BIOGRAPHICAL SKETCH

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NAME: Bianca Graziano

eRA COMMONS USER NAME (credential, e.g., agency login): BXGRAZIANO

POSITION TITLE: Bianchi's Lab

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
University of Milan, Italy	**M.D.** *Magna cum Laude*	09/2011	10/2017	Medicine and Surgery
University of Miami, USA	**Ph.D.**	08/2019	05/2024	Neuroscience

Positions

- Graduate Research Assistant (2019 - 2024), University of Miami (advisor: Dr. Laura Bianchi)
- Research scholar (April 2017 – September 2017), University of Pittsburgh (advisor: Dr. Fabio Ferrarelli)
- Nursing home physician (2018-2019), Anni Azzurri, Milan (Italy)
- Medical School student (2011-2017)

Teaching experience

- Teaching Assistant, NextGenMD Medical School curriculum (09/2023) (University of Miami)
- Teaching Assistant, NextGenMD Medical School curriculum (09/2022) (University of Miami)
- Teaching Assistant, NEU100, University of Miami Summer Scholar program (07/2021), University of Miami.

Grants and awards

American Heart Association - Predoctoral Fellowship ID 899111 (01/01/2022 – 12/31/2023)

Academic Honors

- 20224 - Senior Research distinction award – Neuroscience Graduate Program
- 2024 - 3rd Place Basic Science Oral Presentation - Eastern Atlantic Student Research Forum
- 2023 - Trainee Professional Development Award - Society For Neuroscience
- 2023 - 2nd Place Best Graduate Student Presentation - Neuroscience Retreat
- 2023 - Graduate Programs – Academic Excellence, Leadership and service
- 2021 - Lois Pope LIFE Center Fellowship Award
- 2021 - 1st Place Best 3 minutes talk voted by Faculty - Neuroscience Research day
- 2017 - Research scholarship "Bando di tesi all'estero" from University of Milan

Contributions to Science

Manuscripts: 11
Oral Presentations: 4
Posters: 13

Role of glial KCNQ K^+ channels in the function of the nervous system (*2 research papers, 4 oral presentations, and 9 posters*)**:** my PhD project focuses on the study of the function of KCNQ channels in glia using *C. elegans* as a model organism. My main goal has been to investigate the potential role of the glial KCNQ channel in the development of epilepsy and autism.

1. White, O. R., Graziano, B., & Bianchi, L. (2024). Comparison of avoidance assay techniques to determine the response to 1-octanol in *C. elegans*. **Research paper. *microPublication Biology*** (accepted)
2. Graziano, B., Wang, L., White, O. R., Kaplan, D. H., Fernandez-Abascal, J., & Bianchi, L. (2024). Glial KCNQ K+ channels control neuronal output by regulating GABA release from glia in *C. elegans*. **Research paper**. ***Neuron*** doi: 10.1016/j.neuron.2024.02.013 (in press)
3. Graziano, B., Wang, L., Kaplan, H. D., White, R. O., Fernandez-Abascal, J., and Bianchi, L. Investigating the Effects of Autism-Linked Mutations in Glial KCNQ Channels on Glia-Neuron Functional Interaction. **Poster**. "Molecular Psychiatry Meeting". Kailua-Kona Hawaii (USA), March 2024.
4. Graziano, B., Wang, L., White, R. O., Kaplan, H. D., Fernandez-Abascal, J., and Bianchi, L. Glial KCNQ K^+ channels control neuronal output by regulating GABA release from glia in *C. elegans*. **Oral Presentation**. "Allied Genetics Conference". Section "Nervous Systems Disease Models". National Harbor, MD (USA), March 2024
5. Graziano, B., Wang, L., White, R. O., Kaplan, H. D., Fernandez-Abascal, J., and Bianchi, L. Glial KCNQ K^+ channels control neuronal output by regulating GABA release from glia in *C. elegans*. **Oral Presentation**. "Eastern-Atlantic Student Research Forum". Miami, FL (USA), February 2024.
6. Graziano, B., Wang, L., White, R. O., Kaplan, H. D., Fernandez-Abascal, J., and Bianchi, L. Glial KCNQ K+ channels control neuronal output by regulating GABA release from glia in *C. elegans*. **Poster**. "Allied Genetics Conference". National Harbor, MD (USA), March 2024
7. Graziano, B., Wang, L., Kaplan, H. D., White, R. O., Fernandez-Abascal, J., and Bianchi, L. Investigating the role of glial KCNQ K^+ channels in neuronal function in *C. elegans*. **Poster**. "Society for Neuroscience (SFN)". Washington D.C. (USA), November 2023.
8. Graziano, B., Wang, L., Kaplan, H. D., White, R. O., Fernandez-Abascal, J., and Bianchi, L. Investigating the role of glial KCNQ K^+ channels in neuronal function in *C. elegans*. **Poster.** "McKnight Brain Research Foundation Poster Session". Washington D.C. (USA), November 2023.
9. Graziano, B., Wang, L., Kaplan, H. D., White, R. O., Fernandez-Abascal, J., and Bianchi, L. Glial KCNQ channels mediate GABA release from glia in *C. elegans*. **Poster.** "Inhibition in the CNS: Assembly and Function of Inhibitory Neurons in Health and Disease (GRC)". Les Diablerets VD (Switzerland), July 2023.
10. Graziano, B., Wang, L., Kaplan, H. D., White, R. O., Fernandez-Abascal, J., and Bianchi, L. Glial KCNQ channels mediate GABA release from glia in *C. elegans*. **Poster.** "Inhibition in the CNS: Diversity of Inhibitory Systems (GRS)". Les Diablerets VD (Switzerland), July 2023.
11. Graziano, B., Wang, L., Kaplan, H. D., Fernandez-Abascal, J., and Bianchi, L. Investigating the role of glial KCNQ K^+ channels in neuronal function in C. *elegans.* **Oral presentation**. "Glial Networking: biology, physiology and Plasticity (GRC)". Section "Glial regulation of complex disorders". Ventura Beach CA, March 5^{th}-10^{th}, 2023.
12. Graziano, B., Wang, L., Kaplan, H. D., Fernandez-Abascal, J., and Bianchi, L. Investigating the role of glial KCNQ K^+ channels in neuronal function in *C. elegans.* **Poster**. "Glial Networking: biology, physiology and Plasticity (GRC)". Ventura Beach CA, March 5^{th}-10^{th}, 2023.
13. Graziano, B., Wang, L., Kaplan, H. D., Fernandez-Abascal, J., and Bianchi, L. Investigating the role of glial KCNQ K^+ channels in neuronal function in C. *elegans.* **Oral presentation.** "Glial function: connecting cell biology, physiology and plasticity (GRS)". Section "Glial interactions in Health and Disease" (GRS). Ventura Beach CA, March 4^{th}-5^{th}, 2023.

14. Graziano, B., Wang, L., Kaplan, H. D., Fernandez-Abascal, J., and Bianchi, L. Investigating the role of glial KCNQ K^+ channels in neuronal function in *C. elegans.* **Poster.** "Glial function: connecting cell biology, physiology and plasticity (GRS)". Ventura Beach CA, March 4th-5th, 2023.
15. Graziano, B., Wang, L., Fernandez-Abascal, J., Encalada, N., and Bianchi, L. Glial KQT-2 K^+ channels are needed for aversive response to octanol. **Poster.** 23rd International *C. elegans* Conference, June 2021, online.

Glial ion channels and transporters in the function of the nervous system (*2 research papers, 1 method paper, 1 book chapter, 2 posters*): In collaborative projects in the Bianchi's lab, I investigated the role of various ion channels and transporters expressed in glia in shaping neuronal output and animal behavior all in *in vivo* context. In one paper published in *Neuron*, I helped determine the role of a Cl^- channel of the ClC family expressed in glia associated to mechanosensors in touch behavior. In another Research paper published in *iScience*, I helped establish the function of various glial ion channels and transporters in olfaction. I also participated to the writing a book chapter on glial Cl^- channels and a method paper on the use of pharmacological approaches in *C. elegans*.

1. Wang, L., Graziano, B., & Bianchi, L. (2023). Protocols for treating *C. elegans* with pharmacological agents, osmoles, and salts for imaging and behavioral assays. **Method paper**. ***STAR protocols***, 4(2), 102241. doi: 10.1016/j.xpro.2023.102241
2. Wang, L., Graziano, B., Encalada, N., Fernandez-Abascal, J., Kaplan, D. H., & Bianchi, L. (2022). Glial regulators of ions and solutes required for specific chemosensory functions in *C. elegans*. **Research paper. *iScience***, 105684.
3. Wang, L., Graziano, B., Encalada, N., Fernandez-Abascal, J., Kaplan, D. H., & Bianchi, L. Specific glial regulators of ions and solutes are required for different chemosensory function in *C. elegans.* **Poster**. "Glial Networking: biology, physiology and Plasticity (GRC)". Ventura Beach CA (USA), March 5th-10th, 2023.
4. Wang, L., Graziano, B., Encalada, N., Fernandez-Abascal, J., Kaplan, D. H., & Bianchi, L. Specific glial regulators of ions and solutes are required for different chemosensory function in *C. elegans.* **Poster**. "Glial function: connecting cell biology, physiology and plasticity (GRS)". Ventura Beach CA (USA), March 4th-5th, 2023.
5. Fernandez-Abascal, J., Johnson, C.K., Graziano, B., Wang, L., Encalada, N., and Bianchi, L. A glial ClC Cl- channel mediates touch responses in *C. elegans*. **Research paper. *Neuron***, 110(3): 470-485. doi: 10.1016/j.neuron.2021.11.010
6. Fernandez-Abascal, J., Graziano, B., Encalada, N., and Bianchi, L. (2021). Glial chloride channels in the function of the nervous system across species. **Book chapter.** In L. Zhou (Eds.), ***Ion Channels in Biophysics and Physiology****.* Springer Singapore. doi: 10.1007/978-981-16-4254-8.
7. Wang, L., Encalada, N., Graziano, B., and Bianchi, L. Glial mediators of K^+ and Cl^- transport shape *C. elegans* olfaction and taste. **Poster**. 23rd International *C. elegans* Conference, June 2021, online.
8. Fernandez-Abascal, J., Johnson, C.K., Wang, L., Encalada, N., Graziano, B., and Bianchi, L. A glial Cl- channel is the master regulator of mechanosensation of ASH neurons. **Poster**. 23rd International *C. elegans* Conference, June 2021.

Transcriptional adaptation by exon-junction complex proteins (*1 research paper*): In this collaborative project in the Bianchi's lab, I investigated the role of exon-junction complex proteins Y14/RNP-4 and MAGOH/MAG-1 in *Caenorhabditis elegans.* We showed that different types of mutations in the same gene can lead to different phenotypes, due to compensatory mechanisms associated with the exon-junction complex proteins. This work led to the publication of a research paper in *PLoS Genetics.*

1. Fernandez-Abascal, J., Wang, L., Graziano, B., Johnson, C. K., & Bianchi, L. (2022). Exon-dependent transcriptional adaptation by exon-junction complex proteins Y14/RNP-4 and MAGOH/MAG-1 in *Caenorhabditis elegans*. **Research paper*. PLoS Genetics***, *18*(10), e1010488.

Sleep in first-episode psychosis (*1 research paper and 2 reviews*): In medical school, I studied sleep abnormalities in patients affected by schizophrenia and first-episode psychosis (when a person first shows signs of beginning to lose contact with reality). We discovered that specific EEG sleep patterns, such as sleep spindles, are altered in patients affected by a first psychotic episode and that abnormalities of spindle predicted symptoms' severity. My work on sleep led to the publication of one research paper and two reviews.

1. Kaskie, R. E., Graziano, B., and Ferrarelli, F. (2019). Topographic deficits in sleep spindle density and duration point to frontal thalamo-cortical dysfunctions in first-episode psychosis. **Research paper*****. Journal of psychiatric research***, 113: 39-44. doi: 10.1016/j.jpsychires.2019.03.009
2. Castelnovo, A., Graziano, B., Ferrarelli, F., and D'Agostino, A. (2018). Sleep spindles and slow waves in schizophrenia and related disorders: main findings, challenges and future perspectives. **Review.** ***European Journal of Neuroscience***, 48(8): 2738-2758. doi: 10.1111/ejn.13815
3. Kaskie, R. E., Graziano, B., and Ferrarelli, F. (2017). Schizophrenia and sleep disorders: links, risks, and management challenges. **Review.** ***Nature and science of sleep***, 9: 227. doi: 10.2147/NSS.S121076

Evoked frontal oscillatory activity of first-episode psychosis (*one research paper*): At the University of Pittsburgh, I used Transcranial Magnetic Stimulation (TMS) to study the evoked frontal oscillatory activity in patients affected by a first psychotic episode. We discovered that, even at disease onset, the patients displayed oscillatory alterations that were associated with symptom severity. This work led to the publication of one research paper.

1. Ferrarelli, F., Kaskie, R. E., Graziano, B., Reis, C. C., and Casali, A. G. (2019). Abnormalities in the evoked frontal oscillatory activity of first-episode psychosis: a TMS/EEG study. **Research paper.** ***Schizophrenia research***, 206: 436-439. doi: 10.1016/j.schres.2018.11.008