research in Neurodegenerative Disease (CTRND), headed by Dr. Todd Golde.

My work has focused on *in vivo* target validation of novel compounds (i.e., Hsp90 inhibitors) and genes that may protect against  $\alpha$ -synuclein-mediated toxicity in Parkinson disease models. I have continued to collaborate with several researchers at MGH, including Drs. Pamela McLean (now at Mayo Jacksonville) and Michael Schwarzschild. The result of these collaborations have led to publications and grant awards, including a Michael J. Fox Rapid Response Initiative Award to study novel SIRT-2 inhibitors and a Harvard NeuroDiscovery Center (ADRC) pilot grant to examine urate metabolites in brain from Parkinson disease and other neurodegenerative disease patients. Current work in my lab examines the role of specific Rab GTPases in mediating  $\alpha$ -synuclein pathology, including "toxic" oligomer and aggregate formation, and intracellular stress due to trafficking deficits. Abnormal accumulation, deposition, and aggregation of proteins such as  $\alpha$ -synuclein are thought to play a key role in the pathogenesis of Parkinson disease and related disorders. Our data demonstrate that Rab1 and the human Rab8A, found in neurons, mediate  $\alpha$ -synuclein levels in cell models. We have recently shown also that the retention in endoplasmic reticulum 1 (RER1) protein plays a role in reducing  $\alpha$ -synuclein via the ubiquitin-proteasome system (funded by the MJFF). Additional studies examine ubiquilin-2, a ubiquitin-like protein implicated in amyotrophic lateral sclerosis, and its potential role in protein degradation pathways and neurodegenerative disease. We have developed a novel mouse model utilizing an AAV-mediated somatic brain transgenic approach and demonstrate that expression of UBQLN2 mutants induce inclusion pathology and behavioral deficits in mice.

In addition to my translational research, I am clinically active in the Neurology Department, Center for Movement Disorders & Neurorestoration and in 2015 was appointed Chief of the Movement Disorders Division. The Division includes now 10 faculty and is the largest in Neurology. My clinic specializes in Progressive Supranuclear Palsy (PSP) and other atypical parkinsonian syndromes. I have developed an expanding interdisciplinary clinic to help care for and manage these patients, as well as to foster research in atypical parkinsonism disorders. Since 2013 I have held the Wright/Falls/Simmons Professorship in PSP/Atypical Parkinsonism and direct a clinical-research program. Two research initiatives include collaborations with Dr. Chris Hass and Dr. David Vaillancourt (both in the Department

of Applied Physiology and Kinesiology) to study gait and imaging biomarkers, respectively, in patients suffering from atypical parkinsonism. I have also organized a very successful annual PSP/Lewy body disease Think Tank-Symposium, attracting national and internationally recognized experts. In 2015 I became the Director of the UF Huntington disease clinic, which is now recognized as a Level 2 HDSA Center of Excellence, one of 39 nationally. I also participate in ongoing clinical trials (co-investigator) within the movement disorders group. My teaching commitments include precepting movement disorders fellows and residents in the neurology clinic and on the wards, and also teaching medical students during their Neurology clerkship. I have also developed a monthly, didactic Movement Disorders Video Conference and Journal Club for fellows and residents.

Future plans include continuing to expand my laboratory research to further elucidate the role of Rab and other transport proteins in regulating  $\alpha$ -synuclein levels, aggregate formation, and associated synucleinopathy. We are continuing to investigate Rab8A effects on  $\alpha$ -synuclein in our animal models using AAV techniques, both in adult rat nigrostriatal system and in a transgenic mouse model of parkinsonism to determine if Rab expression can block dopaminergic toxicity and synucleinopathy (induced by seeding from preformed  $\alpha$ -synuclein fibrils [see Sacino et, 2014]). We also plan further experiments to determine the mechanism(s) of RER1 effects on  $\alpha$ -synuclein in animal models and human tissues. Going forward, my lab will focus on other candidate RabGTPases, such as Rab5, 7, 11, 25, and their role in proteinopathy, Parkinsonism and related disorders. An additional focus also remains UBQLN2 and its role in neurodegeneration (particularly ALS). Ongoing studies involve further characterizing the effects of identified ALS-associated mutants on abnormal protein accumulation and proteinopathy both in cells and animal models using our AAV expression model.

In addition to these studies, I continue to expand my clinical research on PSP and atypical parkinsonisms. I actively collaborate with Dr. David Vaillancourt and others here to identify brain imaging biomarkers using fMRI and DTI. Ongoing studies include assessing mood disorders and cognitive assessments in these patients and comparison to Parkinson disease. Our observation and hypothesis is that mood disorders—depression, anxiety, apathy—are worse in atypical parkinsonisms, more prevalent, and less responsive to treatment. We hope to characterize mood in this population, correlate findings with cognitive dysfunction and changes in functional imaging, as well as circuitry, and to identify more effective treatments. My research efforts include also participation in clinical trials, with particular focus on potential tau-targeted in therapies for PSP. I am also keenly interested in Parkinson-related research including markers for (Lewy body) dementia and assessing post-surgical outcomes in Parkinson patients.