

# Martha R.C. Bhattacharya, Ph.D. (née Chase)

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## SUMMARY

- Assistant Professor at the University of Arizona, Department of Neuroscience.
  - Research focused on identifying the genetic causes of peripheral neuropathy and axon degeneration. Identified a number of new genes promoting this process.
  - Highly successful in winning funding for research, including from NIH, NSF, and the Muscular Dystrophy Association.
  - Experienced faculty member with extensive leadership, service, mentoring, and teaching experience. Passionate about educating the next generation of scientists and clinicians.
  - Grant Review Panelist, National Science Foundation (NSF) (2014-present).
  - Founder and Director/Instructor, Wash U Graduate Fellowship Workshop (2009-2016). Increased success rates for NSF fellowship applications at Wash U by 10-fold.
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## ACADEMIC APPOINTMENTS

### Assistant Professor

**Department of Neuroscience, University of Arizona, Tucson, AZ. January 2017 – present.**

- Investigating the role of a novel 7-pass transmembrane protein, TMEM184b, in synaptic development and axon degeneration.
- Study the roles of autophagy proteins in nerve injury and neurotoxicity.
- Investigating the role of TMEM184b in sensory behaviors.

### Assistant Professor

**Department of Basic Sciences, St. Louis College of Pharmacy, St. Louis, MO. August 2014-December 2016.**

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## EDUCATION AND RESEARCH TRAINING

**Postdoctoral Research Scholar, Washington University, St. Louis** **2008-2014**

**Mentor: Dr. Aaron DiAntonio, M.D./Ph.D.**

- Identified MORN-4 as a novel gene required for axon degeneration following chemotherapy exposure (Journal of Neuroscience, 2012)
- Identified the first described role for TMEM184b in both axon degeneration and neuromuscular junction maintenance in mice (Journal of Neuroscience, 2016)

**PhD in Cell Biology, University of California, San Francisco** **2001 –2007**

**Mentor: Dr. David Julius, Ph.D.**

- Developed a screening platform to identify molecules required for the sense of touch using ratiometric calcium imaging in mouse cultured neurons and cell lines.
- Used this new assay to describe subsets of mouse mechanosensory neurons (PNAS, 2008).

**AB in Biochemical Sciences, Harvard University, Cambridge, MA** **1996 –2000**

**Mentor: Dr. Douglas Melton, Ph.D.**

- Graduated Magna cum laude, GPA 3.7.
- Four years of mentored research on genes required for early development of the endocrine and exocrine portions of the pancreas in chick embryos.

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## PUBLICATIONS

**Bhattacharya MRC**, Geisler S, Pittman SK, Doan RA, Weihl C, Milbrandt J, DiAntonio A (2016). TMEM184b Promotes Axon Degeneration and Neuromuscular Junction Maintenance. *J Neurosci*. Apr 27;36(17):4681-9.

**Bhattacharya MRC**, Gerdts J, Naylor SA, Royse EX, Ebstein SY, Sasaki Y, Milbrandt J, DiAntonio A (2012). A Model of Toxic Neuropathy in *Drosophila* Reveals a Role for Morn4 in Axonal Degeneration. *J Neurosci*. Apr 11;32(15):5054-61.

**Bhattacharya MR\***, Bautista DM\*, Wu K, Haeberle H, Lumpkin EA, Julius D (2008) Radial stretch reveals distinct populations of mechanosensitive mammalian somatosensory neurons. *Proc Natl Acad Sci U S A* Dec 16;105(50):20015-20.

Li R, **Chase M**, Jung SK, Smith PJ, Loeken MR (2005) Hypoxic stress in diabetic pregnancy contributes to impaired embryo gene expression and defective development by inducing oxidative stress. *Am J Physiol Endocrinol Metab*. 289(4), E591-9.

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## GRANTS, FELLOWSHIPS, AND AWARDS (selected)

Bright Spot Award Winner, St. Louis College of Pharmacy (2016)

Faculty Research Incentive Fund Grant, St. Louis College of Pharmacy (2015-2016), \$17,000

Development Grant, Muscular Dystrophy Association (2013-2016), \$180,000

Faculty Research Incentive Fund Grant, St. Louis College of Pharmacy (2014-2015), \$8400

Postdoctoral Fellowship, Children's Discovery Institute of Washington University and St. Louis Children's Hospital (2012-2014), \$60,000

Postdoctoral Fellowship (NRSA F32), National Institute for Neurological Disorders and Stroke (2009-2011), \$145,000

Fellowship, Hope Center for Neurological Disorders, Washington University (2009-2012), \$45,000

National Science Foundation Graduate Research Fellowship (2003-2006), \$108,000

Shields Teaching Fellowship Award for Teaching Excellence (2001)

Phi Beta Kappa Summer Research Award for undergraduate thesis research (1999), \$2000

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## PROFESSIONAL SERVICE

**Panelist** for National Science Foundation Graduate Research Fellowship Program (2014-present)

- Evaluate 25-30 proposals/year in Neuroscience or Cell Biology
- Submit rankings and participate in review panels in Jan-Feb of each year

**Chair**, Faculty search committee, Biological Sciences (2015), St. Louis College of Pharmacy

- Member of two additional search committees for faculty level hires (Physics, Microbiology). Guided hiring for three additional support staff positions.

**Member** of the Institutional Animal Care and Use Committee, St. Louis College of Pharmacy (2014-2015)

**Member** of the Research and Scholarly Activities Committee, St. Louis College of Pharmacy (2015-2016)

**Journal Referee** (ad hoc) for Nature Scientific Reports (2014-15)

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## LEADERSHIP AND COMMUNITY OUTREACH

### **Founder and Director/Instructor, Wash U Graduate Fellowship Workshop. 2009-present**

- Founder of workshop on applying for graduate fellowships for seniors and early PhD students. Includes lecture and small-group components.
- Increased success rates for NSF graduate fellowships across biological disciplines 10-fold.
- Spearheaded expansion to other STEM disciplines across two campuses in 2013, encompassing approximately 150 students. SLU PhD students participated in 2016.
- Also instruct orientation sessions on graduate school writing/speaking skills (2010-11).

### **Volunteer Educator and Committee Member, Project Power, American Diabetes**

#### **Association.**

**2009 - 2013**

- Speak to groups of at-risk African-American adults in St. Louis about the importance of good diet and exercise habits and about the risks and symptoms of Type II Diabetes.
- As Committee Member (2012), recruited new participating institutions and assessed program effectiveness.
- In 2014, involved STLCOP students in diabetes education at a local health fair.

### **Treasurer, Campaign for Smoke-Free Workplaces.**

**2009**

- Worked to pass a ballot measure to eliminate indoor smoking in St. Louis city and county bars, restaurants, and workplaces.
- Fundraised from individuals and corporations, decided spending priorities, organized campaign events. Worked with SLU medical students to organize a campaign rally.

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## TEACHING EXPERIENCE (selected)

### **Assistant Professor, St. Louis College of Pharmacy, St. Louis, MO**

**2014 - 2016**

- Teach Intro Biology (two semester sequence) lecture and laboratory to freshmen students
- Involved in course design for a new biology sequence required for the Pharm.D. curriculum
- Lead an effort in the Basic Sciences department to develop a shell curriculum for a future Pharmacogenetics Bachelor's Degree
- Mentored a total of 7 students in research on axon degeneration mechanisms
- Excellent teaching evaluations, with rankings of 4.4 to 4.7 (of 5) each semester

### **Guest Lecturer, Washington University in St. Louis.**

**2010 - 2013**

- Introduction to Neuroscience. Fall semesters. Physical Therapy Department, Washington University, St. Louis, MO. Two lectures per year.
- Developmental Biology. Spring 2013. One lecture to first year PhD students.

### **Adjunct Faculty, San Francisco State University, San Francisco, CA.**

**2006 - 2008**

#### **(1) Developmental Biology Instructor, Spring 2008.**

- Full course responsibility. Designed syllabus, taught all lectures and review sessions, wrote all assignments, and administered online course content through Blackboard.
- Cultivated teamwork, critical data analysis, evaluation and presentation skills through a class debate on public stem cell funding.
- Outstanding student evaluations, with multiple students noting that I was one of their best instructors at SFSU.

#### **(2) Neuroscience Instructor, Fall 2006.**

- One of four instructors in a team-taught course. Approximately 40 Junior/Senior students.
- Facilitated a case study project in which student groups presented topics essential to solving a medical mystery.

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## **ORAL PRESENTATIONS (selected)**

Selected speaker, Muscular Dystrophy Association Scientific Meeting, March 2017.  
Selected Speaker, Muscular Dystrophy Association Scientific Meeting, March 2015.  
St. Louis College of Pharmacy Faculty Research Seminar Series. November 2014.  
Missouri Institute of Science and Technology Department of Biology. October 2014.  
Washington University Postdoctoral Symposium Selected Speaker. April 2013.  
Luther College Department of Biology. April 2013.  
Colorado College Department of Biology. February 2013.  
Department of Developmental Biology Seminar Series speaker, February 2011.