

Objective: Research in Neurophysiology, Neuroimmunology, Neurodegenerative diseases and Cancer.

Education and Qualifications:

- 2021- Present **Senior Researcher** Dep. Physiology and Pharmacology, Sapienza University, Rome
- 2019-2021 **AIRC Fellowship** (Associazione Italiana Ricerca sul Cancro)
- 2018 **Post-Doc** Pasteur Institute Italy, Cenci Bolognetti foundation, Rome, Italy.
- 2017 **Post-Doc** IRCCS Neuromed, Via Atinense 18, 86077 Pozzilli, IS, Italy.
- Mar-may 2017 **Internship in Neurophysiology** Dep. of Neurobiology, Lab. Prof. Tarja Malm, University of Eastern Finland, Kuopio.
- April 2017 **Member of AINI** (Associazione Italiana di Neuroimmunologia)
- 2016 **Post-Doc in Neuroimmunology** Dep. Physiology and Pharmacology, Sapienza University, Rome, Italy, Prof. Cristina Limatola.
- 2012-2015 **PhD Student in Neurophysiology** Dep. Physiology and Pharmacology, Sapienza University, Rome, Italy. Lab. of Neuroimmunology Prof. Cristina Limatola.
- Dec 2012 **Enabling in the National order of Biologist**
- Gen 2011 to Mar 2011 **Internship in Sensory-Motor Neuroscience** Dep. Physiology and Pharmacology, Sapienza University, Rome, Italy. Lab. of Neurophysiology Prof. Roberto Caminiti.
- 2010-2012 **Master Degree in Neurobiology** final mark: 110/110 cum laude. Dep. Cellular and Development Biology, Sapienza University, Rome, Italy. Supervisor: Prof. De Stefano.

Research Experiences:

- 2015 to present **Post-Doc Research** activity:
 - Study of interaction between immune system and nervous system in physiological and pathological conditions
 - Expertise in Human iPSCs-derived Microglia
 - Study of the role of NK cells in Amyotrophic Lateral Sclerosis (ALS)
 - Epigenetic modification study in human and murine brain tumors
 - Effect of cardiac glycoside brain tumors
- Sept 2016 **Visiting** Nencki Institute of Experimental Biology, internship in Lab. Prof. Kaminska, Warszawa, Poland.
- March 2014 **Visiting** NEUROFARBA, Dep. of Neuroscience, internship in Lab. Prof. Pedata, Florence, Italy.
- Oct 2012 to 2015 **Doctoral Research** activity:

- *In vitro* and *in vivo* study of human and murine brain tumors
- Effect of *environmental enrichment* on mice in different physio-pathological conditions
- Study of *tumor microenvironment*
- Study of effects of *depression* and *stress* on Microglia phenotype

Teaching activity:

- Academic year **2020/2021** Sapienza University of Rome, Faculty of Medicine and Psychology: **supplementary teaching activities** for the module of Physiology - Degree course in Applied Pharmaceutical Sciences BIO / 09.
- Academic year **2019/2020** and **2020/2021** Sapienza University of Rome, Faculty of Medicine and Psychology: **supplementary teaching activities** for the module of Advanced Morphofunctional Sciences and Techniques II - Degree course in Medical Biotechnology BIO / 09.

Courses and Workshop

- Nov 2018 **Workshop “Animal Welfare in Neuroscience Research”**, Dep. Physiology and Pharmacology, Sapienza University, Rome, Italy.
- Oct 2017 **EFIS-EJI Ruggero Ceppellini Advance school in immunology course**, Naples, Italy.
- Oct 2016 **SynaNet Workshop on Neuroinflammation**. Department of Neurobiology, University of Eastern Finland, Kuopio, Finland.
- June 2015 **19th Physiology italian school course SIF Molecular and Cellular Biophysics of Excitable Cells**. Pavia, Italy.
- May 2014 **18th Physiology italian school course SIF Brain functional organization and brain imaging in humans**. Chieti, Italy.

Other Activities and Assignments:

- I refer to the following magazines:
PeerJ (Life, Bio & Health Sciences); Brain, Behaviour and Immunity (BBI); Brain Research; Clinical immunology; Frontiers in cellular Neurosc.; Cellular and Molecular Immunology (CMI).

Technical Expertises:

- ***In vivo* systems:** rodents handling and restraint; stereotaxic surgery; Osmotic-Pump implantation; isolation and analysis of different cell populations with magnetic cell separator-MACS; brain cytokines infusion with cannula implantation or intra-brain area infusion; trans-cardiac perfusion; BrdU protocols of administrations; brain and spinal cord dissection; blood and bone marrow mice sample; preservation of fixed tissues *ex vivo* sample

analysis and compounds quantification. Experience with cerebral tumor models *in vivo* (Glioblastoma/Glioma murine and human model).

- **In vitro systems:** differentiation of hiPSC derived Microglia; preparation and handling of cell lines; primary neuronal cultures (Cortex, Hippocampus); primary glial cells cultures (microglia and astrocytes); primary microglia cultures from spinal cord; isolation and support of cancer stem cell; model of Blood Brain Barrier (BBB).
- **Bench techniques:** biochemistry, cell biology, molecular biology (Western Blot; immunoprecipitation; Elisa-test; PCR; qPCR; quantification of cell migration and invasion; phagocytosis assay; quantification of cellular viability and proliferation; *in vitro* models of cell death; cell transfection with different techniques; quantitative spectrophotometric and colorimetric assays; isolation of RNA, DNA or/and protein from cultures and tissues murine or human).
- **Imaging techniques:** immunofluorescence, immunocytochemistry, immunohistochemistry, confocal imaging and analysis.

Publications:

- Coccozza G., **Garofalo S.**, Capitani R., D'Alessandro G., Limatola C. *Microglial Potassium Channels: From Homeostasis to Neurodegeneration* **Biomolecules** (I.F. 4.569).
- Basilico B.*, Ferrucci L.*, Ratano P.*, Golia M.T., Grimaldi A., Rosito M., Ferretti V., Reverte I., Sanchini C., Marrone M.C., Giubettini M., De Turris V., Salerno D., **Garofalo S.**, ... Di Angelantonio S.*, Ragozzino D.* *Microglia control glutamatergic synapses in the adult mouse hippocampus* **Glia** **2021** (I.F. 7.452).
- Corsi G.*, Picard K.*, Di Castro MA.*, **Garofalo S.**,... Limatola C. *Microglia modulate hippocampal synaptic transmission and sleep duration along the light/dark cycle* **Glia** **2021** (I.F. 7.452).
- Mormino A., Bernardini G., Coccozza G., Corbi N., Passananti C., Santoni A., Limatola C. * and **Garofalo S***. *Enriched environment cues suggest a new strategy to counteract glioma: engineered rAAV2-IL-15 microglia modulate tumor microenvironment* **Frontiers in Imm.** **2021** (I.F. 7.561).
- Coccozza G., **Garofalo S.**, Morotti M., Chece G.,...Wulff H., Limatola C. *The feeding behaviour of ALS mouse models is modulated by the Ca²⁺-activated KCa_{3.1} channel* **British Journal of Pharmacology** **2021** (I.F. 8.739).
- Picard K.*, Bisht K.*, Poggini S.*, **Garofalo S.**, Golia M.T.,... Ragozzino D.*, Maggi L.*, Branchi I.*, Tremblay M.E.*. *Microglial-glucocorticoid receptor depletion alters the response of hippocampal microglia and neurons in a chronic unpredictable mild stress paradigm in female mice* **Brain Behaviour and Immunity** **2021** (I.F. 6.63).
- Mormino A., Coccozza G., Fontemaggi G., Valente S., Esposito V., Santoro A., Bernardini G., Santoni A., Fazi F., Mai A., Limatola C.* and **Garofalo S.*** *Histone-deacetylase 8 drives the immune response and the growth of glioma* **Glia** **2021** (I.F. 7.452).
- Naziris N., Pippa N., Sereti E., Chrysostomou V., Kędzierska M., Kajdanek J., Ionov M., Miłowska K., Balcerzak L., **Garofalo S.**... *Chimeric Stimuli-Responsive Liposomes as Nanocarriers for the Delivery of the Anti-Glioma Agent TRAM-34* **International Journal of Molecular Sciences IJMS** **2021** (I.F. 4.556).
- Chen J., Ellert-Miklaszewska A., **Garofalo S.**, Dey A., Tang J., Jiang Y., Clément F., Marche P., Liu X., Kaminska B., Santoni A., Limatola C., Rossi J., Zhou J. *, Peng L.* *Synthesis and use of an amphiphilic dendrimer for siRNA delivery into primary immune cells* **Nature Protocols** **2020** (I.F. 11.334).
- **Garofalo S.**, Coccozza G, Porzia A, Inghilleri M, Raspa M, Scavizzi F, Aronica E, Bernardini G, Peng L, Ransohoff RM, Santoni A, Limatola C. *Natural Killer Cells Modulate Motor Neuron-Immune Cell Cross Talk in Models of Amyotrophic Lateral Sclerosis* **Nature Communications** **2020** (I.F. 14.199).

- **Garofalo S.**, Picard K., Limatola C., Nadjar A., Pascual O., and Tremblay M.E. *Role of Glia in the Regulation of Sleep in Health and Disease* **Comprehensive Physiology** **2020** (I.F. 6.246).
- Golia M.T., Poggini S., Alboni S., **Garofalo S.**, Albanese N., Viglione A., Ajmone-Cat M.A., St-Pierre A., Brunello N., Limatola C., Branchi I., Maggi L. *Interplay between inflammation and neural plasticity: Both immune activation and suppression impair LTP and BDNF expression* **Brain Behaviour and Immunity** **2019** (I.F. 6.17).
- Coccozza G., Di Castro M.A., Carbonari L., Grimaldi A., Antonangeli F., **Garofalo S.**, Porzia A., Madonna M., Mainiero F., Santoni A., Grassi F., Wulff H., D'Alessandro G. & Limatola C. *Ca²⁺-activated K⁺ channels modulate microglia affecting motor neuron survival in hSOD1G93A mice* **Brain Behaviour and Immunity** **2018** (I.F. 6.30).
- **Garofalo S.**, Porzia A., Mainiero F., et al., *Environmental stimuli shape microglial plasticity in glioma* **eLife** **2017** (I.F. 7.725).
- **Garofalo S.**, Grimaldi A., Chece G., Porzia A., Morrone S., Mainiero F., Esposito V., Cortese B., Rosa A., Di Angelantonio S., Trettel F., Limatola C. *The glycoside oleandrin reduces glioma growth with direct and indirect effects on tumor cells* **J. Neurosci** **2017** (I.F. 5.988).
- Milior G., DiCastro MA., Sciarra L., **Garofalo S.**, Branchi I., Ragozzino D., Limatola C. & Maggi L. *Electrophysiological Properties of CA1 Pyramidal Neurons along the Longitudinal Axis of the Mouse Hippocampus* **Scientific Reports** **2016** (I.F. 5.228).
- Alboni S.*, Poggini S.*, **Garofalo S.**, Milior G., El Hajj H., Lecours C., Girard I., Gagnon S., Boisjoly-Villeneuve S., Brunello N., Wolfer DP., Limatola C., Tremblay ME., Maggi L., Branchi I. *Fluoxetine treatment affects the inflammatory response and microglial function according to the quality of the living environment.* **Brain, Behav. Immun.** **2016** (I.F. 5.964).
- Pagani F., Paolicelli R., Murana E., Cortese B., Di Angelantonio S., Zurolo E., Guiducci E., Ferreira T., **Garofalo S.**, Catalano M., D'Alessandro G., Porzia A., Peruzzi G., Mainiero F., Limatola C., Gross C., Ragozzino D. *Defective microglial development in the hippocampus of Cx3cr1 deficient mice* **Frontiers in Cellular Neuroscience** **2015** (I.F. 4.609).
- **Garofalo S.**, D'alessandro G., Chece G., Brau F., Maggi L., Rosa A., Porzia A., Mainiero F., Esposito V., Lauro C., Benigni G., Bernardini G., Santoni A., Limatola C. *Enriched environment reduces glioma growth through immune and non immune mechanisms in mice* **Nature Communications** **2015** (I.F. 11.470).

Fundings and Awards

- Winner of **ARISLA – Pilot Grant 2019** (Fondazione Italiana di Ricerca per la Sclerosi Laterale Amiotrofica) (57K).
- Winner of **AIRC** (Associazione Italiana Ricerca sul Cancro) **Fellowship “David Raffaelli”** 2019-2021 (25K euro per year).
- **Young Research Awards 2017** for best published research in Department of Physiology and Pharmacology, University of Rome, Sapienza (2000 euro).
- Dic 2017 Winner of **Neuroscience fellowship** at the Department of Physiology and Pharmacology, University of Rome, Sapienza (5000 euro).
- Dic 2016 Winner of **Pasteur Insitute Italy, Cenci Bolognetti foundation, fellowship** (6000 euro).
- Winner of Grant for course **“EFIS-EJI Ruggero Ceppellini Advance school in immunology”** 2017.
- Winner of Grant for **AINIESNI2017 XXVI AINI Congress and ESNI 16th course** 2017.
- Winner of project **Avvio alla Ricerca 2016**, Sapienza University of Rome (4000 euro).
- **Young Research Awards 2015** for best published research in Department of Physiology and Pharmacology, University of Rome, Sapienza (2000 euro).

Patents

- **TRATTAMENTO DEL TUMORE CEREBRALE** n.102015000086815 National Patent 22.12.2015.

Oral communications

- Speaker Invitation: Cancer-2021 at the upcoming **8th International Meet on Cancer & Radiology**, October 25-27, 2021 in Prague, Czech Republic
- *Role of microglia in brain tumors*. **XIX National Congress SINS**, Sept 2021, Brescia, Italy.
- *Natural Killer cells modulate motor neuron-immune cell cross talk in models of ALS*. **40° SIF (Società Italiana di Farmacologia) congress**, March 2021, digital edition.
- *Environmental stimuli instruct innate immune system to fight brain tumors*. **CRiN Neuroscience Seminar**, Sapienza University of Rome, March 2019, Rome, Italy.
- *Environmental stimuli shape microglial plasticity in glioma* **More than neuron Congress**, Dec 2018, Turin, Italy
- *Role of NK cells in ALS*. **ARISLA (Fondazione Italiana per la Ricerca sulla Sclerosi Laterale Amiotrofica) Congress**, Sept 2018, Genova, Italy
- *Environmental stimuli shape microglial plasticity in glioma*. **Microglia EMBO Congress**, Mar 2018, Heiselberg, Germany.
- *Fluoxetine counteracts the opposite effects of stress and enrichment on the inflammatory response and microglial status*. **XVII National Congress SINS**, Sept 2017, Ischia, Italy.
- *Environmental stimuli via Interleukin-15 drive interplay between NK cell and microglia reducing glioma growth in vivo*. **XXVI AINI Congress and ESNI 16th course**, June 2017, Venice, Italy.
- *New strategies to fight against glioblastoma: reprogramming the innate immune system*. **Seminary** at Department of Neurobiology, May 2017, University of Eastern Finland, Kuopio.
- *Effect of environmental enrichment on glioblastoma progression: can it suggest a new therapy?* **7° Young Research Meeting, The Physiological Society of Italy SIF**, May 2013, Anacapri, Italy.

Posters

- June 2021 **Keystone Symposia “Neuroimmune interaction in health and disease”** in Keystone, Colorado, USA.
- Jan 2017 **SynaNet** Annual Scientific Meeting, Lisbon, Spain.
- Dic 2016 **More than Neurons: toward a less neuronocentric view of brain disorders** Turin, Italy
- **June 2016 Keystone Symposia “Microglia”** in Keystone, Colorado, USA.
- Oct 2015 **FENS regional meeting** Thessaloniki, Greece.
- Feb 2015 **SINS “Nuove Prospettive delle Neuroscienze: Le Ricerche dei Giovani Neuroricerchatori Italiani”** Naples, Italy.
- July 2014 **9th FENS** Milan, Italy.
- Oct 2013 **3th Chemokines and chemokine receptors in the nervous system** Rome, Italy.
- Sept 2013 **30th Associazione Biologia Cellulare e del Differenziamento ABCD** Ravenna, Italy.

