

- **PERSONAL INFORMATION**

Marco Calvaruso

📍 Via Rocco Chinnici 10, 90018, Termini Imerese (Italy)

📞 +39 340 3289525

✉️ marco.calvaruso@ibfm.cnr.it – calvaruso.marco@gmail.com

- **PROFESSIONAL SUMMARY**

Biomedical Researcher experienced in cancer and neural biology and skilled in performing, conducting and analyzing: cell cultures, tissue samples, molecular and cell biology assays, cell imaging techniques, microgravity simulations.

- **PROFESSIONAL EXPERIENCE**

May 2018 – Present

Position: Research Fellow

Employer name and locality: Institute of Bioimaging and Molecular Physiology – IBFM CNR, Cefalù, Italy

Field of investigation: Radiobiology, Space Biology and Translational Research

Main Activities and Responsibilities: Study of the effects of simulated microgravity on cancer cells. Investigation and identification of predictive biomarkers of response to radiotherapy (photons and hadrons). Application of cell and molecular biology techniques, immunofluorescence, optical and fluorescence microscopy.

Involved in the following projects coordinated by the National Institute of Nuclear Physics – National Laboratories of the South (INFN-LNS): **NEPTUNE** (Nuclear process-driven Enhancement of Proton Therapy UNraVeled); **MoVe IT** (Modeling and Verification for Ion beam Treatment planning); **MIRTO**: A microdosimetric study and RBE measurement with 62 MeV clinical proton beam. **See Notes*

May 2018 – Present

Position: Research Associate

Institute name and locality: National Institute of Nuclear Physics – National Laboratories of the South (INFN-LNS), Medical Physics Group, Catania, Italy

Field of investigation: Biology, Radiobiology and Preclinical Studies

Main Activities and Responsibilities: Study of the biological effects and *in vitro* experimental activity following hadron therapy (cell and molecular biology techniques, immunofluorescence, optical and fluorescence microscopy) within the scientific collaboration between IBFM-CNR and INFN-LNS

January 2017 – February 2018

Position: Research Associate

Institute name and locality: Anatomic Pathology section - Ospedali Riuniti Villa Sofia Cervello, Palermo, Italy

Field of investigation: Cancer Biology

Main Activities and Responsibilities: Histological, immunohistochemical and immunofluorescence Techniques for the identification of biomarkers in human pathology. Optical and fluorescence microscopy.

September 2016 – January 2017

Position: Research Associate

Institute name and locality: Department of Cellular and Molecular Physiology – University of Liverpool, United Kingdom

Field of investigation: Neurobiology

Main Activities and Responsibilities: Analysis of cell trafficking in Marie Charcot Tooth disease, live Imaging techniques (Confocal Microscopy), molecular cloning, cell and molecular and biology techniques.

June 2015 – August 2016**Position:** Research Associate**Institute name and locality:** Anatomic Pathology section - Ospedali Riuniti Villa Sofia Cervello, Palermo, Italy**Field of investigation:** Cancer Biology**Main Activities and Responsibilities:** Histological, immunohistochemical and immunofluorescence techniques for the identification of biomarkers in human pathology. Optical and fluorescence microscopy.**November 2014 – June 2015****Position:** Molecular biologist**Institute name and locality:** Lorocotondo Labs Palermo, Italy – Molecular Genetic Section**Field of investigation:** Cancer Biology and Molecular Diagnosis**Main Activities and Responsibilities:** Gene expression profiling of breast cancer patients in response to submission to mediterranean diet within the *Ministerial Training Program PON02_00667- PON02_00451_3361785***September 2013 – August 2014****Position:** Research Fellow**Institute name and locality:** LATO Laboratorio di Tecnologie oncologiche, Cefalù, Italy - Anatomic Pathology section Ospedali Riuniti Villa Sofia Cervello, Palermo, Italy**Field of investigation:** Cancer Biology**Main Activities and Responsibilities:** Histological, immunohistochemical and immunofluorescence techniques for the identification of biomarkers in human pathology. Optical and fluorescence microscopy.**September 2010 – December 2010****Position:** Volunteer Research Assistant**Institute name and locality:** Anatomic Pathology section – University Hospital “P.Giaccone” Palermo, Italy**Field of investigation:** Tumor Immunology**Main Activities and Responsibilities:** Study of potential therapeutic targets in T-cell lymphomas. Application of molecular and cellular biology assays; FACS analysis; histological, immunohistochemical and immunofluorescence techniques. Optical and fluorescence microscopy.

- **TRAINING FELLOWSHIPS**

1st of October 2019 – 11th October 2019**Position:** Visiting Researcher**Institute name and locality:** Radiobiology Unit – Belgian Nuclear Research Center (SCK-CEN), Mol, Belgium**Field of investigation:** Space Biology**Main Activities and Responsibilities:** Study of the effects of simulated microgravity on human lymphocytes and tumor cell lines. 3D spheroids formation assay; cell and molecular biology; ELISA assay.**January 2012 – February 2012****Position:** Visiting Researcher**Field of investigation:** Tumor Immunology**Institute name and locality:** The CRO National Cancer Institute, Aviano, Italy**Main Activities and Responsibilities:** Study of potential therapeutic targets in T-cell lymphomas. Application of molecular and cellular biology assays; FACS analysis; immunofluorescence techniques; confocal microscopy; cell invasion assay.

April 2011

Position: Visiting Researcher

Field of investigation: Tumor Immunology

Institute name and locality: Department Life Science – University of Trieste, Trieste, Italy.

Main Activities and Responsibilities: Study of potential therapeutic targets in T-cell lymphomas. Application of molecular and cellular biology assays; antibody- and cell mediated- cytotoxicity assays; FACS analysis.

- **EDUCATION**

European Master in Radiobiology, February 2019.

SCK-CEN Academy, Mol, Belgium

“Radiation-induced effects with particular emphasis on genetics, development, teratology, cognition as well as space-related health issues.”

Ph.D. in Biopathology, February 2014

University of Palermo, Palermo, Italy

Thesis: “Possible new targets in cancer: the example of CD162.”

Master of Science in Medical Biotechnologies, 2010. Final grade 110/110 cum laude

University of Florence, Florence, Italy

Thesis: “Cytokine receptors and metastatic phenotype in melanoma.”

Bachelor of Science in Medical Biotechnology, 2008. Final grade 110/110.

University of Palermo, Palermo, Italy

Thesis: “PTEN as a transcriptional regulator in breast cancer”

- **SCIENTIFIC SOCIETIS MEMBERSHIPS**

- **ESA** - Member of the Science Team for the development of the 3D Bioprinter and 3D cell cultures system capability
- **ERRS** - The European Radiation Society
- **SIRR** - Società Italiana per le Ricerche sulle Radiazioni

- **SPACE-BASED APPLICATIONS FOR FUNDINGS**

- **ESA Start-up competition 2020, start-up name: Astro Tech – Presented Idea: “Development of a cost-effective Random positioning machine device for microgravity simulations”**
- **Call for Ideas: SciSpacE Biology Roadmaps evolution post 2024 and refinement of ESA ISS Biology Research Capabilities February 2020 – Project Title: “Toward microgravity and beyond: can gravity support Triple Negative Breast Cancers progression?”**

- **LANGUAGE SKILLS**

Native Language: Italian

Foreign Language: English

- Listening: Proficient
- Reading: Proficient
- Writing: Proficient

- **PUBLICATIONS**

Torrisi F, Minafra L, Cammarata FP, Savoca G, **Calvaruso M**, Vicario N, Maccari L, Pérès EA, Özçelik H, Bernaudin M, Botta L, Russo G, Parenti R, Valable S. SRC tyrosine kinase inhibitor and X-rays combined effect on glioblastoma cell lines in hypoxic condition. *International Journal of Molecular Science*. 2020.

Militello C, Rundo L, Minafra L, Cammarata FP, **Calvaruso M**, Conti V, Russo G. *MF2C3: Multi-Feature Fuzzy Clustering to Enhance 2 Cell Colony Detection in Automated Clonogenic 3 Assay Evaluation*. *Simmetry*. 2020

Sinagra E, Raimondo D, Gallo E, **Calvaruso M**, Lentini VL, Cannizzaro A, Linea C, Giunta M, Montalbano LM, D'Amico G, Rizzo AG. *Could JC virus be linked to chronic idiopathic intestinal pseudo-obstruction?* *Clin J Gastroenterol*. 2019.

Calvaruso M, Pucci G, Musso R, Bravatà V, Cammarata FP, Russo G, Forte GI, Minafra L. *Nutraceutical compounds as sensitizers for cancer treatment in radiation therapy*. *International Journal of Molecular Science*. 2019

Cammarata FP, Torrisi F, Forte GI, Minafra L, Bravatà V, Pisciotta P, Savoca G, **Calvaruso M**, Petringa G, Cirrone G A.P., Fallacara AL, Maccari L, Botta M, Schenone S, Parenti R, Cuttone G, Russo G. *Proton therapy and Src Family Kinase Inhibitor combined treatments on U87 human glioblastoma multiforme cell line*. *International Journal of Molecular Science* 2019.

Minafra L, Cammarata FP, Torrisi F, Forte GI, Bravatà V, **Calvaruso M**, Pisciotta P, Militello C, Petringa G, Cirrone G A.P., Fallacara AL, Maccari L, Botta M, Cuttone G, Russo G. *Preliminary study of novel Src tyrosine kinase inhibitor and proton therapy combined effect on glioblastoma multiforme cell line. In vitro evaluation of target therapy for the enhancement of protons effectiveness*. *Il Nuovo Cimento* 41 C (2018) 203

Sinagra M, Tomasello G, Pompei G, Menozzi M, Mandalà S, Rossi F, Martorana G, Messina M, Rizzo AG, **Calvaruso M**, Morreale GC, Amvrosiadis G, Cappello F, Carini F, Raimondo D. *Could the endoscopic resection of a large rectal leiomyoma be an effective and safe technique?*. *Eur. J. Oncol*. Vol. 21, 2016

Sinagra M, Raimondo D, Pompei G, Morreale GC, Rossi F, Marasà S, **Calvaruso M**, Mastrocinque G, Mandalà S, Martorana G, Marchesa PE, Rizzo AG, Amvrosiadis G, Cappello F, Carini F, Tomasello G. *Pouchitis: a tridimensional view*. *Progress in Nutrition* Vol.18, 2016.

Calvaruso M, Sinagra E, Castellucci M, Spada M, Raimondo D, Rizzo AG. *Palexia crystals in gastrointestinal tract, a new entity associated with death following gastrointestinal hemorrhage*. *Exp Toxicol Pathol*. 2015.

Marino MT, Grilli A, Baricordi C, Manara MC, Ventura S, Pinca RS, Bellenghi M, **Calvaruso M**, Mattia G, Donati D, Tripodo C, Picci P, Ferrari S, Scotlandi K. *Prognostic significance of miR-34a in Ewing sarcoma is associated with cyclin D1 and ki-67 expression*. *Ann Oncol*. 2014.

Petta S, Grimaudo S, Tripodo C, Cabibi D, **Calvaruso M**, Di Cristina A, Guarnotta C, Salvatore Macaluso F, Giovanna Minissale M, Marchesini G, Craxì A. *The Hepatic Expression of Vitamin D Receptor is Inversely Associated with the Severity of Liver Damage in Genotype 1 Chronic Hepatitis C Patients*. *J Clin Endocrinol Metab*. 2014.

Giannoni P, Pietra G, Travaini G, Quarto R, Shyti G, Benelli R, Ottaggio L, Mingari MC, Zupo S, Cutrona G, Pierri I, Balleari E, Pattarozzi A, **Calvaruso M**, Tripodo C, Ferrarini M, de Totero D. *Chronic Lymphocytic Leukemia Nurse-like cells express the hepatocyte growth factor receptor (c-MET) and indoleamine 2,3-dioxygenase and display features of immunosuppressive type 2 skewed macrophages*. *Haematologica*, 2014.

Calvaruso M, Gulino A, Buffa S, Guarnotta C, Franco G, Cacciatore M, Bonura MG, Franco V, Florena AM. *Challenges and new prospects in Hepatosplenic $\gamma\delta$ T-cell lymphoma*. *Leukemia and Lymphoma*, 2014.

Mezzaroba N, Zorzet S, Secco E, Biffi S; Tripodo C; **Calvaruso M**, Mendoza Maldonado R; Capolla S; Grazotto M; Sprez R; Larsen G; Noriega S; Lucafò M; Mansilla E; Garrovo C; Marin G; Baj G; Pozzato G; Nunez L; Macor P. *New Potential Therapeutic Approach for the Treatment of B-Cell Malignancies using Chlorambucil/Hydroxychloroquine-loaded anti-CD20 Nanoparticles*. Plos One, 2013.

Errico MC, Felicetti F, Bottero L, Mattia G, Boe A, Felli N, Petrini M, Bellenghi M, Pandha HS, **Calvaruso M**, Tripodo C, Colombo MP, Morgan R, Carè A. *The abrogation of the HOXB7/PBX2 complex induces apoptosis in melanoma through the miR-221&222-c-FOS pathway*. Int J Cancer. 2013.

Sfondrini L, Sommariva M, Tortoreto M, Meini A, Piconese S, **Calvaruso M**, Van Rooijen N, Bonecchi R, Zaffaroni N, Colombo MP, Tagliabue E, Balsari A. *Anti-tumor activity of CpG-ODN aerosol in mouse lung metastases*. Int J Cancer. 2013.

Sibilano R, Frossi B, **Calvaruso M**, Danelli L, Betto E, Dall'agnese A, Tripodo C, Colombo MP, Pucillo CE, Gri G. *The aryl hydrocarbon receptor modulates acute and late mast cell responses*. J Immunol. 2012.

Cacciatore M, Guarnotta C, **Calvaruso M**, Sangaletti S, Florena AM, Franco V, Colombo MP, Tripodo C. *Microenvironment-centred dynamics in aggressive B-cell lymphomas*. Adv Hematol. 2012.

- **ORAL PRESENTATIONS**

Calvaruso M, Cammarata FP, Torrisi F, Forte GI, Minafra L, Bravatà V, Musso R, Pucci G, Pisciotta P, Savoca G, Petringa G, Cirrone GAP, Fallacara AL, Maccari L, Botta M, Schenone S, Parenti R, Cuttone G, Russo G. *Gene expression profiling of U87 glioblastoma cell line after proton and Src Family Kinase Inhibitor combined treatments*. SIRR, Catania (IT), 9th of May 2019.

Calvaruso M, Macor P, Piccaluga PP, Mezzaroba N, Guarnotta C, Cacciatore M., Gulino A, Inghirami G, Florena AM, Franco V, Pileri SA., Tripodo C. *PSGL-1 (CD162) as a potential target of immunotherapy in anaplastic large t-cell lymphoma*. ". SIAPEC-IAP Congress, Palermo (IT), 27-29th of October 2011.

- **ABSTRACTS AND PROCEEDINGS**

Bláha P, Feoli C, Calvaruso M, Cammarata FP, Catalano R, Ciocca M, Cirrone GAP, Cuttone G, Facoetti A, Minafra L, Musso R, Petringa G, Russo G, Savoca G, and Manti L. *Radiobiological effectiveness of the proton-boron reaction along the Bragg curve of clinical low- and high-energy proton beams*. Frontiers of Physics 2020.

Pucci G, Minafra L, Porcino N, Bravatà V, Gaglio D, Amore E, Cammarata FP, Russo G, **Calvaruso M**, Musso R, Savoca G, Abbate B, Iacoviello G, Evangelista G, Spada M, Bondì ML, Forte GI. *Curcumin-loaded lipid nanoparticles exert a radiosensitizing effect on breast cancer cells*. SIRR Congress, Catania (IT), 9th of May 2019.

Musso R, Minafra L, Bravatà V, Cammarata FP, **Calvaruso M**, Pucci Gaia, Fazio I, Spada M, Russo G, Forte GI. *Cell and molecular response to high-dose of ionizing radiation in primary breast cancer cells*. SIRR, Catania (IT), 9th of May 2019.

Minafra L, Bravatà V, Cammarata FP, Musso R, **Calvaruso M**, Fazio I, Russo G, Forte GI. *High-dose ionizing radiation induces gene-expression signatures in primary breast cancer cells*. XXVIII Congresso AIRO 2018, Rimini, 2-4 novembre 2018

Guarnotta C, Franco G, Frossi B, Sangaletti S, **Calvaruso M**, Gulino A, Buffa S, Pucillo C, Florena AM, Arcaini L, Colombo MP, Tripodo C. *Bone marrow stroma CD40 expression in splenic marginal lymphoma is associated with prominent mast cell infiltration and correlates with shorter time to progression*. Paper presented at 54th Annual meeting of the Italian Cancer Society, Bologna 2012.

Calvaruso M, Macor P, Piccaluga PP, Mezzaroba N, Guarnotta C, Cacciatore M., Gulino A, Inghirami G, Florena AM, Franco V, Pileri SA., Tripodo C. *PSGL-1 (CD162) as a potential target of immunotherapy in anaplastic large t-cell lymphoma*. ". Pathologica, Vol. 103 4th Issue, 2011

Cacciatore M, Frossi B, Guarnotta C, Gri G, Carroccio A, Pucillo C, **Calvaruso M**, Florena AM, Franco V, Tripodo C. Mast cell contribute to the engendering of a proinflammatory milieu towards mucosal damage in coeliac disease. *Pathologica*, Vol. 103 4th Issue, 2011

Guarnotta C, Sangaletti S, Franco G, Frossi B, Cacciatore M, **Calvaruso M**, Piccaluga PP, Pucillo C, Boveri E, Arcaini L, Florena AM, Colombo MP, Tripodo C. *Bone marrow stroma CD40 expression in splenic marginal lymphoma is associated with prominent mast cell infiltration and correlates with shorter time to progression*. *Pathologica*, Vol. 103 4th Issue, 2011.

Mezzaroba N, Macor P, **Calvaruso M**, Guarnotta C, Tedesco F, Tripodo C. *New treatment of multiple myeloma and anaplastic T cell lymphoma using C-fixing anti-CD162 antibodies*. Paper presented at XIII European Meeting on Complement in Human Disease, Leiden 2011.