

Curriculum Vitae

APOLLONI Savina, PhD

PERSONAL INFORMATION

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RESEARCHER IDENTIFICATION

- ORCID ID: 0000-0002-5782-1665
- Scopus Author ID: 25931349900

WORK EXPERIENCE

- *2019-present*: Post-doc at the Laboratory of Neurobiochemistry, directed by Prof. Nadia D'Ambrosi, Department of Biology, University of Rome Tor Vergata
- *2014-2019*: Post-doc at the Laboratory of Cellular Neurobiology, directed by Dr. Cinzia Volonté, Santa Lucia Foundation IRCCS, Rome
- *2010-2013*: Research Fellow at the Laboratory of Cellular Neurobiology, directed by Dr. Cinzia Volonté, CNR-IBCN, Rome
- *2007-2010*: PhD Candidate at the Laboratory of Cellular Neurobiology, directed by Dr. Cinzia Volonté, Santa Lucia Foundation IRCCS, Rome

EDUCATION AND TRAINING

- *2010*: PhD in Neuroscience (XXIII cycle) from the University of Rome Tor Vergata. Thesis Title: "Purinergic receptors in the nervous system: from neurodegenerative diseases to cancer". Coordinator: Prof. G. Bernardi
- *2008*: Master's Degree (II level) in "Natural Organic Substances" from the University of Rome La Sapienza, Rome
- *2006*: Master's Degree (II Level) in "Clinical Experimentation" from the University of Rome La Sapienza, Rome
- *2003*: Bachelor's Degree in Pharmacy from the University of Rome La Sapienza. Thesis Title: "Picrorhiza kurroa: from traditional Indian medicine to an alternative for liver diseases". Supervisor: Prof. G.C. Porretta. Grade: 110/110 *cum laude*

MANAGEMENT RESPONSIBILITIES

- Project Leader for the project titled "Targeting S100A4 to study the macrophages-muscle cells cross-talk in models of Duchenne Muscular Dystrophy," funded by AFM-Telethon from 1-10-2022 to 01-10-2024.
- Project Leader for the project titled "Repurposing niclosamide in ALS," funded by the Italian Foundation for ALS Research (Call 2021) from 1-04-2022 to 01-04-2023.
- 2022-2023: Responsible for the execution of experiments in the Experimental Protocol 114/2022 PR of the Ministry of Health titled: "Study of the efficacy of niclosamide in models of amyotrophic lateral sclerosis".

- 2015-2018: Responsible for the execution of experiments in the Experimental Protocol 319/2015 PR of the Ministry of Health titled: “Role of purinergic and histaminergic receptors in neuroinflammation associated with amyotrophic lateral sclerosis”.

TEACHING AND SCIENTIFIC OUTREACH

- Lecturer for the course "Drug Preclinical Development" in the Biotechnology Bachelor's program at the Department of Biology, University of Rome Tor Vergata (academic year 2023-2024)
- Member of the examination committee for the course "General Biochemistry and Biochemical Methodologies" in the Biotechnology Bachelor's program (Prof. Nadia D'Ambrosi), Department of Biology, University of Rome Tor Vergata (2019-present)
- 2014-present: Undergraduate and PhD students' Supervisor at Tor Vergata University of Rome, IT (Paola Fabbrizio, Veronica Verdile, Francesca Caputi, Eleonora Mammarella, Martina Milani, Chiara Miele, Ilaria Della Valle, Marzia Guerrieri)
- 2020: Tutor at “The national Plan for Scientific Degrees in Biology” at Tor Vergata University of Rome, IT

PARTICIPATION IN EDITORIAL BOARDS

- 2023-present: Guest Editor for the Special Issue "Editorial Board Members' Collection Series: Neuroinflammation" in the International Journal of Molecular Science.
- 2023-present: Guest Editor for the Special Issue "Molecular Study and Treatment of Motor Neuron Diseases" in the International Journal of Molecular Science.
- 2021-present: Member of the Advisory Panel for the "Molecular Immunology" section of the International Journal of Molecular Science.
- 2022-present: Member of the Editorial Board of Gene & Protein in Disease.
- 2021-present: Guest Editor for the Special Issue "Purinergic Signalling and Neuroinflammation" in Frontiers in Pharmacology.
- 2021-present: Guest Editor for the Special Issue "Inflammation in the CNS and PNS: From Molecular Basis to Therapy" in the International Journal of Molecular Science.
- 2019-2021: Guest Editor for the Special Issue "The Contribution of Non-Neuronal Cells in Neurodegeneration: From Molecular Pathogenesis to Therapeutic Challenges" in Cells.
- 2017-present: Participation in the editorial board of the "Neurodegeneration" section in Frontiers in Neurology, Frontiers in Neuroscience, and Frontiers in Psychiatry.
- 2017: Academic Editor for Mediators of Inflammation.
- 2023: Research Project Reviewer for Fonds National de la Recherche Luxembourg (FNR).
- 2021: Research Project Reviewer for the "National Science Center," Poland (2021/41/N/NZ4/02350).
- Reviewer for the following international journals: Cellular and Molecular Life Science, Scientific Reports, EBioMedicine, Journal of Neuroinflammation, Neurobiology of Disease, Neuroscience, Purinergic Signalling, Experimental Neurology, PeerJ, Human Mutation, Pharmacological Research, Cells, Muscle and Nerve.

PARTICIPATION TO RESEARCH PROJECTS

- 2022-present: AFM-Telethon "Targeting S100A4 to study the macrophages-muscle cells cross-talk in models of Duchenne Muscular Dystrophy" (Principal Investigator)
- 2021-present: Fondazione Italiana di Ricerca sulla Sclerosi Laterale Amiotrofica (AriSLA) "Repurposing niclosamide in ALS" (Principal Investigator)
- 2021-present: National Ataxia Foundation "Role of iron-dependent dysfunctions in microglia toxicity in the pathogenesis of Friedreich's Ataxia" (collaborator)
- 2019-present: Fondazione Italiana di Ricerca sulla Sclerosi Laterale Amiotrofica "Dissecting the functional interaction between FUS and hnRNP A2/B1 in the pathogenesis of ALS"
- 2015-2017: Fondazione Italiana di Ricerca sulla Sclerosi Laterale Amiotrofica "P2X7 Antagonists in Amyotrophic Lateral Sclerosis". Responsible for the in vivo experiments
- 2012-2017: CNR-MIUR Flagship Project Nanomax
- 2010-2014: Fondazione Italiana di Ricerca sulla Sclerosi Laterale Amiotrofica "P2X7 Receptor in Amyotrophic Lateral Sclerosis"
- 2009-2014: Ministero della Salute "New insights on the role of purinergic P2Y12 receptor in Multiple Sclerosis" (GR-2009-1523273)

AWARDS AND SCIENTIFIC RECOGNITIONS

- 2022-present: Member of the Italian Society of Biochemistry and Molecular Biology (SIB).
- 2018-present: Member of the European Histamine Research Society.
- 2011: Winner of the "Competition for the annual research award for a thesis on Amyotrophic Lateral Sclerosis" sponsored by Rotary Club Sesto Milium - Centenario, Italian Amyotrophic Lateral Sclerosis Association, Banco di Desio, and Stefano Borgonovo Foundation.

PROFESSIONAL COURSES

- 2020: Training course "PATHBIO Anatomy Module Course: Mouse Embryology, Anatomy, Histology, and Anatomical Basis of Imaging," sponsored by ERASMUS Knowledge Alliance for "Precision Pathobiology for Disease Models."
- 2011: Accredited Felasa (cat.B) theoretical-practical training course "Laboratory Animal Science" at the European Research Center on the Brain (C.E.R.C.), Rome.
- 2011: Theoretical-practical training course "The use of statistics in biomedical research" at the European Research Center on the Brain (C.E.R.C.), Rome.
- 2011: Theoretical-practical training course "Methodologies for the derivation of murine lines" at CNR-IBCN, Rome.

PROFESSIONAL QUALIFICATIONS AND REGISTRATIONS

- 2023: National Scientific Qualification for the Pharmacology sector (BIO/14) as Associate Professor.
- 2003: Qualification to practice as a Pharmacist at the University of Rome "La Sapienza."

- 2004-present: Registration in the Register of Pharmacists of the province of Rome.

CONFERENCE PRESENTATIONS

- 2021: Apolloni S. "Histaminergic signalling in ALS" at Festive Virtual Poster Event focused on Neuronal Histamine (fire-talk).
- 2021: Apolloni S. "Pathogenic FUS promotes the expression of aggregation-prone splicing isoforms of HNRNPA2B1 in amyotrophic lateral sclerosis" at Virtual 32nd International Symposium on ALS/MND-2021 (fire-talk).
- 2020: Apolloni S, Mammarella E, Milani M, Rossi S, Lattante S, Sabatelli M, Cozzolino M, D'Ambrosi N. "Repurposing niclosamide to target inflammatory and fibrotic pathways to affect ALS." Virtual 31st International Symposium on ALS/MND (poster).
- 2019: Apolloni S, Serrano A, Rossi S, Mammarella E, Milani M, Lattante S, Sabatelli M, Andjus P, Michetti F, Carri MT, Cozzolino M, D'Ambrosi N. "Contribution of S100A4-regulated pathways to inflammation in ALS models." Annual AriSLA Conference, Milan (poster).
- 2018: Apolloni S. "Novel modulators of microglia in Amyotrophic Lateral Sclerosis" at the MEET THE MICROGLIA conference "homeostatic role and harmful contribution to neurological disorders," University of Milan (Invited speaker).
- 2018: Apolloni S, Fabrizio P, Amadio S, Napoli G, Verdile V, Morello G, Iemmolo R, Aronica E, Cavallaro S, Volonté C. "Modulation of histaminergic signaling in ALS" at the Focus SLA Conference, Genoa (poster).
- 2017: Apolloni S. "P2X7 receptor activation modulates inflammation and autophagy in SOD1-G93A mouse model of Amyotrophic Lateral Sclerosis" at the international conference "7th joint Italian-German Purine Club Meeting-Advances in basic and translational purinergic research," Rome (Invited speaker).
- 2016: Apolloni S, Fabrizio P, Freschi M, Napoli G, Amadio S, Tarroni P, Pevarello P, Bendotti C, Volonté C. "Purinergic Antagonists as Therapy for Amyotrophic Lateral Sclerosis" at the 6th AriSLA Annual Meeting, Milan (poster).
- 2016: Apolloni S, Fabrizio P, Napoli G, Amadio S, Volonté C. "Purinergic modulation affects disease progression in SOD1-G93A mouse model of Amyotrophic Lateral Sclerosis" at the international neuroscience conference "10th FENS," Copenhagen, Denmark (poster).
- 2015: Apolloni S, Fabrizio P, Parisi C, Amadio S, Volonté C. "Clemastine confers neuroprotection and induces an anti-inflammatory phenotype in SOD1G93A mouse model of Amyotrophic Lateral Sclerosis" at the Annual Retreat of CNR-Institute of Cell Biology and Neurobiology, Montelibretti, Rome (poster).
- 2013: Apolloni S, Amadio S, Parisi C, Montilli C, Cozzolino M, Volonté C, D'Ambrosi N. "Neuroinflammation in ALS: the complex role of P2X7 receptor" at the 24th International Symposium on ALS/MND, Milan (poster).
- 2013: Apolloni S, Amadio S, Parisi C, Montilli C, Cozzolino M, Popoli P, Volonté C, D'Ambrosi N. "P2X7 Receptor in Amyotrophic Lateral Sclerosis" at the 4th AriSLA Annual Meeting, Milan (poster).

- 2012: Apolloni S, Parisi C, Pesaresi MG, Cozzolino M, Popoli P, Matteucci A, Armida M, Volonté C, D'Ambrosi N. "P2X7 Receptor in Amyotrophic Lateral Sclerosis" at the 3rd AriSLA Annual Meeting, Milan (poster).
- 2011: Apolloni S, Parisi C, Amadio S, Pesaresi MG, Cozzolino M, D'Agnano I, Guatteo E, Volonté C, D'Ambrosi N. "Amyotrophic Lateral Sclerosis: focus on purinergic P2X7 receptor" at the international neuroscience conference "Neuroscience," Washington DC, USA (poster).

PUBLICATIONS

- 1) Della Valle I, Milani M, Rossi S, Turchi R, Tortolici F, Nesci V, Ferri A, Valle C, Lettieri-Barbato D, Aquilano K, Cozzolino M, Apolloni S,* D'Ambrosi N,* Loss of homeostatic functions in microglia from a murine model of Friedreich's ataxia, *Genes & Diseases*, <https://doi.org/10.1016/j.gendis.2023.101178>.* co-corresponding
- 2) Rossi S, Di Salvio M, Balì M, De Simone A, Apolloni S, D'Ambrosi N, Arisi I, Cipressa F, Cozzolino M, Cestra G. C9orf72 Toxic Species Affect ArfGAP-1 Function. *Cells*. 2023 Aug 5;12(15):2007.
- 3) Apolloni S, D'Ambrosi N. Repurposing niclosamide for the treatment of neurological disorders. *Neural Regen Res*. 2023 Dec;18(12):2705-2706.
- 4) Apolloni S, D'Ambrosi N. Inflammation in the CNS and PNS: From Molecular Basis to Therapy. *Int J Mol Sci*. 2023 May 29;24(11):9417.
- 5) Assmann CE, Apolloni S, Ignácio ZM, Bagatini MD. Editorial: Purinergic signaling and neuroinflammation. *Front Pharmacol*. 2022 Dec 15;13:1113063.
- 6) **Apolloni S**, Milani M, D'Ambrosi N. Neuroinflammation in Friedreich's Ataxia. *Int. J. Mol. Sci*. 2022, 23, 6297.
- 7) Ciccarone F, Castelli, Lazzarino G, Scaricamazza S, Mangione R, Bernardini S, **Apolloni S**, D'Ambrosi N, Ferri A, Ciriolo MR. Lipid catabolism and mitochondrial uncoupling are stimulated in brown adipose tissue of Amyotrophic Lateral Sclerosis mouse models. *Genes and Diseases* 2022 DOI 10.1016/j.gendis.2022.04.006
- 8) D'Ambrosi N, Cozzolino M, **Apolloni S**. The Contribution of Non-Neuronal Cells in Neurodegeneration: From Molecular Pathogenesis to Therapeutic Challenges. *Cells*, 2022, 11(2), 193
- 9) **Apolloni S**, D'Ambrosi N. Fibrosis as a common trait in amyotrophic lateral sclerosis tissues. *Neural Regen Res*. 2022 Jan;17(1):97-98.
- 10) **Apolloni S**, Fabrizio P, Amadio S, Napoli G, Freschi M, Sironi F, Pevarello P, Tarroni P, Liberati C, Bendotti C, Volonté C. Novel P2X7 Antagonist Ameliorates the Early Phase of ALS Disease and Decreases Inflammation and Autophagy in SOD1-G93A Mouse Model. *Int J Mol Sci*. 2021 Sep 30;22(19):10649.
- 11) Volonté C, **Apolloni S**, Amadio S. The Histamine and Multiple Sclerosis Alliance: Pleiotropic Actions and Functional Validation. *Curr Top Behav Neurosci*. 2021 Aug 26. (Book Chapter)
- 12) Milani M, Mammarella E, Rossi S, Miele C, Lattante S, Sabatelli M, Cozzolino M, D'Ambrosi N, **Apolloni S**. Targeting S100A4 with niclosamide attenuates inflammatory and profibrotic pathways in models of amyotrophic lateral sclerosis. *J Neuroinflammation*. 2021 Jun 12;18(1):132.
- 13) D'Ambrosi N, Milani M, **Apolloni S**. S100A4 in the Physiology and Pathology of the Central and Peripheral Nervous System. *Cells*. 2021 Apr 2;10(4):798.
- 14) D'Ambrosi N, **Apolloni S**. Fibrotic Scar in Neurodegenerative Diseases. *Front. Immunol.*, 2020 Aug 14;11:1394.

- 15) Volonté C, Morello G, Spampinato AG, Amadio S, **Apolloni S**, D'Agata V, Cavallaro S. Omics-based exploration and functional validation of neurotrophic factors and histamine as therapeutic targets in ALS. *Ageing Res Rev.* 2020 Sep;62:101121
- 16) Serrano A*, **Apolloni S***, Rossi S, Lattante S, Sabatelli M, Peric M, Andjus P, Michetti F, Carrì MT, Cozzolino M, D'Ambrosi N. The S100A4 Transcriptional Inhibitor Niclosamide Reduces Pro-Inflammatory and Migratory Phenotypes of Microglia: Implications for Amyotrophic Lateral Sclerosis. *Cells.* 2019 Oct 16;8(10). *first author
- 17) Giacobazzo G, Fabbriozio P, **Apolloni S**, Coccurello R and Volonté C. Stimulation of P2X7 Enhances Whole Body Energy Metabolism in Mice. *Front. Cell. Neurosci.* 2019 13:390.
- 18) **Apolloni S**, Caputi F, Pignataro A, Amadio S, Fabbriozio P, Ammassari-Teule M, Volonté C. Histamine Is an Inducer of the Heat Shock Response in SOD1-G93A Models of ALS. *Int J Mol Sci.* 2019 Aug 3;20(15).
- 19) Fabbriozio P, **Apolloni S**, Bianchi A, Salvatori I, Valle C, Lanzuolo C, Bendotti C, Nardo G, Volonté C. P2X7 activation enhances skeletal muscle metabolism and regeneration in SOD1G93A mouse model of amyotrophic lateral sclerosis. *Brain Pathol.* 2020 Mar;30(2):272-282
- 20) Volonté C, **Apolloni S**, Sabatelli M. Histamine beyond its effects on allergy: Potential therapeutic benefits for the treatment of Amyotrophic Lateral Sclerosis (ALS). *Pharmacol Ther.* 2019;202:120-131.
- 21) **Apolloni S**, Amadio S, Fabbriozio P, Morello G, Spampinato AG, Latagliata EC, Salvatori I, Proietti D, Ferri A, Madaro L, Puglisi-Allegra S, Cavallaro S, Volonté C. Histaminergic transmission slows progression of amyotrophic lateral sclerosis. *J Cachexia Sarcopenia Muscle.* 2019;10(4):872-893.
- 22) Volonté C, Amadio S, Fabbriozio P, **Apolloni S**. Functional microglia neurotransmitters in amyotrophic lateral sclerosis. *Semin Cell Dev Biol.* 2019 Oct;94:121-128.
- 23) Giacobazzo G*, **Apolloni S***, Coccurello R. Loss of P2X7 receptor function dampens whole body energy expenditure and fatty acid oxidation. *Purinergic Signal.* 2018 May 12. *first author
- 24) **Apolloni S**, Fabbriozio P, Amadio S, Napoli G, Verdile V, Morello G, Iemmolo R, Aronica E, Cavallaro S, Volonté, C. Histamine regulates the inflammatory profile of SOD1-G93A microglia and the histaminergic system is dysregulated in amyotrophic lateral sclerosis. *Front. Immunol.* 2017; 8:1689.
- 25) Amadio S, Parisi C, Piras E, Fabbriozio P, **Apolloni S**, Montilli C, Luchetti S, Ruggieri S, Gasperini C, Laghi-Pasini F, Battistini L and Volonté C. Modulation of P2X7 Receptor during Inflammation in Multiple Sclerosis. *Front. Immunol.* 2017 Nov 15; 8:1529.
- 26) Fabbriozio P, Amadio S, **Apolloni S***, Volonté C*. P2X7 Receptor Activation Modulates Autophagy in SOD1-G93A Mouse Microglia. *Front Cell Neurosci.* 2017 Aug 21;11:249. *co-last author
- 27) **Apolloni S**, Fabbriozio P, Amadio S, Volonté C. Actions of the antihistaminergic clemastine on presymptomatic SOD1-G93A mice ameliorate ALS disease progression. *J Neuroinflammation.* 2016 Aug 22;13(1):191.
- 28) Parisi C, Napoli G, Amadio S, Spalloni A, **Apolloni S**, Longone P, Volonté C. MicroRNA-125b regulates microglia activation and motor neuron death in ALS. *Cell Death Differ.* 2016 Mar;23(3):531-41.
- 29) Volonté C, **Apolloni S**, Parisi C, Amadio S. Purinergic contribution to amyotrophic lateral sclerosis. *Neuropharmacology.* 2016 May;104:180-93
- 30) Volonté C, Parisi C, **Apolloni S**. New kid on the block: does histamine get along with inflammation in amyotrophic lateral sclerosis? *CNS Neurol Disord Drug Targets.* 2015;14(5):677-86.

- 31) Volonte C, **Apolloni** S, Parisi C. MicroRNAs: newcomers into the ALS picture. *CNS Neurol Disord Drug Targets*. 2015;14(2):194-207
- 32) **Apolloni** S, Fabbriozio P, Parisi C, Amadio S, Volonté C. Clemastine Confers Neuroprotection and Induces an Anti-Inflammatory Phenotype in SOD1(G93A) Mouse Model of Amyotrophic Lateral Sclerosis. *Mol Neurobiol*. 2016 Jan;53(1):518-31.
- 33) Amadio S, Parisi C, Montilli C, Carrubba AS, **Apolloni** S, Volonté C. P2Y(12) receptor on the verge of a neuroinflammatory breakdown. *Mediators Inflamm*. 2014;2014:975849.
- 34) **Apolloni** S, Amadio S, Parisi C, Matteucci A, Potenza RL, Armida M, Popoli P, D'Ambrosi N, Volonté C. Spinal cord pathology is ameliorated by P2X7 antagonism in a SOD1-mutant mouse model of amyotrophic lateral sclerosis. *Dis Model Mech*. 2014 Sep;7(9):1101-9.
- 35) **Apolloni** S, Volonté C. Commentary: Brilliant blue g: what a little more colour can be. *CNS Neurol Disord Drug Targets*. 2013 Jul 20;12(5):550-1.
- 36) **Apolloni** S, Amadio S, Montilli C, Volonté C, D'Ambrosi N. Ablation of P2X7 receptor exacerbates gliosis and motoneuron death in the SOD1-G93A mouse model of amyotrophic lateral sclerosis. *Hum Mol Genet*. 2013 Oct 15;22(20):4102-16.
- 37) **Apolloni** S, Parisi C, Pesaresi MG, Rossi S, Carrì MT, Cozzolino M, Volonté C, D'Ambrosi N. The NADPH oxidase pathway is dysregulated by the P2X7 receptor in the SOD1-G93A microglia model of amyotrophic lateral sclerosis. *J Immunol*. 2013 May 15;190(10):5187-95.
- 38) Volonté C, **Apolloni** S, Skaper SD, Burnstock G. "P2X7 Receptors: Channels, Pores and More." *CNS Neurol Disord Drug Targets*. 2012.
- 39) Volonté C, **Apolloni** S, Carrì MT, D'Ambrosi N. "ALS: focus on purinergic signalling". *Pharmacology & Therapeutics*, 2011 132, 111-122.
- 40) Amadio S, **Apolloni** S, D'Ambrosi N, Volonté C. "Purinergic signalling at the plasma membrane: a multipurpose and multidirectional mode to deal with amyotrophic lateral sclerosis and multiple sclerosis." *J Neurochemistry*, 2011 116, 796-805.
- 41) **Apolloni** S*, Finocchi P, D'Agnano I, Alloisio S, Nobile M, D'Ambrosi N, Volonté C. "UDP exerts cytostatic and cytotoxic actions in human neuroblastoma SH-SY5Y cells over-expressing P2Y6 receptor." *Neurochem Int.*, 2010 56, 670-678. *corresponding author
- 42) D'Ambrosi N, Finocchi P, **Apolloni** S, Cozzolino M, Ferri A, Padovano V, Pietrini G, Carrì MT, Volonté C. "The proinflammatory action of microglial P2 receptors is enhanced in SOD1 models for amyotrophic lateral sclerosis." *J Immunol.*, 2009 183, 4648-4656.
- 43) **Apolloni** S, Montilli C, Finocchi P. and Amadio S., "Membrane compartments and purinergic signaling: P2X receptors in neurodegenerative and neuroinflammatory events" *FEBS Journal Review*, 2008 276, 354-364.

BIBLIOMETRIC INDICES

Total number of publications: 43

Number of publications as first/last/corresponding author: 26

h-index: 21 (Scopus)

Citations: 1435

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