

MARIA VITTORIA MARVI



EDUCATION and TRAINING

15/10/2023 – ongoing: **Research Fellow (BIO/16)**

Department of Biomedical and Neuromotor Sciences (DIBINEM) - Alma Mater Studiorum, University of Bologna, Bologna (Italy)

Project: “Cancer stem cells: il ruolo delle vie di trasduzione del segnale lipide-dipendente nel promuovere la crescita e la disseminazione tumorale”. Supervisor: Prof. Stefano Ratti

01/11/2022 – 14/10/2023: **Research Fellow (BIO/09)**

Department of Biomedical and Neuromotor Sciences (DIBINEM) - Alma Mater Studiorum, University of Bologna, Bologna (Italy)

Project: “Studio citoarchitettonico della corteccia parieto-occipitale mediale del cervello umano”- ALMA IDEA 2022. Supervisor: Prof. Michela Gamberini

01/11/2019 – 30/03/2023: **PhD in Biomedical and Neuromotor Sciences (BIO/16)**

Department of Biomedical and Neuromotor Sciences (DIBINEM) - Alma Mater Studiorum, University of Bologna, Bologna (Italy) - Cell Signalling Laboratory, Center of Clinical Surgical Experimental and Molecular Anatomy.

Project: Study of the cellular signaling and molecular mechanisms underlying the pathogenesis of glioblastoma, focusing on the search for new therapeutic strategies based on personalized and stratified medicine. Supervisor: Prof. Stefano Ratti

01/2020: **Recognition of the professional qualification of biologist (Section A)**, released from “Ordine Nazionale dei Biologi”

University of Parma, Parma (Italy)

03/10/2016 – 07/12/2018: **Master’s degree in Medical Biotechnology (LM-9)**

Alma Mater Studiorum, School of Medicine and Surgery, University of Bologna, Bologna (Italy)

Date of Graduation: 07/12/2018

Final Mark: 110/110 with honors and dignity of printing

Thesis: «Glioblastoma and Inositide-dependent signaling: morphofunctional aspects». Internship at the Department of Biomedical and Neuromotor Sciences (DIBINEM), Cellular Signalling Laboratory. Supervisor: Prof. Lucio Ildebrando Cocco

09/2013 – 22/09/2016: **Bachelor’s degree in Biotechnology (L-2)**

University of Parma, Parma (Italy)

Date of Graduation: 22/09/2016

Final Mark: 110/110

Thesis: «Study of deletion and overexpression of the MIC60 gene on the rescue of mitochondrial mutability by Clofilium Tosilato». Internship at the Department of Biosciences (Genetics Laboratory) of the University of Parma (Italy). Supervisor: Prof. Tiziana Lodi

07/2013: **High School Graduation**: «Leonardo Da Vinci» Scientific High School, Pescara (Italy)

Final Mark: 100/100

TEACHING ACTIVITY:

2023: **Anatomy Teaching Tutor (74872)**. Modules 3 and 4 of Organic and Cell Morphology (I.C)

Department of Pharmacy and Biotechnology (FABIT) - Alma Mater Studiorum, University of Bologna, Bologna (Italy)

OTHER PROFESSIONAL EXPERIENCES and PERIODS ABROAD:

12/02/2022 – 31/07/2022: **6-month fellowship at The Tapinos Laboratory of Cancer Epigenetics and Plasticity (RI Hospital, Brown University)**

RI Hospital, Brown University, Providence, Rhode Island, USA

Project: "Multidisciplinary approaches to uncover mechanisms that regulate plasticity, motility and epigenetics of glioma cells"

Main research topic: Study of the role of m6A RNA modification in the regulation of cancer stemness and development of epitranscriptome targeting therapeutics.

Supervisor: Prof. Nikos Tapinos

07/01/2019 - 31/10/2019: **Post-graduate training**

Department of Biomedical and Neuromotor Sciences (DIBINEM) - Alma Mater Studiorum, University of Bologna, Bologna (Italy).

Project: Study of the signaling and the molecular mechanisms at the base of glioblastoma pathogenesis

MAIN RESEARCH TOPICS:

My current research fellowship is based on the characterization of the unexplored human medial parieto-occipital brain cortex (involved in the visual-motor control of the act of prehension) from a qualitative, quantitative, and neurochemical point of view, using tissues taken from cadavers (which bodies were donated to the Center of Clinical Surgical Experimental and Molecular Anatomy). This project involves the use of different biological tissue processing techniques and neuroanatomical data analysis.

My scientific research, developed during the PhD and still in progress, is mainly focused on studying the signaling transduction pathways of the lipid-dependent processes in neuro-oncological diseases and, specifically, in glioblastoma. Working in collaboration with the neurosurgery team, we have the possibility to collect different glioblastoma patients' samples and characterize their intra- and inter- tumor heterogeneity through a multimodal approach, including immunohistochemical techniques, genetic and epigenetic analyses. Starting from fresh biopsies we are also able to establish patient-derived cell cultures and perform further molecular and morphological analyses to elucidate the signaling mechanisms that drive tumorigenesis. By correlating the clinical characteristics of the patients with the molecular ones, it will be possible to identify potential therapeutic targets and pave the way for new personalized and stratified therapies.

TECHNICAL SKILLS:

Cellular and molecular biology:

- Isolation and culture of primary cell lines and patient-derived Human Glioma Stem Cells (hGSCs)
- DNA digestion and ligation, Plasmid Miniprep and Midiprep, E.Coli transformation, optimization of transient and stable (lentiviral) transfection techniques
- RNA and DNA extraction from cells and tissues (fresh/FFPE), q-PCR, RNA-seq, Methylated (m6A) RNA immunoprecipitation (MeRIP), and DNA methylation analysis
- Study of bio-molecular mechanisms through western blotting, flow cytometric analysis, optical and fluorescence microscopy, Incucyte S3 (for morpho-functional analysis of cell cultures) and Leica LMD6 laser microdissector for the isolation of single cells

Histochemistry:

- Paraffin inclusion of surgical samples
- Microtome cutting of formalin-fixed paraffin-embedded (FFPE) samples and their analysis by staining and labeling techniques with colorimetric and fluorescent antibodies

Analytical skillset:

- Employ R code for analysis of complex dataset
- Employ R code for comprehensive RNA-seq analysis

Computer skills:

Microsoft Office, Adobe Photoshop, Graphpad Prism, Fiji, Leica QWin, Igv (Integrative genomics viewer), DEBrowser.

COURSES and LABORATORIES:

- 2021-2022: Participation in **Laboratories of Macroscopic and Microscopic Human Anatomy** at the Department of Biomedical and Neuromotor Sciences of the University of Bologna, Bologna (Italy).
- 10/2021-12/2021: **Microscopy Online Course** «Vedere Per Credere» organized by Fondazione Golinelli, Bologna (Italy)
- 20/04/2020-13/05/2020: **Course in Basic Laboratory Animal Science**, organized by University of Bologna, Bologna (Italy)

- 06/06/2018-08/06/2018: **Basic Flow Cytometry course**, organized by GIC (Italian Cytometry Society), Frascati, Rome (Italy)
- 10/07/2017-14/07/2017: **Summer School**: «Innovation and Technology Management in Medical and Pharmaceutical Biotechnology» organized by Bologna Business School, University of Bologna, Bologna (Italy)

METRICS:

Source: Scopus 2023
 Documents: 13
 Citations: 123
 h-index: 6

PUBLICATIONS:

Fazio, A., Evangelisti, C., Cappellini, A., Mongiorgi, S., Koufi, F-D, Neri, I., **Marvi M.V.**, Russo, M., Ghigo, A., Manzoli, L., Fiume, R., Ratti, S. Emerging Roles of Phospholipase C Beta Isozymes as Potential Biomarkers in Cardiac Disorders. *International Journal of Molecular Sciences*. 2023; 24(17):13096. <https://doi.org/10.3390/ijms241713096>

Koufi, F-D., Neri, I., Ramazzotti, G., Rusciano, I., Mongiorgi, S., **Marvi, M.V.**, Fazio, A., Shin, M., Kosodo, Y., Cani, I., Giorgio, E., Cortelli, P., Manzoli, L., Ratti, S. Lamin B1 as a key modulator of the developing and aging brain. *Front. Cell. Neurosci.* 2023; <https://doi.org/10.3389/fncel.2023.1263310>

Vidalle, M.C.; Sheth, B.; Fazio, A.; **Marvi, M.V.**; Leto, S.; Koufi, F.-D.; Neri, I.; Casalin, I.; Ramazzotti, G.; Follo, M.Y.; et al. Nuclear Phosphoinositides as Key Determinants of Nuclear Functions. *Biomolecules* 2023, 13, 1049. <https://doi.org/10.3390/biom13071049>

Marvi, M.V*, Neri I., Evangelisti C., Ramazzotti G., Asioli S., Zoli M., Mazzatenta D., Neri N., Morandi L., Tonon C., Lodi R., Franceschi E., McCubrey J.A., Suh P-G, Manzoli L., Ratti S. Phospholipases in Gliomas: Current Knowledge and Future Perspectives from Bench to Bedside. *Biomolecules*. 2023; 13(5):798. <https://doi.org/10.3390/biom13050798> (***first**)

De Stefano, A., **Marvi, M. V.**, Fazio, A., McCubrey, J. A., Suh, P. G., Ratti, S., Ramazzotti, G., Manzoli, L., Cocco, L., & Follo, M. Y. (2023). Advances in MDS/AML and inositide signalling. *Advances in biological regulation*, 87, 100955. <https://doi.org/10.1016/j.jbior.2023.100955>

Ratti, S.*, **Marvi, M.V.***, Mongiorgi, S., Obeng, E. O., Rusciano, I., Ramazzotti, G., Morandi, L., Asioli, S., Zoli, M., Mazzatenta, D., Suh, P. G., Manzoli, L., & Cocco, L. (2022). Impact of phospholipase C β 1 in glioblastoma: a study on the main mechanisms of tumor aggressiveness. *Cellular and molecular life sciences: CMLS*, 79(4), 195. <https://doi.org/10.1007/s00018-022-04198-1> (***co-first**)

Marvi, M.V.*, Mongiorgi, S., Ramazzotti, G., Follo, M. Y., Billi, A. M., Zoli, M., Mazzatenta, D., Morandi, L., Asioli, S., Papa, V., McCubrey, J. A., Suh, P. G., Manzoli, L., Cocco, L., & Ratti, S. (2022). Role of PLC γ 1 in the modulation of cell migration and cell invasion in glioblastoma. *Advances in biological regulation*, 83, 100838. <https://doi.org/10.1016/j.jbior.2021.100838> (***first**)

Cappellini, A., Mongiorgi, S., Finelli, C., Fazio, A., Ratti, S., **Marvi, M.V.**, Curti, A., Salvestrini, V., Pellagatti, A., Billi, A. M., Suh, P. G., McCubrey, J. A., Boulwood, J., Manzoli, L., Cocco, L., & Follo, M. Y. (2020). Phospholipase C beta1 (PI-PLCbeta1)/Cyclin D3/protein kinase C (PKC) alpha signaling modulation during iron-induced oxidative stress in myelodysplastic syndromes (MDS). *FASEB journal: official publication of the Federation of American Societies for Experimental Biology*, 34(11), 15400–15416. <https://doi.org/10.1096/fj.20200933RR>

Rusciano, I.*, **Marvi, M.V.***, Owusu Obeng, E., Mongiorgi, S., Ramazzotti, G., Follo, M. Y., Zoli, M., Morandi, L., Asioli, S., Fabbri, V. P., McCubrey, J. A., Suh, P. G., Manzoli, L., Cocco, L., & Ratti, S. (2021). Location-dependent role of phospholipase C signaling in the brain: Physiology and pathology. *Advances in biological regulation*, 79, 100771. <https://doi.org/10.1016/j.jbior.2020.100771> (***co-first**)

Owusu Obeng, E., Rusciano, I., **Marvi, M.V.**, Fazio, A., Ratti, S., Follo, M. Y., Xian, J., Manzoli, L., Billi, A. M., Mongiorgi, S., Ramazzotti, G., & Cocco, L. (2020). Phosphoinositide-Dependent Signaling in Cancer: A Focus on Phospholipase C Isozymes. *International journal of molecular sciences*, 21(7), 2581. <https://doi.org/10.3390/ijms21072581>

Fazio, A., Owusu Obeng, E., Rusciano, I., **Marvi, M.V.**, Zoli, M., Mongiorgi, S., Ramazzotti, G., Follo, M. Y., McCubrey, J. A., Cocco, L., Manzoli, L., & Ratti, S. (2020). Subcellular Localization Relevance and Cancer-Associated Mechanisms of Diacylglycerol Kinases. *International journal of molecular sciences*, 21(15), 5297. <https://doi.org/10.3390/ijms21155297>

Xian, J., Owusu Obeng, E., Ratti, S., Rusciano, I., **Marvi, M.V.**, Fazio, A., De Stefano, A., Mongiorgi, S., Cappellini, A., Ramazzotti, G., Manzoli, L., Cocco, L., & Follo, M. Y. (2020). Nuclear Inositides and Inositide-Dependent Signaling Pathways in Myelodysplastic Syndromes. *Cells*, 9(3), 697. <https://doi.org/10.3390/cells9030697>

Fiume, R., Faenza, I., Sheth, B., Poli, A., Vidalle, M. C., Mazzetti, C., Abdul, S. H., Campagnoli, F., Fabbrini, M., Kimber, S. T., Mariani, G. A., Xian, J., **Marvi, M.V.**, Mongiorgi, S., Shah, Z., & Divecha, N. (2019). Nuclear Phosphoinositides: Their Regulation and Roles in Nuclear Functions. *International journal of molecular sciences*, 20(12), 2991. <https://doi.org/10.3390/ijms20122991>

MEMBERSHIP OF SCIENTIFIC SOCIETIES:

Member of the Italian Society of Immunohistochemistry (SII)

Member of the Italian Society of Anatomy and Histology (SIAI)

Member of Brainstorming Research Assembly for Young Neuroscientists (BraYn) Association

HONORS AND AWARDS:

BraYn Travel Grant (BTG) 2023 issued by BraYn Association, for participating at the 6th BraYn Conference in Naples (27/09/2023-29/09/2023).

Premio Ferraguti for the Best Neuro-oncological Project for the year 2021-2022, issued by the Italian Society of Neurosurgery, for our collaboration on the molecular pathogenesis of gliomas.

Participation Award for the 16th International Congress of Histochemistry and Cytochemistry at Prague (28/08/22-31/08/22) issued by the Italian Society of Immunohistochemistry (SII).

Young Histochemist Award 2022 issued by the International Federation of Societies for Histochemistry and Cytochemistry (IFSHC).

Marco Polo 2021 Scholarship: 5 months grant for PhD laboratory collaboration between Brown University and Bologna University. The Project was on glioblastoma epigenetics and plasticity with a focus on epitranscriptomic regulation in glioma stem cells.

PARTICIPATION IN NATIONAL AND INTERNATIONAL CONFERENCES:

27/09/2023-29/09/2023: **6th BraYn Conference.**

Napoli, Italy

Participation with Poster: "Phospholipases as potential prognostic biomarkers and targets In the development of new therapeutic strategies for glioblastoma"

11/09/2023-13/09/2023: **76th SIAI National Congress** (Italian Society of Anatomy and Histology).

Modena, Italy

Participation with Poster: "Exploiting lamin A processing: a potential pharmacological strategy to enhance oxidative stress sensitivity in glioblastoma cells"

23/07/2023 – 28/07/2023: **Gordon Research Conference: Molecular and Cellular Biology of Lipids.**

Waterville Valley, NH, United States

Participation with Poster: "The role of Phospholipases in glioblastoma: current knowledge and future perspectives from bench to bedside"

14/06/2023 – 17/06/2023: **39th Congress of the Italian Society of Histochemistry (SII).**

Vulcano, Italy

Participation with Oral Communication: "Can prelamins A accumulation open up new perspectives for glioblastoma?"

14/09/2022-16/09/2022: **75th SIAI National Congress** (Italian Society of Anatomy and Histology).

Padova, Italy

Participation with Oral Communication: "Phospholipase C β 1 and Phospholipase C γ 1: key regulators of Glioblastoma aggressiveness and progression"

28/08/2022 – 31/08/2022: **16th International congress oh Histochemistry and Cytochemistry.**

Prague, Czech Republic

Participation with Oral Communication: «Phospholipases: novel potential modulators of aggressiveness in glioblastoma»

24/09/2021 - 25/09/2021 : **74th SIAI National Congress** (Italian Society of Anatomy and Histology).

University of Bologna, Bologna (Italy)

Participation with Poster: «Potential role of Phospholipase C β 1 in high-grade gliomas: a new prognostic biomarker»

31/05/2021 - 03/06/2021 : **12th European Congress of Neuropathology (ECNP2021).**

Online, virtual.

Participation with Poster: «Phospholipase C β 1: a new potential prognostic biomarker in Glioblastoma Multiforme»

19/09/2019 - 21/09/2019 : **The Biennal Congress of the Italian Association of cell biology and differentiation (ABCD),**

Bologna (Italy).

Participation with Poster : «Inositide-dependent signaling in low- and high-grade gliomas»

20/09/2018 - 22/09/2018 : **72nd SIAI National Congress** (Italian Society of Anatomy and Histology).

University of Parma, Parma (Italy)

PARTICIPATION IN SEMINARS:

27/10/2023: Workshop "The Human brain: experimental models in different species of Primates".

Teaching activity of the Medicine and Surgery School, with the support of the « Bando strutture 2021 ».

University of Bologna, Bologna (Italy).

25/10/2023: Medicine And Surgery research Seminar 2023: The Different Shapes Of Anatomical Research.

University of Bologna, Bologna (Italy).

ABSTRACTS PRESENTED AT CONFERENCES:

"Phospholipases as potential prognostic biomarkers and targets In the development of new therapeutic strategies for glioblastoma" **M.V. Marvi**, I. Rusciano, S. Mongiorgi, I. Neri, L. Manzoli, L. Cocco, N. Tapinos, S. Ratti

Presented at the 6th BraYn Conference, Napoli (27/09/2023-29/09/2023)

"Exploiting lamin A processing: a potential pharmacological strategy to enhance oxidative stress sensitivity in glioblastoma cells" **M.V. Marvi**, C. Evangelisti, C. Capanni, A. Cappellini, I. Rusciano, S. Mongiorgi, L. Manzoli, S. Ratti

Presented at the 76th SIAI National Congress, Modena (11/09/23-13/09/23)

"Anatomical variants of the left vertebral artery: a case report" A.M. Billi, A. Fazio, **M.V. Marvi**, M. Quaranta, E. Orsini, S. Lodi, G.A. Mariani, S. Ratti, L. Manzoli

Presented at the 76th SIAI National Congress, Modena (11/09/23-13/09/23)

"Preclinical anatomical evaluation of the application of a galeo-pericranial flap in oral cavity defects reconstruction: vascular study and surgical procedure simulation on a revascularized donor cadaver" A.M. Manfroni, **M.V. Marvi**, S. Lodi, C. Breque, G. Vara, A. Ruggeri, G. Badiali, L. Manzoli, A. Tarsitano, S. Ratti

Presented at the 76th SIAI National Congress, Modena (11/09/23-13/09/23)

"Dissecting glioma microenvironment: validation of a new protocol for secretome extraction from glioma patients' tissue" I. Neri, **M.V. Marvi**, N. Neri, D. Mazzatenta, M. Zoli, M. Martinoni, E. Franceschi, R. Lodi, L. Manzoli, S. Ratti

Presented at the 76th SIAI National Congress, Modena (11/09/23-13/09/23)

“The role of Phospholipases in glioblastoma: current knowledge and future perspectives from bench to bedside”

M.V. Marvi, S. Mongiorgi, I. Neri, N. Tapinos, L. Manzoli, L. Cocco, S. Ratti

Presented at the Gordon Research Conference: Molecular and Cellular Biology of Lipids, Waterville Valley, NH, US (23/07/23-28/07/23).

“Can prelamin A accumulation open up new perspectives for glioblastoma?”

M.V. Marvi, C. Evangelisti, C. Capanni, I. Rusciano, S. Mongiorgi, L. Manzoli, S. Ratti

Presented at the 39th SII National Congress, Vulcano, Italy (14/06/23-17/06/23)

«Phospholipase C β 1 and Phospholipase C γ 1: key regulators of Glioblastoma aggressiveness and progression»

M.V. Marvi, S. Mongiorgi, G. Ramazzotti, I. Neri, L. Manzoli, N. Tapinos, S. Ratti, L. Cocco

Presented at the 75th SIAI National Congress, Padova (14/09/22-16/09/22)

«Phospholipases: novel potential modulators of aggressiveness in glioblastoma»

M.V. Marvi, S. Mongiorgi, I. Neri, L. Manzoli, L. Cocco, N. Tapinos, S. Ratti

Presented at the 16th International congress on Histochemistry and Cytochemistry, Prague (Czech Republic) (28/08/22-31/08/22)

«Potential role of Phospholipase C β 1 in high-grade gliomas: a new prognostic biomarker»

M.V. Marvi, S. Ratti, S. Mongiorgi, M. Zoli, S. Asioli, L. Morandi, L. Manzoli, L. Cocco.

Presented at the 74th SIAI National Congress, Bologna (24/09/21-25/09/21)

«Phospholipase C β 1: a new potential prognostic biomarker in Glioblastoma Multiforme»

M.V. Marvi, S. Ratti, S. Mongiorgi, M. Zoli, S. Asioli, L. Morandi, L. Manzoli, L. Cocco.

Presented at the 12th European Congress of Neuropathology (31/05/21-03/06/21)

«Phospholipase C beta1 (PI-PLCbeta1)/Cyclin D3/Protein Kinase C (PKC) alpha Signaling Modulation during Iron-induced Oxidative Stress in Myelodysplastic Syndromes (MDS)»

A. De Stefano, S. Mongiorgi, A. Cappellini, S. Parisi, M. Fogli, A. Fazio, S. Ratti, **M.V. Marvi**, L. Manzoli, L. Cocco, M.Y. Follo, C. Finelli.

Presented at the «7th translational research e-conference : myelodysplastic syndromes» - European School of Haematology (ESH) - (28/01/2021-31/01/2021)

«Phosphoinositide Phospholipases in Low- and High-grade Gliomas: morphofunctional aspects»

S. Ratti, E. Owusu Obeng, **M.V. Marvi**, I. Rusciano, S. Mongiorgi, M. Zoli, L. Manzoli, L. Cocco.

Presented at the 73rd SIAI National Congress, Napoli - (22/09/2019-24/09/2019)

«Inositide-dependent signaling in low- and high-grade gliomas»

M.V. Marvi, E. Owusu Obeng, I. Rusciano, A. Fazio, S. Mongiorgi, M. Zoli, S. Ratti, L. Manzoli, L. Cocco.

Presented at the Biennial Congress of the Italian Association of cell biology and differentiation (ABCD) congress, Bologna - (19/09/2019-21/09/2019)

In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Bologna, 09/11/2023

Maria Vittoria Marvi