

Courtney A. Marshall, PhD

Kresa Family Assistant Professor of Neuroscience
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ACADEMIC POSITIONS

Wellesley College, Kresa Family Assistant Professor of Neuroscience 2024 – Present
Assistant Professor of Neuroscience 2023 – 2024
Department of Neuroscience

- The Marshall Lab investigates how pathological proteins aggregate, spread, and impair synaptic function in Alzheimer's disease.
- Courses: Introduction to Neuroscience with Practicum; Intermediate Neuroscience with Lab; Capstone Seminar in Neuroscience; Current Trends in Neurodegenerative Disease Research with Lab

Haverford College, Visiting Assistant Professor 2021 – 2023
Department of Biology

- Courses: Senior Research Tutorial in Molecular Neurobiology; Advanced Lab in Biology; Lab in Molecules, Cells, & Organisms; Molecular Neurobiology; Advanced Topics in Neurobiology.

RESEARCH EXPERIENCE AND TRAINING

Center for Neurodegenerative Disease Research, University of Pennsylvania Perelman School of Medicine, Ruth L. Kirschstein NRSA Postdoctoral Fellow 2018 – 2023
Principal Investigator: Dr. Virginia M.-Y. Lee

- Utilized immunohistochemical techniques with human brain tissue from Alzheimer's, Corticobasal degeneration, Progressive supranuclear palsy, and Pick's disease to establish distinct aberrant phenotypic patterns of CK2 and NR2B in patients.
- Executed lab-established model of seeded tau aggregation from human derived paired helical filaments to study pharmacological interventions of tau propagation *in vitro*.

Inclusion, Diversity, Equity, and Learner (IDEAL) Research, Postdoctoral Intern 2021 – 2022

- Conducted weekly workshops in scientific writing, public speaking, and career advising for underrepresented minority scholars in the UPenn Post-Baccalaureate Research Education Program (PennPREP).

Trainee Advocacy Alliance (TAA), Member 2021 – 2022

- Trained in restorative justice practices, racial literacy, and inclusive mentoring.
- Provided trainee support for diverse members of the UPenn Medicine research community.

Drexel University Graduate School of Biomedical Sciences & Professional Studies 2013 – 2018
Principal Investigator: Dr. Sandhya Kortagere
Dissertation Title: *The dopamine D3 receptor in mild cognitive impairment in Parkinson's disease*

National Institutes of Health, NIA, Laboratory of Cardiovascular Sciences, Postbaccalaureate Intramural Research Training Award Fellow 2011 – 2013
Principal Investigator: Dr. Edward Lakatta
Hypertension Unit: Dr. Alexei Bagrov and Dr. Olga Fedorova

Columbia University, Howard Hughes Medical Institute EXROP Fellow Summer 2009, 2010
Principal Investigator and Nobel Laureate, Dr. Eric Kandel

GRANTS, AWARDS, and LEADERSHIP ACTIVITIES

Mentoring Institute for Neuroscience Diversity Scholars (MINDS) Program, Fellow: Selective mentoring program supporting the professional success of underrepresented minorities in junior faculty positions.

Davidson College, Board of Visitors, Member: Advise the chair of the Board of Trustees, the President of the college, and other college officials, in addition to serving as an ambassador for Davidson.

BrightFocus Foundation, Alzheimer's Disease Research Postdoctoral Fellowship Award: \$200,000 award given to pioneering scientists to fund innovative research projects addressing the understanding, prevention, and treatment of Alzheimer's disease.

University of Pennsylvania, Mentoring Circles, Postdoctoral mentor: Facilitated discussions with underrepresented Neuroscience Graduate Group students on shared racial experiences in science and navigating interpersonal lab dynamics to empower minority scientists in training.

University of Pennsylvania, Mind CORE Step Ahead Mentorship Program (STAMP), Postdoctoral mentor: Provided a pre-medical student advice on career paths, CV/resume writing, and networking.

NIH Clinical Loan Repayment Award, NINDS: \$50,000 student loan repayment award.

Carl Storm Underrepresented Minority Fellowship, Gordon Research Conferences, Excitatory Synapses & Brain Function: Travel award.

Society for Neuroscience, Neuroscience Scholars Program, Associate: Two-year program providing scientific and professional development opportunities for underrepresented neuroscience trainees.

Society for Neuroscience, Trainee Professional Development Award: Travel award.

Davidson College, Class of 2011 Alumni Ambassador

Davidson College, Presidential Scholar

Davidson College, HHMI Strategies for Success Scholar: Guided weekly meetings to help minorities develop effective study habits and skill sets for science courses and careers.

President, Changing Minds: Davidson College mental health advocacy club.

INVITED TALKS, REVIEWING, and PROFESSIONAL SOCIETIES

Delta Sigma Theta Sorority, Research and Educational Foundation, Invited Speaker, "Researching Alzheimer's Disease" June 2025

Amherst College, Biology Department, Invited Speaker, "Targeting NMDA Receptors in the regulation of Alzheimer's disease Pathology" March 2025

Cleveland Alzheimer's Disease Research Center, Invited Speaker, "Black History Month Webinar Series: Genetics & Alzheimer's Disease" February 2025

Neuroscience Scholars Program, Society for Neuroscience, Invited Speaker, “Targeting NMDA Receptors in the regulation of Alzheimer’s disease Pathology” November 2024

Trainee Professional Development Award Selection Committee, Society for Neuroscience, 2025-2028

Arnold & Mabel Beckman Scholars Program, Advisory Panel, 2025 & 2026

School of the Holy Child, Class of 2024 Commencement Speaker

The Washington Post, “What cognitive tests tell us about Biden and Trump”, 2024 Interview

Brain Research Editorial Board, Fellow

Society for Neuroscience, Member

Faculty for Undergraduate Neuroscience, Member

International Society to Advance Alzheimer’s Research and Treatment, Member

EDUCATION

PhD, Neuroscience, 2018

Drexel University, Graduate School of Biomedical Sciences and Professional Studies
Philadelphia, PA

Bachelor of Science, 2011

Davidson College
Davidson, NC

School of the Holy Child, 2007

Rye, NY

PUBLICATIONS

Marshall CA, McBride JD, Changolkar L, Riddle DM, Trojanowski JQ, Lee VMY (2022). Inhibition of CK2 mitigates Alzheimer’s tau pathology by preventing NR2B synaptic mislocalization. *Acta Neuropathologica Communications* 10:30.

Schneider JS, **Marshall CA**, Keibel L, Snyder NW, Hill M, Brotchie J, Johnston T, Waterhouse B, Kortagere S (2020). Novel D3R agonist with norepinephrine transporter inhibition promotes cognitive enhancement in rodent and non-human primate models of Parkinson’s Disease. *Experimental Neurology* 335:113514.

Marshall CA, Brodnik ZD, Mortensen OV, Reith MEA, Shumsky JS, Waterhouse BD, España RA, Kortagere S (2019). Selective activation of dopamine D3 receptors and norepinephrine transporter blockade enhance sustained attention. *Neuropharmacology* 148:178-188.

Fedorova OV, Fadeev AV, Grigorova YU, **Marshall CA**, Zernetkina V, Kolodkin NI, Agalakova NI, Konradi AO, Lakatta EG, Bagrov Y (2019). Cardiotonic steroids induce vascular fibrosis via pressure-independent mechanism in NaCl-loaded diabetic rats. *J Cardiovasc. Pharmacol.* 74(5):436-442.

Zhang Y, Wei W, Shilova V, Ptetrashevskaya NN, Zernetkina VI, Grigorova YN, **Marshall CA**, Fenner RC, Lehrmann E, Wood WH, Becker KG, Lakatta EG, Bagrov AY, Fedorova OV (2019). Monoclonal antibody to marinobufagenin downregulates TGF β profibrotic signaling in left ventricle and kidney and reduces tissue remodeling in salt sensitive hypertension. *JAMA* 8(20): e012138.

Marshall CA, King KM, Kortagere S (2019). Limitations of the rat medial forebrain lesion model to study prefrontal cortex mediated cognitive tasks in Parkinson's disease. *Brain Res.* 1701:105-113.

Wachi T, Cornell B, **Marshall C**, Zhukarev V, Baas P, Toyo-Oka K (2016). Ablation of the 14-3-3gamma protein results in neuronal migration delay and morphological defects in the developing cerebral cortex. *Dev Neurobiol.* 76(6):600-14.

Fedorova OV, Zernetkina VI, Shilova VY, Grigorova YN, Juhasz O, Wei W, **Marshall CA**, Lakatta EG, Bagrov AY (2015). Synthesis of an endogenous steroidal Na pump inhibitor marinobufagenin, implicated in human cardiovascular diseases, is initiated by CYP27A1 via bile acid pathway. *Circ Cardiovasc Genet.* 8(5):736-45.

Fedorova OV, Emelianov VI, Bagrov KA, Grigorova YN, Wei W, Juhasz O, Frolova EV, **Marshall CA**, Lakatta EG, Konradi AO, Bagrov AY (2015). Marinobufagenin-induced vascular fibrosis is a likely target for mineralocorticoid antagonists. *J Hypertens.* 33(8):1602-10.