RUILONG HU

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Summary of Qualifications

- 10+ years of experience as a multidisciplinary bench scientist in cellular and systems neurophysiology, behavioral neuroscience, stroke neurobiology, and cognitive neuroscience.
- Familiarity in with data analysis in MATLAB and Python programming environments.
- Obtained independent funding through competitive government and private foundation fellowships, as well as university internal grants for majority of graduate career.
- Mentored and managed teams of undergraduates and high school interns in conducting lab research.

EDUCATION

University of Maryland | *College of Computer, Mathematical, and Natural Sciences* 08/2013-Present

- Ph.D. Candidate in Neuroscience and Cognitive Sciences Program (NACS)
- Expected graduation date: Spring 2020

Washington University in St. Louis | *College of Arts and Sciences* 08/2007-05/2011

- Bachelor of Arts: Philosophy-Neuroscience-Psychology: Cognitive Neuroscience

PROFESSIONAL & RESEARCH EXPERIENCE

Department of Biology, University of Maryland, College Park | *NSF Graduate Research Fellow* 09/2013-present

- Advisor: Dr. Ricardo Araneda (raraneda@umd.edu).
- Regulation of Inhibition in the Olfactory Bulb
  - Patch clamp electrophysiology *ex vivo,* in combination with pharmacology, laser-uncaging of photoactivatable molecules, optogenetics (ChR2, NpHR, ArchT) and chemogenetics (DREADDs); epi-fluorescent and confocal microscopy; and animal behavior using automated behavioral analysis (MATLAB machine vision) along with chemogenetic and optogenetic manipulations.

MBL Neurobiology Course | *Course Facilitator,* Marine Biology Laboratory, Woods Hole, MA 2014 - 2019

- Teaching Assistant for the electrophysiology module of the Neurobiology course.
- Provided detailed one-on-one training in classroom and lab setting, where we taught graduate students, postdocs, and junior faculty patch clamp electrophysiology in acute brain slices.

Neurophysiology Lab | *Section Instructor,* UMD 2014, 2019

- Conducted weekly lab lectures and guided upper level undergraduates in laboratory exercises.
  - Taught undergraduates extracellular and intracellular electrophysiology in invertebrate preparations (e.g. crayfish, cockroaches).

Department of Anatomy & Neurobiology, WUSTL Medical School | *Research Technician II* 09/2012-07/2013

- Dr. Camillo Padoa-Schioppa (camillo@wustl.edu).
- Orbitofrontal cortex inactivation during an economic decision task in rhesus macaque
  - Behavioral training of rhesus macaque in economic decision-making tasks, and single unit extracellular electrophysiology in orbitofrontal cortex.

Department of Neurological Surgery, WUSTL Medical School | *Undergraduate Research Assistant* 01/2008-05/2011

- Advisor: Dr. Jeff Gidday (gidday@wudosis.wustl.edu).
- Hypoxic preconditioning in blood brain barrier protection and ischemic tolerance
  - Immunohistochemistry and confocal microscopy to examine neuro-immunological mechanisms in blood brain barrier protection.

Cold Spring Harbor Laboratory | *Summer Undergraduate Research Fellow* 06/2010-08/2010

- Advisor: Dr. Steven Shea (sshea@cshl.edu).
- Mechanism for Neural Selectivity of Pup Isolation Calls in Mouse
  - Single unit *in vivo* electrophysiology in mouse auditory cortex.

LEADERSHIP & MANAGEMENT SKILLS

Undergraduate & High school intern management 2013-Present

- Trained and managed undergraduates to run animal behavior experiments, or patch clamp electrophysiology in our brain slice preparation.

- Trained undergraduates and high school interns to code in MATLAB or Python for data analysis.

Methodology Workshop Series | *Chairperson,* University of Maryland, College Park 2017-Present

- Implemented and lead an "Intro to Programming in MATLAB Workshop" for graduate students.
- Created a Monthly Methodology Seminar to share and discuss research methodologies.

Student Seminar Series | *Chairperson,* University of Maryland, College Park 08/2014-2017

- Ran a bi-weekly seminar series for graduate students to practice presentations.
- Organized seminars and workshops on various research techniques employed by students.

Student Representative Committee | *Member,* University of Maryland, College Park 08/2013-2017

- Cohort representative for affairs concerning the NACS graduate program.

Outreach Committee | *Member,* University of Maryland, College Park 08/2013-Present

- Coordinated and conducted outreach activities, including talking about research at high schools and middle schools in the DC area.

WUSTL Rowing Team | *Men's Assistant Rowing Coach,* Washington University in St. Louis 08/2011-05/2013

- Coached the freshmen/novice men's team.
- Assisted the head coach with coaching the varsity men's team.
- Train and condition rowers to compete as student athletes at races.

PEER REVIEWED PUBLICATIONS

- **Hu R,** Ferguson KA, Whiteus CB, Meijer DH, Araneda RC. "Hyperpolarization-activated currents and subthreshold resonance in granule cells of the olfactory bulb." eNeuro 3.5: ENEURO-0197. 2016
- Selvaraj UM, Ortega SB, **Hu R**, Gilchrist R, Kong X, Partin A, Plautz EJ, Klein RS, Gidday JM, Stowe AM. "Preconditioning-induced CXCL12 upregulation minimizes leukocyte infiltration after stroke in ischemia-tolerant mice." Journal of Cerebral Blood Flow & Metabolism, 2016 Mar 22. 2016
- Smith RS, **Hu R**, Chan W, Desouza A, Araneda RC. "Differential Muscarinic Modulation in the Olfactory Bulb." The Journal of Neuroscience, 29 July 2015, 35(30): 10773-10785. 2015
- Stowe AM, Wacker BK, Cravens PD, Perfater JL, Li MK, **Hu R**, Freie A, Stüve O, & Gidday JM. "CCL2 upregulation triggers hypoxic preconditioning-induced protection from stroke." Journal of Neuroinflammation 2012, 9:33. 2012

PUBLISHED ABSTRACTS AND PRESENTATIONS

- **Hu R**, Villar PS, Dong GZ, Araneda RC. "Adrenergic modulation of I_h in adult-born granule cells of the olfactory bulb." Society for Neuroscience. 2018
- Villar PS, **Hu R**, Lantz CL, Quinlan EM, Araneda RC. "Regulation of basal forebrain GABAergic transmission in the olfactory bulb." Society for Neuroscience. 2017
- **Hu R**, Arai AL, Schneider KN, Araneda RC. "Neuron-specific noradrenergic modulation between the main and accessory olfactory bulbs." Society for Neuroscience. 2017
- **Hu R,** Ferguson KA, Whiteus CB, Meijer DH, Araneda RC. "Hyperpolarization-activated currents and subthreshold resonance in granule cells of the olfactory bulb." Society for Neuroscience Abstracts. 2015 2015
- **Hu R,** Ferguson KA, Whiteus CB, Meijer DH, Araneda RC. "Hyperpolarization-activated currents in granule cells of the olfactory bulb." Association for Chemoreception Sciences. 2015 2015
- **Hu R**, Murphy M, Herberholz J. "Monoaminergic modulation of sensory inputs to the crayfish medial giant escape neurons." Society for Neuroscience Abstracts. 2014. 2014
    - Funded by NACS UMD Travel Award
- Shea, SD & **Hu, R**. "Maternally-naive and maternally-experienced female mice exhibit differences in sideband suppression of ultrasound responses." Producing and Perceiving Complex Acoustic Signals: Songbirds and Mice as Model Systems Conference, Janelia Farms, March 2011. 2011
- Stowe AM, **Hu R**, Gilchrist R, Klein RS, & Gidday JM. "Promoting endogenous protective mechanisms at the blood-brain barrier to reduce neurovascular inflammatory injury following stroke." 6th International Symposium on Neuroprotection & Neurorepair, RNNEEL 2010: 28(5); 665. 2010

2009

- Stowe AM, Freie A, **Hu R**, Klein RS, & Gidday JM. "The anti-inflammatory chemokine, CXCL12, and its receptor CXCR4, in hypoxic preconditioning: expression changes and cell-specific roles in establishing ischemic tolerance." XXIVth International Symposium on Cerebral Blood Flow, Metabolism, and Function. 2009. 2009
- Stowe AM, Freie A, **Hu R**, Klein RS, & Gidday JM. "The role of the anti-inflammatory chemokine CXCL12 in hypoxic preconditioning and cerebral ischemic tolerance." Research in Progress seminar, Dept. of Pediatrics, Washington University, July 24, 2009. 2009
- Stowe AM, Freie A, **Hu R**, Klein RS, & Gidday JM. "Repetitive hypoxic preconditioning increases CXCL12 expression at the blood-brain barrier and induces angiogenesis prior to stroke." Society for Neuroscience Abstracts. 2009. 2009
- Stowe AM, Freie A, **Hu R**, Klein RS, & Gidday JM. "Chemokine Involvement in the Endogenous Adaptation to Stroke: The Benefits of a Himalayan Vacation." Third Annual Symposium on Translational Neuroscience, Hope Center for Neurological Disorders, Wash U, March 2009.

AWARDS AND HONORS

- Ann G. Wylie Dissertation Fellowship, UMD 2018-2019
- Outstanding Research Assistant Award, UMD 2018-2019
- Jacob K. Goldhaber Grant, Society for Neuroscience Travel Award, UMD 2019
- NSF Graduate Research Fellowship, National Science Foundation 2015 – 2018
- Cosmos Scholar, Cosmos Club Foundation, Washington DC 2017
- AChemS Travel Fellowship Award, Assocation for Chemoreception Sciences 2015
- NACS Travel Award, University of Maryland 2014 & 2015
- Dean's Fellowship Summer Research, University of Maryland 2014 & 2015
- Summer Undergraduate Research Fellowship, Cold Spring Harbor Laboratory 2010
- Howard Hughes Medical Institute, Summer Undergraduate Research Fellowship 2008

PROFESSIONAL ASSOCIATIONS

- Association for Chemoreception Sciences
- Society for Neuroscience
  - SFN Washington D.C Local Chapter