Luca Della Santina, Ph.D., Pharm.D.

(415) 840-4167 | San Francisco, CA | luca.dellasantina@gmail.com

Neuroscience Research | Project Management| Basic Science| Laboratory Devices | Big Data

A **Management-level Scientist & Academic Researcher** with 15+ years of proven experience in neuroscience research and communicating research to the scientific community and general public alike. Experienced working in large collaborative environments and effectively managing personnel and deadlines – as part of publicly and privately funded scientific projects. Demonstrated success in: **(1) developing Subject Matter level knowledge of ophthalmology and neuroscience**, **2) incorporating project management skills to improve deliverables, timelines and budgets, (3) designing new software to identify big data trends and (4) establishing productive collaborations between scientific institutions and professional expertise.**

CORE COMPETENCIES

▪ **Laboratory Testing and Skillset**	▪ **Digital Pathology and Image Analysis**	▪ **MATLAB, Python, C++, Java**
▪ **Data Analysis & Reporting**	▪ **Regulatory/Quality Compliance**	▪ **Strategic Planning & Prioritization**
▪ **Research & Information Management**	▪ **Grant Writing & Budgeting**	▪ **Team Building & Leadership**

PORTFOLIOS

Programming: https://github.com/lucadellasantina | Photography: https://www.flickr.com/photos/kaiousama/

MEDICAL RESEARCH & FACULTY EXPERIENCE

University of California, San Francisco – Department of Ophthalmology July 2018 – Present
Assistant Professor

- Developed grant proposal, pharmacological reports and scientific publications
- Managed delocalized open-source software projects as well as created and deployed multi-platform software
- Supervised postdoctoral researchers and graduate students
- Developed and conducted multi-electrode array (MEA) recording and analysis of neuronal activity from retinal tissue
- Performed in-vivo electroretinogram recording (ERG) of retinal activity in rodents.
- Managed patch-clamp recording and analysis of tissue slices and cell cultures
- Supervised vibratome slice and whole mount preparations of neuronal tissue for imaging and physiological recording

University of California, San Francisco – Department of Ophthalmology 2017 – 2018
Assistant Professional Researcher, Department of Ophthalmology

- Developed novel tools for automatic synaptic quantification in large regions of the central nervous system
- Investigated early synaptic rearrangements in the retina of mouse models of glaucoma
- Developed tools for the quantification of retinal blood vessel properties from clinical OCT angiography data
- Developed methods for screening early functional alterations in suspects of glaucoma, using clinical electroretinogram recording

University of Pisa – Department of Pharmacy 2014 – 2017
Tenured Assistant Professor of Physiology

- Discovered a novel class of excitatory interneurons in the mouse retina (GluMI) that directly drive retinal ganglion cells
- Demonstrated the interaction between TMEM and Calcium channels in synaptic terminals of mouse photoreceptors
- Demonstrated that dysregulated autophagy is involved in early synaptic degeneration occurring in diabetic retinopathy
- Established novel methods for the analysis of synaptic distribution and co-localization in dystrophic retinas

ACADEMIC RESEARCH EXPERIENCE

University of Washington – Department of Biological Structure 2010 – 2014
Postdoctoral Fellow in the Laboratory of Rachel Wong, Ph.D.

- Demonstrated that different types of retinal ganglion cell undergo differential patterns of degeneration in glaucoma.
- Demonstrated that establishment of synaptic connectivity between retinal ganglion cells and bipolar cells is modulated by both activity-dependent and independent mechanisms.
- Established methods for electrophysiological recording of retinal ganglion cells in animal models of glaucoma.
- Designed and coded laboratory database to manage reagents
- Developed laboratory budgets and maintained grant deliverables

Luca Della Santina, Ph.D., Pharm.D.

(415) 840-4167 | San Francisco, CA | luca.dellasantina@gmail.com

University of Pisa – Department of Physiological Sciences 2007 – 2009
Graduate Student in the Lab of Luigi Cervetto, M.D.

- Characterized the role of HCN channels in the mouse retina
- Pre-clinically tested the efficacy of small molecules as potential novel therapeutic agents
- Discovered a novel mechanism of light adaptation in photoreceptors
- Developed a complete *in-vivo* recording and data analysis software

University of Pisa – Department of Physiological Sciences 2004 – 2006
Graduate Student in the Lab of Claudia Gargini, Ph.D.

- Characterized the role of HCN channels in the mouse retina
- Developed ERG recording methods for rodents

EDUCATION

Ph.D., Neuroscience University of Pisa – Italy
Pharm.D. University of Pisa – Italy
Master of Science, Medicinal Chemistry University of Pisa – Italy

FORMAL TEACHING

Human Anatomy and Physiology, University of Pisa – Italy, *Department of Pharmacy* 2014 – 2017
Analytical Methods for the Investigation of Biological Samples, University of Pisa – Italy, *Department of Pharmacy* 2016 – 2017
Teaching Assistant of Human Physiology, University of Pisa – Italy, *Faculty of Pharmacy* 2007 – 2009
Practice Laboratory of Human Physiology, University of Pisa – Italy, *Faculty of Medicine* 2006 – 2009

GRANTS & FUNDING

That Man May See Foundation – Deep learning-assisted synapse quantification in retinal diseases; Role: P.I. 2019 – 2021
NIH RO1 EY028148 Grant – Neuronal Plasticity in Glaucoma; Role: Co-Investigator 2018 – 2022
NVIDIA Corporation GPU Grant – Deep Learning-Assisted Synapse Recognition; Role: P.I. 2018 – 2020
Bright Focus Foundation – Retinal Synapse Disassembly in Glaucoma; Role: Co-P.I. 2016 – 2018
Matlida E. Ziegler Foundation for the Blind – Circuit Disassembly in Glaucoma; Role: International Coordinator 2015 – 2018
Rome Foundation Call for Retinitis Pigmentosa Grant; Role: Co-Investigator 2015 – 2018
University of Pisa Intramural Funding – Connectivity and Functionality of Retinal Circuits; Role: P.I. 2014 – 2018

PUBLICATIONS (*full publication list on PubMed*)

Della Santina L, Ou Y. (2018) Biolistic Labeling of Retinal Ganglion Cells. *Glaucoma: Methods and Protocols*. Edited by Prof. Tatjana Jakobs. 2018 **Springer**. 1695:161-170. ISBN: 978-1-4939-7407-8

Della Santina L, Ou Y. (2017) *Who's lost first? Susceptibility of retinal ganglion cell types in experimental glaucoma*. **Exp Eye Res**. 158: 43-50.

Ou Y, Jo RE, Ullian EM, Wong RO, Della Santina L. (2016) *Selective Vulnerability of Specific Retinal Ganglion Cell Types and Synapses after Transient Ocular Hypertension*. **J Neurosci**. 36:9240-52.

Della Santina L, Kuo SP, Yoshimatsu T, Okawa H, Suzuki SC, Hoon M, Tsuboyama K, Rieke F, Wong ROL. *(2016) Glutamatergic Monopolar Interneurons Provide a Novel Pathway of Excitation in the Mouse Retina. **Curr. Bliol.** 26:2070-2077.*

SYMPOSIUMS *(not an exhausted list)*

2019 SfN annual meeting 2019, Chicago (IL) Presenting author
2019 AOPT annual meeting 2019, New Orleans (LA) Invited speaker
2018 ARVO annual meeting 2018, Honolulu (HI) Podium presentation
2017 ISER / Bright Focus meeting, Atlanta (GA) Presenting author
2016 ARVO annual meeting 2016, Seattle (WA) Invited moderator
2015 ERM European Retina Meeting. Brighton U.K., Presenting author