Andrew Giessel

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EDUCATION

Harvard Medical School (Boston, MA) **2010**
Ph.D., Neuroscience
Dissertation: “Local, Non-linear regulation of synaptic signals at dendritic spines of CA1 pyramidal cells”
Advisor: Dr. Bernardo Sabatini

University of Connecticut Medical School (Farmington, CT) **2008**
Virtual Cell Short Course Participant
Project: “Modeling the electrical filtering properties of dendritic spine necks using Virtual Cell”

University of Kansas, (Lawrence, KS) **2005**
B.S., Biochemistry
B.S., Computer Science

AWARDS AND FELLOWSHIPS

Pre-Doctoral Ruth L. Kirschstein National Research Service Award **2009-2010**
"Determinants of Calcium Ion Influx into Dendritic Spines”
NINDS, National Institutes of Health

Student Travel Award **2008**
International Brain Research Organization

Stuart and Victoria Quan Pre-Doctoral Fellowship **2008-2010**
Department of Neurobiology, Harvard Medical School

RESEARCH EXPERIENCE

Ph.D. Research **2006-2010**
Harvard Medical School, Dr. Bernardo Sabatini’s laboratory
Used a combination of electrophysiology, two-photon imaging and two-photon glutamate uncaging to investigate the biophysics and muscarinic modulation of synaptic signaling in mouse CA1 pyramidal neurons.

Graduate Rotation Projects **2006**
Harvard Medical School, Dr. David Clapham’s laboratory
Used electrophysiology and pharmacology to examine signaling pathways between GPCR activation and TRP channels in cultured HEK293 cells.

Harvard University, Dr. Rachelle Gaudet’s laboratory **2006**
Developed a yeast two-hybrid screen between intracellular domains of TRPV channels and the entire complement of mouse neural proteins. Learned the basics of protein expression and purification and molecular cloning.

Summer Honors Undergraduate Research Program **2004**
Harvard Medical School, Dr. Jonathan Cohen's laboratory
Used photo-affinity labeling with radioactive ligands and SDS-Page gel chromatography to investigate the effects of general anesthetics on Nicotinic Acetylcholine Receptors.

Independent Undergraduate Research **2003-2005**
University of Kansas, with Dr. Mark Richter and Dr. Krzysztof Kuczera
Built a computation model of the gamma subunit of the chloroplast ATP Synthase, and developed software to analyze and manipulate biochemical and structural data. Designed and implemented parallel molecular dynamics simulation experiments.

PEER-REVIEWED PUBLICATIONS

Carter BC, **Giessel AJ**, Sabatini BL, Bean BP (2012) Transient sodium current at subthreshold voltages: activation by EPSP waveforms. Neuron. 2012 Sep 20; 75(6):1081-93. doi: 10.1016/j.neuron.2012.08.033

Giessel AJ, Sabatini BL (2011) Boosting of Synaptic Potentials and Spine Ca Transients by the Peptide Toxin SNX-482 Requires Alpha-1E-Encoded Voltage-Gated Ca Channels. PLoS ONE 6(6): e20939. doi:10.1371/journal.pone.0020939

Giessel AJ, Sabatini BL (2010) "Muscarinic Receptors Boost Synaptic Potentials and Calcium Influx in Dendritic Spines by Inhibiting SK and Enhancing CaV2.3 Channels."

Bloodgood BL*, **Giessel AJ***, Sabatini BL (2009) "Biphasic Synaptic Ca Influx Arising from Compartmentalized Electrical Signals in Dendritic Spines." PLoS Biol 7(9): e1000190. doi:10.1371/journal.pbio.1000190

Richter ML, Samra H, He F, **Giessel AJ**, Kuczera K. (2005) "Coupling proton movement to ATP synthesis in the chloroplast ATP synthase." Bioenergetics and Biomembranes, 37, 467–473.

SELECTED TALKS AND CONFERENCE PRESENATIONS

Giessel AJ*, Bloodgood BL*, Sabatini BL. Electrical filtering by dendritic spines determines the time course of synaptic Ca influx. Poster, New Frontiers in Neurophotonics Conference, Bordeaux, France. 2008.

Harvard Medical School Department Seminar Talk, "Non-linear regulation of Synaptic Signals". Febuary 2008.

TEACHING EXPERIENCE

Harvard Medical School **2009**
Teaching Fellow, Neuroscience 200
Neuroscience survey course for first-year graduate students and second year medical students.

REFERENCES

Available upon request.