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Gerardo Malagón, PhD

Education

Sep 2013 – Sep 2017

University Sorbonne-Paris -Cité

PhD, Neurosciences

Paris, France

Feb 2005 – Dec 2009

National University of Colombia

BSc, Biology

Bogotá D.C., Colombia

Dissertation

Title: Statistics on the number of released vesicles in a simple glutamatergic synapse reveal a two-step mechanism of release. Directed by Alain Marty, PhD. Defended on September 21, 2017; grade obtained: *summa cum laude*.

International Courses

October 2016

Physical Biology of the Cell

MBL, Marine Biological Laboratory, Woods Hole, Massachusetts, United States.

July 2023

Neuromatch Academy

Intensive program exploring diverse aspects of computational neuroscience, including advanced techniques, theoretical frameworks, and data analysis methodologies.

Research Experience

Jun 2018 -jun 2022 **Postdoctoral Researcher**

Washington University in St Louis, School of Medicine, Department of Cell Biology and Physiology, Klyachko Lab, St Louis, MO, USA. Using a combination of imaging and computational tools I study the spatiotemporal dynamics of synaptic release in single buttons of CNS neurons.

Sep 2013 – Sep 2017 **Graduate Student**

University Paris Descartes, Brain Physiology Lab, UMR8118, Paris, France. Using an statistic approach on the number of released vesicles in a simple glutamatergic synapse, I got an insight in the mechanism of release that gives rise to the timing of fusion.

Sep 2012 - Nov 2012 **Research Assistant**

University of Miami Miller School of Medicine, Department of Physiology and Biophysics, Larsson Lab, Miami, Florida, USA. Using point mutations, we intended to increase the conductance of KCNQ1, a cardiac potassium channel, in order to study its biophysical properties.

Apr 2012- Aug 2012 **Research Assistant**

University of Valparaíso, Center Interdisciplinary for Neuroscience of Valparaiso (CINV), Valparaíso, Chile. Using EM micrographs, I quantified the loss of myelin in fibers of the optical nerve caused by neurodegeneration in *O. degus*, an Alzheimer rodent model.

Jun 2009 - Aug 2009,
Jan 2010 – Feb 2010,
Jun 2010 - Sep 2010,
Jan 2011 – Feb 2011,
Dec 2011 – Feb 2012

Research Assistant

MBL, (Marine Biological Laboratory), Cellular Dynamics Program, Nasi-Gomez lab, Woods Hole, Massachusetts, USA. I performed pharmacological and electrophysiological experiments as part of a study aiming to dissect the signal transduction in PLC- utilizing photoreceptors. We used photoreceptors coming from an invertebrate (*Pecten Irradians*) and a primitive chordate (Branchiostoma sp), giving us an evolutive perspective of this lineage of cells.

Teaching Experience

April 2017

Teaching Assistant

Society for Neuroscience Latin American Training Program, Universidad del Valle, Cali, Colombia.

Awards & Fellowships

2021-2022

Post-Doctoral Fellowship

by The McDonnell Center for Cellular and Molecular Neurobiology.

Journal Publications

Malagon, G., Myeong, J., & Klyachko, V. A. (2023). *Two forms of asynchronous release with distinctive spatiotemporal dynamics in central synapses*. *Elife*, *12*, e84041.

Le Guellec, B., Gomez, L. C., **Malagon**, G., Collin, T., & Marty, A. (2023). *Depolarization-induced bursts of miniature synaptic currents in individual synapses of developing cerebellum*. Journal of General Physiology, 155(5), e202213212.

Malagon, G., Miki, T., Tran, V., Gomez, L., & Marty, A. (2020). *Incomplete vesicular docking limits synaptic strength under high release probability conditions.* ELife, 9, 1–18.

Arenas, O., Osorno, T., **Malagón, G.**, Pulido, C., Gomez, M. del P., & Nasi, E. (2018). *Molecular and functional identification of a novel photopigment in Pecten ciliary photoreceptors.* Journal of General Physiology, 150(3), 401–415.

Miki, T., Nakamura, Y., **Malagon, G**., Neher, E., & Marty, A. (2018). *Two-component latency distributions indicate two-step vesicular release at simple glutamatergic synapses*. Nature Communications, 9(1), 1–3.

Miki, T., Kaufmann, W., **Malagon, G**., Gomez, L., Tabuchi, K., Watanabe, M., Shigemoto, R., Marty, A. (2017). *Numbers of presynaptic Ca 2+ channel clusters match those of functionally defined vesicular docking sites in single central synapses*. Proceedings of the National Academy of Sciences, 06/2017; 114(26):201704470.

Miki, T., **Malagon, G**., Pulido, C., Llano, I., Neher, E., Marty, A. (2016). *Actin- and Myosin-Dependent Vesicle Loading of Presynaptic Docking Sites Prior to Exocytosis*. Neuron 08/2016; 91(4):808-823.

Malagon, G., Miki, T., Llano, I., Neher, E., Marty, A. (2016). *Counting Vesicular Release Events Reveals Binomial Release Statistics at Single Glutamatergic Synapses*. The Journal of Neuroscience. 36(14):4010-4025.

Ferrer, C**., Malagon, G**., Gomez, MdP., Nasi, E. (2012). *Dissecting the Determinants of Light Sensitivity in Amphioxus Microvillar Photoreceptors: Possible Evolutionary Implications for Melanopsin Signaling.* The Journal of Neuroscience. 32(50):17977-87.

Angueyra, J.M., Pulido, C., **Malagon, G**., Nasi, E., Gomez, MdP. (2012). *Melanopsin-Expressing Amphioxus Photoreceptors Transduce Light via a Phospholipase C Signaling Cascade*. PLoS ONE, 7(1): e29813.

Pulido, C., **Malagon, G**., Ferrer, C., Kuichen, J., Angueyra, J.M., Nasi, E. and Gomez, M. (2012). *The light- sensitive conductance of melanopsin-expressing joseph and hesse cells in amphioxus*. The Journal of General Physiology, 139(1):19-30.

Conference Proceedings

Angueyra, J.M., Pulido, C., **Malagon, G**., Nasi, E., and Gomez, M (2010). Role of Intracellular Calcium Mobilization in Melanopsin-mediated Light Signalling in Amphioxus. Journal of General Physiology. 136 (1): 5A. Presented at the Annual Meeting of the Society for General Physiologists, in Woods Hole, MA, Sep, 2010.

Pulido, C. **Malagon, G.** Ferrer, C. Kuichen, J. Gomez, M. and Nasi, E (2011). Unusual Permeation and Blockage Properties of the Light-Sensitive Conductance of Amphioxus Photoreceptors. Journal of General Physiology. 138: 9a. Presented at the Annual Meeting of the Society for General Physiologists, in Woods Hole, MA, Sep, 2011