

# Mario Giavonni Rosasco, Ph.D.

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Programmer and researcher with more than eight years research experience, six years of independent funding, and two years of postdoctoral experience. Demonstrated history of independence, mentorship, and collaboration. Experience with a number of programming languages, including Python, C++, C#, Javascript, and Igor Pro. Specializes in acquisition and analysis of digital image data, but has worked extensively with electrophysiological, structural, and genetic data as well.

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## EDUCATION

University of Washington (2009-2015): Ph.D., Department of Pharmacology  
University of Chicago (2005-2009): B.A., Biology, Specializations in Neuroscience and Endocrinology  
Minor in Computer Science

## POSITIONS HELD

University of Washington (2015-2016): Postdoctoral Fellow, Laboratory of Dr. Sharona Gordon  
(2010-2015): Ph.D. Candidate, Laboratory of Dr. Sandra Bajjalieh  
(2009-2010): Graduate Student Rotations with Drs. Catterall, Bajjalieh, & Tempel  
American Journal Experts (2012-2013): Editor of neuroscience, molecular and cell biology, and biophysics manuscripts  
University of Chicago (2007-2009): Programmer & Research Assistant, Laboratory of Dr. Francisco Bezanilla

## SELECTED PROGRAMMING EXPERIENCE

### Unaffiliated/Independent

Timeinplace.com (2013-2016) – *An experiment in manipulating and displaying traffic cam data as interactive art*

- Programmed a daemon in Python to collect and analyze images from a traffic camera in Seattle
- Programmed a Javascript/HTML5 website to display the traffic camera data as interactive art

### University of Chicago

PVCAMView (2007-2009) - *Imaging software for single molecule-directed imaging and analysis*

- Designed and built a DLL in C++ to access the PVCAM driver API
- Designed and built a software package (PVCAMView) in C# to acquire and analyze digital imaging data
- Integrated PVCAMView with electrophysiology software, for simultaneous time-resolved ephys and imaging

## SELECTED RESEARCH EXPERIENCE

### University of Washington

Regulatory Mechanisms of TRPV1 (2015-2016) – *Mechanisms of ligand-gated ion channel activity*

- Wrote scripts in Python to select optimal sites in TRPV1 for mutagenesis based on experimental constraints
- Engineered metal-binding sites into the TRPV1 ion channel using molecular biology
- Incorporated fluorescent non-canonical amino acids into TRPV1 using the amber codon suppression strategy
- Measured distances in TRPV1 using energy transfer between bound metal ions and fluorescent amino acids

Voltage Sensitive Phosphatases in the Brain (2010-2014) – *A novel class of enzymes relevant to disease*

- Using RT-PCR, discovered a novel genetic splice variant of Mm-VSP that is developmentally-regulated in brain
- Made a novel antibody against Mm-VSP, and showed protein expression is developmentally-regulated in brain
- Used molecular engineering to generate chimeras between functional domains in Mm-VSP and other proteins
- Characterized the voltage sensitivity of Mm-VSP using whole-cell voltage clamp electrophysiology
- Characterized Mm-VSP's enzymatic activity using simultaneous electrophysiology and fluorescence imaging
- Wrote a digital lab notebook management system using HTML, Javascript, and PHP
- Wrote data analysis scripts in Python, R, and Igor Pro
- Published results in the Biophysical Journal

Vestibular Function in PMCA2 Mutant Mice (2010) – *Analyzing vestibular function in a mouse deafness model*

- Helped build an electromagnetic eye position monitoring system to measure the vestibular-ocular reflex in mice
- Fixed bugs and re-wrote parts of the eye position monitoring software
- Compared the VOR in wild-type mice to the VOR in a mouse model of congenital deafness (PMCA2<sup>-/-</sup>)

## TECHNICAL SKILLS

Developed applications using Python, C/C++/C#, Javascript, HTML/CSS, XML  
Completed coursework in PHP, shell scripting, R, SQL, Java, x86 assembly, Perl, Scheme, Matlab  
Comfortable working with Windows, OS X, and GNU/Linux systems, both through GUIs and command line interfaces  
Understands concepts in machine learning/statistical inference and has worked with the scikit-learn machine learning library  
Prepared dozens of technical presentations, two manuscripts, a book chapter, and three successfully funded research grants  
Trained and mentored four student researchers, tutored two computer science students, and TAed fifteen pharmacy students

## PROFESSIONAL ORGANIZATIONS AND COMMITTEES

Biophysical Society (2009-2016 member)  
University of Washington Forum on Science Ethics and Policy (2014-2016 Leader)  
University of Washington Physiology and Biophysics Faculty Search Committee (2015-2016 Committee Member)  
University of Washington Pharmacology Graduate Admissions Committee (2012-2013 Committee Member)  
University of Washington Pharmacology Graduate Students' Association (2011-2012 Representative)

## HONORS

Biophysical Society	(2013):	Won the inaugural Biophysics Wiki-Edit contest.
Kobe University	(2011):	Awarded best poster presentation at the Kobe University-University of Washington Joint Symposium on Integrative Membrane Biology
University of Chicago	(2009):	Awarded a General Honors with a B.A. in Biology
	(2006-2009):	Awarded a Helen Myers-McLorraine Scholarship
	(2005-2009):	Named in Dean's List to recognize academic excellence

## FUNDING

University of Washington	(2015-2016):	Awarded a position as a postdoctoral trainee on the Vision Training Grant funded by the National Eye Institute
National Institutes of Health	(2012-2015):	Awarded an independent Kirchstein National Reseach Service Award from the National Institute of Mental Health
University of Washington	(2010-2012):	Awarded a position as a predoctoral trainee on the Molecular Biophysics Training Grant funded by the National Institute of General Medical Sciences

## SELECTED PRESENTATIONS

(2016): Biophysical Society 60th Annual Meeting  
Poster: Cysteine-Free miniTRPV1 is a Platform For Structure-Function Analysis of TRPV1; **Rosasco MG**, Martinez GQ, Williams EM, Cody LD, Gordon SE

(2014): Gordon Research Conference on Ion Channels  
Poster: Characterization of the Voltage Sensitive Phosphatase in Mouse; **Rosasco MG**, Gordon SE, Bajjalieh S

(2013): University of Washington Lipid Researchers Seminar Series  
Talk: Mammals Are Not Fish: Comparing and Contrasting Members of the Voltage Sensitive Phosphatase Protein Family; **Rosasco MG**

(2011): Kobe University-University of Washington Joint Symposium on Integrative Membrane Biology and Signal Transduction Medicine  
Poster: The Murine Homologue to Voltage Sensitive Phosphatases; **Rosasco MG**, Gordon SE, Bajjalieh S

(2009): Biophysical Society 53rd Annual Meeting  
Poster: Nanoplasmonic Fluorescence Enhancement Applied to Study of Ion Channels; Hyde HC, **Rosasco MG**, Bezanilla F

## PUBLICATIONS

**Rosasco, MG**, Gordon SE, TRP Channels: What do they look like? (in preparation) – CRC Handbook on TRP Channels  
**Rosasco MG**, Gordon SE, Bajjalieh SM. Characterization of the Functional Domains of a Mammalian Voltage-Sensitive Phosphatase (2015). Biophys J  
Ufret-Vincenty CA, Klein RM, Collins MD, **Rosasco MG**, Martinez GQ, Gordon SE. Mechanism for phosphoinositide selectivity and activation of TRPV1 ion channels (2015). J Gen Physiol

## PROFESSIONAL INTERESTS

web-based data analysis and web application development, image acquisition and analysis, computational models (interaction networks, conformational dynamics, machine learning)