

April A Dukes, Ph.D.

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CURRICULUM VITAE

EMPLOYMENT

- | | | |
|--|--------------------------|----------------|
| 2017 to current | University of Pittsburgh | Pittsburgh, PA |
| Faculty and Future Faculty Program Director | | |
| <ul style="list-style-type: none">• Directed online and in-person professional development programming for Pitt-CIRTL.• Collaborated educational research projects between engineering faculty and the EERC (Engineering Education Research Center).• Mentored Pitt-CIRTL (Center for the Integration of Research, Teaching, and Learning) Teaching as Research projects.• Conducted New TA and New Faculty training sessions for the EERC.• Planned and coordinated EERC faculty development workshops. | | |
| 2011 to 2017 | University of Pittsburgh | Pittsburgh, PA |
| Research Associate, Department of Neurology | | |
| <ul style="list-style-type: none">• Generated novel transgenic zebrafish lines.• Developed confocal imaging and analysis techniques to quantify dopaminergic neuronal mitochondria movement in living zebrafish larvae.• Screened dopaminergic toxins for changes in wild-type and transgenic zebrafish motor movement and mitochondrial dynamics.• Trained graduate/medical students and post-doctoral fellows in zebrafish husbandry, confocal microscopy, and experimental design. | | |
| 2007-2011 | University of Pittsburgh | Pittsburgh, PA |
| Postdoctoral Associate, Department of Neurology | | |
| <ul style="list-style-type: none">• Utilized cell culture to evaluate the effect of bioenergetic status and the alteration of antioxidant protein in toxicity models.• Adapted assays to reduce reagents and samples needed.• Troubleshoot cell culture problems and assisted in establishing procedural changes.• Mentored undergraduate students' thesis projects.• Wrote protocols on all techniques learned, developed, and optimized. | | |

EDUCATION

2000-2007 University of Pittsburgh Pittsburgh, PA
Ph.D. in Neuroscience

GPA: 3.78

1996-2000 Winthrop University Rock Hill, SC
B.S. in Chemistry
B.A. in Psychology

GPA 3.97

summa cum laude

TEACHING EXPERIENCE

2009, 2011, 2015-2019 University of Pittsburgh Pittsburgh, PA
In-Class Lecturer and Online Instructor, Drugs and Behavior

- Created web-based interactive textbook using the online teaching platform, TopHat.
- Integrated technology through the creation of videos, images, and online resources.
- Designed active learning in-class exercises, challenging students to demonstrate understanding of scientific concepts.
- Assisted students during and after class, to foster student advancement.

2017, 2018 CIRTl Network Pittsburgh, PA
Online Instructor, The College Classroom

Online Instructor, Creating Assessments for the STEM Classroom

- Developed and utilized new PowerPoint presentations and in-class formative assessments based on previous course content and course learning objectives.
- Constructed active learning exercises based on course content.
- Directed students' engagement in active learning assignments.

2011, 2013-2018 University of Pittsburgh Pittsburgh, PA
Guest Lecturer, Undergraduate Proseminar

- Constructed and delivered lectures on my research project.
- Encouraged class discussion on research methods and application.

2012, 2014, 2015, 2017 University of Pittsburgh Pittsburgh, PA
In-Class Lecturer, Brain and Behavior

- Developed course materials utilizing multiple medias: lectures, short videos, PowerPoint, online resources, and CourseWeb page.
- Led class discussions on neuroscience-related current events.
- Challenged students to demonstrate understanding of scientific concepts.

TEACHING EXPERIENCE, CONTINUED

2014 Duquesne University Pittsburgh, PA

Instructor, Neurobiology

- Incorporated technology in the classroom through the usage of PowerPoint, online resources, YouTube, and CourseWeb.
- Provided feedback and guidance in self-directed learning and science writing.
- Challenged students to read, comprehend, and discuss primary literature.

PROFESSIONAL DEVELOPMENT CERTIFICATION AND COURSEWORK

2018 University of Pittsburgh Pittsburgh, PA

NRMN Trained Facilitator

- Completed the *NRMN Train-the-Trainers Workshop: Facilitating Entering Mentoring*.
- Developed the knowledge and skills to implement research mentor training.
- Practice facilitating activities from the *Entering Mentoring* curricula.

2016 University of Pittsburgh Pittsburgh, PA

CIRTL Practitioner Certification in Teaching the STEM Disciplines

- Designed, implemented, and presented a Teaching As Research (TAR) project titled, "Utilizing an Active Learning Activity to Improve Learning of the Steps of the Action Potential."
- Completed professional development coursework and participated in CIRTL meetings.

2015 University of Pittsburgh Pittsburgh, PA

CIRTL Associate Certification in Teaching the STEM Disciplines

- Took part in a learning community-based course that introduced the alignment model and evidence-based STEM teaching practices.
- Attended and participated in CIRTL Network online seminars.

EDUCATION RESEARCH BIBLIOGRAPHY

Dukes AA, Sowko, LA, Gartner M, Barber BJ, Clark, RM. (2010) Assessing the Impact of Embedding Nursing Students in Bioengineering Senior Design Projects: Student Perceptions of Interprofessional Team Benefits and Challenges. *ASEE Annual Conference & Exposition, 2019*. Paper submitted and under review.

NEUROSCIENCE DISCIPLINE BIBLIOGRAPHY

Dukes AA, Bai Q, Van Laar VS, Zhou Y, Ilin V, David CN, Agim ZS, Bonkowsky JL, Cannon JR, Watkins SC, Croix CM, Burton EA, Berman SB. (2016) Live imaging of mitochondrial dynamics in CNS dopaminergic neurons in vivo demonstrates early reversal of mitochondrial transport following MPP⁺ exposure. *Neurobiol Dis.* 95:238-49.

Van Laar VS, Roy N, Liu A, Rajprohat S, Arnold B, **Dukes AA**, Holbein CD, Berman SB. (2015) Glutamate excitotoxicity in neurons triggers mitochondrial and endoplasmic reticulum accumulation of Parkin, and, in the presence of N-acetyl cysteine, mitophagy. *Neurobiol Dis.* 74:180-93.

Hauser DN, **Dukes, AA**, Mortimer, AD, Hastings, TG. (2013) Dopamine quinone modifies and decreases the abundance of the mitochondrial selenoprotein glutathione peroxidase 4. *Free Radic. Biol. Med.* 65C:419-427.

TG Hastings, V Van Laar, **A Dukes**, A Mishizen, A Mortimer, D Hauser. (2010) The role of dopamine quinone-modified proteins in the vulnerability of dopaminergic neurons in Parkinson's disease. *Cell Transplantation.* 19(3):343-343.

Dukes AA, Van Laar VS, Cascio M, Hastings TG. (2008) Changes in endoplasmic reticulum stress proteins and aldolase A in cells exposed to dopamine. *J. Neurochem.* 106(1):333-346.

Van Laar VS, **Dukes AA**, Cascio M, Hastings TG. (2008) Proteomic analysis of rat brain mitochondria following exposure to dopamine quinone: implications for Parkinson's disease. *Neurobiol Dis.* 29:477-489.

Van Laar VS, **Dukes AA**, and Hastings TG. (2007) Oxidative Stress in Parkinson's disease. In R Reddy and JK Yao (Eds), *Fatty Acids and Oxidative Stress in Neuropsychiatric Disorders.* (pp. 55-76). New York, NY: Nova Science Publ.

Dukes AA, Korwek KM, Hastings TG (2005) The effect of endogenous dopamine in rotenone-induced toxicity in PC12 cells. *Antioxid Redox Signal* 7:630-638.

ABSTRACTS

E. A. Burton, Q. Bai, Y. Zhou, **A. Dukes**. Zebrafish tauopathy models optimized for drug discovery and development. Program No. 578.07. 2014 Neuroscience Meeting Planner. Washington, D.C.: Society for Neuroscience, 2014. Online.

A.A. Dukes, Q. Bai, V.S. Van Laar, S.B. Berman, and E.A. Burton. Real-time *in vivo* imaging of neuronal oxidative metabolism and mitochondrial dynamics to study the biology of aging and neurodegeneration. 2012 Data and Dine. Pittsburgh, PA.

A.A. Dukes, Q. Bai, V.S. Van Laar, S.B. Berman, and E.A. Burton. Real-time *in vivo* imaging of neuronal oxidative metabolism and mitochondrial dynamics to study the biology of aging and neurodegeneration. 2012 Celebrating Research on Aging. Pittsburgh, PA.

A.A. Dukes and T.G. Hastings. Partial dependence of rotenone toxicity on mitochondrial respiration: Effects of galactose versus glucose as energy sources. Program No. 885.13. 2011 Neuroscience Meeting Planner. Washington, D.C.: Society for Neuroscience, 2011. Online.

T.G. Hastings, V. Van Laar, **A. Dukes**, A. Mishizen, A. Mortimer, and D. Hauser. The Role of Dopamine Quinone-Modified proteins in the Vulnerability of Dopaminergic Neurons In Parkinson's Disease. (2010) *Cell Transplantation*. **19**(3) p. 343.

A.A. Dukes, V.S. Van Laar, M. Cascio, T.G. Hastings. Proteomic analyses of differentiated PC12 cells after exposure to dopamine suggest endoplasmic reticulum stress. Program No. 276.3. 2006 Neuroscience Meeting Planner. Atlanta, GA: Society for Neuroscience, 2006. Online.

V.S. Van Laar, A.A. Dukes, M. Cascio, and T.G. Hastings. Proteomic analysis of dopamine-conjugated mitochondrial proteins following exposure to dopamine quinone. Program No. 276.4. 2006 Abstract Viewer/Itinerary Planner. Atlanta, GA: Society for Neuroscience, 2006. Online.

A.A. Dukes, V.S. Van Laar, M. Cascio, T.G. Hastings. Mitochondrial protein modifications following PC12 cell exposure to dopamine. Program No. 664.16. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2005. Online.

V.S. Van Laar, **A.A. Dukes**, M. Cascio, and T.G. Hastings. Alterations in mitochondrial proteins following exposure to dopamine quinone. Program No. 664.17. 2005 Abstract Viewer/Itinerary Planner. San Diego, CA: Society for Neuroscience, 2005. Online.

A.A. Dukes, T.G. Hastings. Dopamine-induced toxicity in PC12 cells involves intracellular dopamine oxidation and protein modification. Program No. 222.19. 2004 Abstract Viewer/Itinerary Planner. San Diego, CA: Society for Neuroscience, 2004. Online.

V.S. Van Laar, **A.A. Dukes**, M. Cascio, and T.G. Hastings. Modification of mitochondrial proteins following exposure to dopamine quinone. Program No. 94.10. 2004 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2004. Online.

A.A. Dukes, K.M. Korwek, and T.G. Hastings. Dopamine does not make PC12 cells more susceptible to rotenone-induced toxicity. Program No. 204.19. 2003 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2003. Online.

A.A. Dukes, T.G. Hastings. Dopamine induces oxidative damage and energy deficits in PC12 cells. Program No. 595.14. 2002 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2002. Online.

PROFESSIONAL MEMBERSHIPS

- Association of American Colleges and Universities (AACU)
- Center for the Integration of Research Mentoring and Learning (CIRTL)
- National Center for Faculty Development and Diversity (NCFDD)
- Professional and Organizational Development Network in Higher Education (POD)
- American Society for Engineering Education (ASEE)
- National Mentoring Research Network (NRMN)
- American Chemical Society (ACS)
- Society for Neuroscience (SfN)