Melisa Bentivegna, PhD

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ACADEMIC INFORMATION

PhD IN BIOLOGICAL CHEMISTRY | UNIVERSITY OF BUENOS AIRES | JULY 2025

- Topic: *Alzheimer's disease as a metabolic brain pathology. The role of glial cells in the regulation of brain energy balance*.
- PhD Supervisor: Juan Beauquis, PhD.
- Laboratory of Neurobiology of Aging at the Institute of Biology and Experimental Medicine (IByME) – National Council of Scientific and Technical Research (CONICET) and Faculty of Exact and Natural Sciences (FCEN), University of Buenos Aires (UBA), Argentina.

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES | UNIVERSITY OF BUENOS AIRES |APRIL 2018

- Major in Animal Physiology and Neuroscience
- FCEN, UBA, Argentina

SCIENTIFIC INFORMATION

Research line:

My research focuses on the early alterations of brain and systemic metabolism in an amyloidogenic model of Alzheimer's disease. I am particularly interested in understanding changes in astrocyte energy metabolism and their interplay with the glial inflammatory environment. Through this work, I aim to generate key insights into the mechanisms underlying the initial stages of the disease, ultimately contributing to the development of preventive and therapeutic strategies.

PUBLICATIONS IN INTERNATIONAL PEER-REVIEWED JOURNALS

Merech F, Rios D, Schafir A, Rojas Campión I, **Bentivegna M**, Beauquis J, Lava MC, Carrera Silva EA, Errasti AE, Fariz M, Paparini D, Squassi A, D'Eramo L, Ramhorst R, Pérez Leirós C, Gori S, Hauk V, Vota D. Pregnancy-associated metabolic adaptations in circulating monocytes and macrophages favor clearance functions. Frontiers in Immunology, 2026. DOI: 10.3389/fimmu.2026.1786324

Bentivegna M, Pomilio C, Bellotto M, González Pérez NG, Rossi S, Gregosa A, Vota D, Merech F, Bonaventura MM, Presa J, Vinuesa A, Lux-Lantos V, Porte Alcón S, Saravia F, Beauquis J. Amyloid

beta regulates astrocytic glucose metabolism and insulin signaling in experimental models of Alzheimer's disease. **Aging and disease, 2025.** DOI: 10.14336/AD.2025.0484

María Belén Zanoni, Mariana Imperatori, **Melisa Bentivegna**, Michael Anderson, Pedro Bekinschtein, Noelia Weisstaub. Serotonin signaling in the rat prefrontal cortex is required for Retrieval-Induced Forgetting. BioRxiv, 2025. DOI: https://doi.org/10.1101/2025.03.05.641624

González Pérez NG, Bellotto M, **Bentivegna M**, Arcucci L, Vinuesa A, Presa J, Brites F, Vissio P, Pérez Sirkin D, Beauquis J, Saravia F, Pomilio C. Metformin rescues microglial homeostasis and protects against type 2 diabetes mellitus-related dementia risk. **Life Sciences, 2025**. DOI: 10.1016/j.lfs.2025.123803

Pomilio C, Presa J, Oses C, Vinuesa A, **Bentivegna M**, Gregosa A, Riudavets M, Sevlever G, Galván V, Levi V, Beauquis J, Saravia F. Loss of Direct Vascular Contact to Astrocytes in the Hippocampus as an Initial Event in Alzheimer's Disease. Evidence from Patients, In Vivo and In Vitro Experimental Models. **Molecular Neurobiology, 2024.** DOI: 10.1007/s12035-023-03897-5

Vinuesa A, Pomilio C, Gregosa A, **Bentivegna M**, Presa J, Bellotto M, Saravia F, Beauquis J. Inflammation and Insulin Resistance as Risk Factors and Potential Therapeutic Targets for Alzheimer's Disease. **Frontiers in Neuroscience, 2021.** DOI: 10.3389/fnins.2021.653651

Pomilio C, Gorojod RM, Riudavets M, Vinuesa A, Presa J, Gregosa A, **Bentivegna M**, Alaimo A, Porte Alcon S, Sevlever G, Kotler ML, Beauquis J, Saravia F. Microglial autophagy is impaired by prolonged exposure to β-amyloid peptides: evidence from experimental models and Alzheimer's disease patients. **Geroscience, 2020.** DOI: 10.1007/s11357-020-00161-9

Gregosa A, Vinuesa A, Todero MF, Rossi S, Pomilio C, Wenker S, **Bentivegna M**, Presa J, Saravia F, Beauquis J. Periodic dietary restriction ameliorates amyloid pathology and cognitive impairment in PDAPP-J20 mice: Potential implication of glial autophagy**. Neurobiology of Disease, 2019.** DOI: 10.1016/j.nbd.2019.104542

Vinuesa A, **Bentivegna M**, Calfa G, Filipello F, Pomilio C, Bonaventura MM, Lux-Lantos V, Matzkin ME, Gregosa A, Presa J, Matteoli M, Beauquis J, Saravia F. Early Exposure to a High-Fat Diet Impacts on Hippocampal Plasticity: Implication of Microglia-Derived Exosome-like Extracellular Vesicles. **Molecular Neurobiology, 2019.** DOI: 10.1007/s12035-018-1435-8

FELLOWSHIPS

LABORATORY EXCHANGE COMMITTEE (LEC) PROGRAM 2026 (INTERNATIONAL SOCIETY FOR NEUROCHEMISTRY, ISN)

Travel support for research exchange from Argentina to Sweden, April–June 2026. Travel Grant.

THE COMPANY OF BIOLOGISTS 2026
Travel support for research exchange from Argentina to Sweden, April–June 2026. Travel Grant.

SOCIETY FOR NEUROSCIENCE (SFN) 2025 ANNUAL MEETING
San Diego, USA, November 8–12, 2025 IBRO. Travel Grant.

EMBO WORKSHOP 2025 (EUROPEAN MOLECULAR BIOLOGY ORGANIZATION)

Engelberg, Switzerland, September 28- October 2, 2025. Travel Grant.

ICBEM MEETING 2024 (INTERNATIONAL CONFERENCE ON BRAIN ENERGY METABOLISM)

Ljubljana, Slovenia, September 17-21, 2024. Travel Grant.

BIENNAL ISN–ESN MEETING 2023 (INTERNATIONAL SOCIETY FOR NEUROCHEMISTRY - EUROPEAN SOCIETY FOR NEUROCHEMISTRY)

Porto, Portugal, from August 8 to 11, 2023. Travel Grant.

4TH ISN-JNC FLAGSHIP SCHOOL 2022 (INTERNATIONAL SOCIETY FOR NEUROCHEMISTRY - JOURNAL OF NEUROCHEMISTRY).

Schmerlenbach, Germany, from September 25 to October 2, 2022. Travel Grant.

BIENNAL ISN-APSN 2022 (INTERNATIONAL SOCIETY FOR NEUROCHEMISTRY – ASIAN-PACIFIC SOCIETY FOR NEUROCHEMISTRY)

2022, Honolulu, Hawaii, August 28 – September 1. Travel Grant.

CONICET INTERNAL DOCTORAL FELLOWSHIP

National Council for Scientific and Technical Research (CONICET), Argentina (2019–2025)

UNDERGRADUATE RESEARCH FELLOWSHIP

"Stimulus Fellowship" for undergraduate students, UBA. Topic: "Glioprotective strategies in Alzheimer's disease". IByME - CONICET. Mentor: Dr. Flavia Saravia. (2016 – 2018).

AWARDS

- **Bigand Award** (first prize) at the Annual Meeting of the Argentine Society of Clinical Research (SAIC). November 2022, Mar del Plata, Argentina. Title: "Microglial dystrophy during age-associated diseases: possible therapeutic role of metformin in Alzheimer's disease and type 2 diabetes mellitus". Authors: Carlos Pomilio, Nicolás González Pérez, Ángeles Vinuesa, Melina Bellotto, Ismael Calandri, Lucía Crivelli, **Melisa Bentivegna**, Amal Gregosa, Jessica Presa, Gustavo Sevlever, Juan Beauquis, Flavia Saravia.

- **Best poster** at the Neuroscience Session of the Annual Meeting of the Argentine Society of Clinical Research (SAIC). November 2022, Mar del Plata, Argentina. Title: "Insulin resistance and glial activation as concurrent events in experimental Alzheimer's disease". Authors: **Melisa Bentivegna**, Amal Gregosa, Ángeles Vinuesa, Carlos Pomilio, Melina Bellotto, Jessica Presa, Nicolás González Pérez, Victoria Lux, Flavia Saravia, Juan Beauquis.

- **Best poster** at the Neuroscience Session of the Annual Meeting of the Argentine Society for Clinical Research (SAIC), 2021. Title: "Astrocytic insulin signaling and inflammation in experimental Alzheimer's disease". Authors: **Melisa Bentivegna**, Amal Gregosa, Angeles Vinuesa, Carlos Pomilio, Jessica Presa, Flavia Saravia, Juan Beauquis.

- **Best poster** as "Student of the Bachelor's Degree in Biological Sciences of the Department of Biological Chemistry, Faculty of Sciences, University of Buenos Aires (FCEN-UBA)" in the Interdisciplinary Conference of the Department of Biological Chemistry of the University (JIQB), 2017. Title: "Consumption of an HFD early in life induces cognitive impairment and changes in the hippocampus in C57BL/6 mice". Authors: **Melisa Bentivegna**, Angeles Vinuesa, Carlos Pomilio, Flavia Saravia, Juan Beauquis.

TEACHING EXPERIENCE

2022 - Present Bilingual Biology Teacher (English) – IGCSE Program, University of Cambridge framework, Scholem Aleijem Secondary School.

2017 Teaching Assistant – Comparative Animal Physiology, Department of Biodiversity and Experimental Biology, Faculty of Exact and Natural Sciences (FCEN), University of Buenos Aires (UBA)

2014-2015 Secondary School Tutor – Chemistry and Biology

2010-2012 Private Tutor – English Language and Biology

SCIENTIFIC PUBLIC COMMUNICATION

2019, 2016 : Exhibitor – *Chemistry Week*, Faculty of Exact and Natural Sciences (FCEN), University of Buenos Aires. Presented the interactive booth **"CSI: When Blood is Invisible"**, Department of Biological Chemistry.

2017: Volunteer – Museum of Birds and Marine Mammals of Southern Acatushún, Harberton Homestead, Tierra del Fuego, Argentina. Supported by the R. Natalie P. Goodall Foundation and the IMMA Project (Research in Southern Marine Mammals). Responsibilities included studying birds and marine mammals in the area, preparing specimens, conducting guided tours in English and French for international visitors, participating in beach survey campaigns, including collection and necropsy of stranded marine mammals.

2017, 2016, 2015: Exhibitor – Night of the Museums, Faculty of Exact and Natural Sciences (FCEN), University of Buenos Aires. Presented the interactive booth "Beyond Our Genes: Epigenetics", Department of Biological Chemistry.

LANGUAGES

- Spanish: Native
- English: Bilingual / Fluent
- French: Intermediate
- German: Basic

ADDITIONAL INFORMATION / INTERESTS

Lyrical Singing: Active soprano member of the *Lagun Onak Youth Choir*, Buenos Aires, Argentina (2025 – present).

Gender Equality Service and Representation: Member of the Gender Committee of the Department of Biological Chemistry, University of Buenos Aires (2019–2025), during my PhD. Served as departmental representative in GenEx, the gender equality program of the Faculty of Exact and Natural Sciences (UBA), contributing to institutional discussions and initiatives on gender equity.

Living Abroad Experience: Lived in New Zealand (2018) on a Working Holiday Visa; engaged in agricultural and fieldwork tasks, developing teamwork, adaptability, and practical skills in diverse environments.