

Curriculum Vitae

Personal Data

Name: Emanuele

Surname: Bruni

Educations

January 2015:

- **Ph.D. in Cellular and Molecular Biology, XXVI cycle**, successfully discussed on 14/01/2015 at the FACULTY OF SCIENCES, UNIVERSITY OF ROME "TOR VERGATA". Experimental degree thesis at the laboratory of Applied Biology under the scientific direction of Prof. Lina Ghibelli entitled: "MULTIPLE APOPTOTIC PATHWAYS ELICITED BY ETOPOSIDE".

May 2010:

- **Master's Degree in Human and Evolutionary Biology, ex D.M.509/99 (6/S-Class of of specialist degrees in biology)**: achieved on 31/05/2010 at the FACULTY OF SCIENCES, UNIVERSITY OF ROME "TOR VERGATA", with a grade of 110/110 cum Laude.
Experimental degree thesis at the laboratory of Applied Biology under the scientific direction of Prof. Lina Ghibelli entitled: "MAGNETIC FIELDS PROMOTES A NON-CAPACITATIVE CALCIUM INFLUX THROUGH PHOSPHOLIPASE C-MEDIATED SIGNAL TRANSDUCTION, DETERMINING AN ANTIAPOPTOTIC EFFECT".

February 2007:

- **Bachelor's Degree CELLULAR AND MOLECULAR BIOLOGY, ex D.M. 509/99 (12-Class of degrees in biological sciences)**: achieved on 20/02/2007 at the FACULTY OF SCIENCES, UNIVERSITY OF ROME "TOR VERGATA", with a grade of 93/110.
Experimental degree thesis at the laboratory of Applied Biology under scientific direction of Prof. Lina Ghibelli, entitled: "PHOSPHATIDYLSERINE EXPOSURE IN APOPTOSIS: MECHANISMS AND RELEVANCE".

S.Y. 2000/2001:

- **Secondary-school scientific diploma**: achieved during the school year 200/2001 at the ISTITUTO TECNICO PER ATTIVITA' SOCIALI STATALE (ITAS) of SORA (FR), with the vote of 94/100

Position and Work Experience

October 2019 – Present:

- **Research Grant (Assegno di Ricerca) SSD BIO/13**, title “**Effect of natural compounds and metabolic modulators in post-therapy tumor repopulation**” (CUP: E82H1800041005), in the Laboratory of Applied Biology, under the scientific direction of Prof. Lina Ghibelli, Department of Biology, UNIVERSITY OF ROME “TOR VERGATA”, 12 months duration, A.Y. 2019/2020..

April 2016 – January 2017:

- **Grant of Department of Biology**, title: “ Role of etoposide and cerium nanoparticles in the differentiation and apoptosis of tumors cells”, in the Laboratory of Applied Biology, under the scientific direction of Prof. Lina Ghibelli, UNIVERSITY OF ROME “TOR VERGATA”. 4 months duration, subsequently extended for another 4 months, starting on 10 October 2016.

February 2015 – December 2015:

- **Grant of Department of Biology**, title: “Biological effects of nanoparticles: graphene and cerium oxide”, in the Laboratory of Applied Biology, under the scientific direction of Prof. Lina Ghibelli, UNIVERSITY OF ROME “TOR VERGATA”. 4 months duration, subsequently extended for another 4 months, starting on 1 September 2016.

November 2013 – July 2014:

- **Grant of Department of Chemical Science and Technology**, title: “Biocompatibility of graphene”, in the Laboratory of Applied Biology, under the scientific direction of Prof. Lina Ghibelli and Prof. Giuseppe Palleschi, UNIVERSITY OF ROME “TOR VERGATA”. 4 months duration, subsequently extended for another 4 months, starting on 1 April 2014.

Teaching Activity

A.Y. 2017/2018, 2018/2019, 2019/2020:

- **Lecturer at the Faculty of Medicine of Catholic University of Tirana “Nostra Signora del Buon Consiglio”, in the Degree in Medicine and Surgery, in teaching Biology** and active participation as a member of the examination board (ay 2016/2017, 2017/2018, 2018/2019, 2019/2020).

A.A 2015/2016, 2016/2017, 2018/2019, 2019/2020:

- **Supplementary didactic activity/seminar** in teaching **Applied Biology**, for 8 total hours (4 hours for A.Y. 2015/2016), at the School of Specialization in Medical Physics, University of Rome "Tor Vergata", with certificates, and active participation as a member of the examination board.

A.Y. 2016/2017, 2017/2018, 2018/2019, 2019/2020:

- **Didactic support and participation as a commission member** for the exams of English Course of Nanobiotechnology, Degree course in Biotechnology at the University of Rome "Tor Vergata",

Scientific activity

Research Activity:

- Study of physiological mechanisms of apoptotic induction
- Study of stress-induced apoptosis and use of either cytotoxic and low dose of chemotherapeutic agents (metronomic therapy)
- Study of anti-tumoral effects of natural compounds
- Study of anti-apoptotic effects of static and pulsed magnetic fields on biological systems
- Rule of calcium during apoptosis and study of calcium fluxes during magnetic fields exposure on biological system
- Biological effects of nanoparticles
- Study of repopulation of cancer cells after chemotherapeutic agents (either high and low doses)

Technical skills and competences:

- Preparation and maintenance of cell culture
- Preparation and maintenance of stromal and tumoral cells co-culture
- Analysis of apoptosis
- Modulation of apoptosis
- Cytometry
- Nanoparticles manipulation
- Immunofluorescence
- Models of study in vitro of chemotherapy
- Anti-tumoral effect of natural compounds
- Calcium fluxes analysis
- Cell cycle analysis
- Clonogenicity assay

Training internships abroad:

- **May 2016:** Stage in the laboratory of Professor **Jochen Grassinger** (University Hospital of Regensburg) to learn techniques of stroma/cells co-culture.
- **January 2013 – February 2013:** Stage in the laboratory of Professor **Marc Diederich** (Laboratoire de Biologie Moléculaire et Cellulaire du Cancer (LBMCC)).

Professionalizing Activities

2014 – 2017 – 2020:

- **Inclusion of teaching and educational staff** at the **MIUR** in the teaching rankings of the III group of circles and institutes. Subsequently renamed GPS in 2020.

December 2017:

- **Second level Master** in Personalized Nutrition: molecular and genetic bases, achieved on 18/12/2017 at the FACULTY OF MEDICINE AND SURGERY, UNIVERSITY OF ROME "TOR VERGATA", with a grade of 110/110 cum Laude.

Title of thesis: "ANTITUMOR EFFECTS OF QUERCETIN: IN VITRO AND IN VIVO STUDY".

October 2012:

- **Qualification to practice as a SPECIALIST BIOLOGIST:** having taken and passed the exam during the second session of the year 2012, at the UNIVERSITY OF ROME "TOR VERGATA"

International and National Congress Attendance and Organization

May 2020:

- **Participation as invited speaker and collaboration as scientific committee and organizing committee, to organization of 3rd International Meeting on "AN INNOVATIVE ANTICANCER THERAPY TARGETING THE ABERRANT CANCER TISSUE HOMEOSTASIS, - a novel and long lasting opportunity for sustainable drug development –",** organized by Prof Lina Ghibelli and Prof Albrecht Reichle in Rome "Tor Vergata" May 13-14-15/05/2020, unfortunately annulled due to covid emergency.

April 2018:

- **Participation as invited speaker and collaboration as scientific committee and organizing committee, to organization of 2nd International Meeting "RE-ESTABLISHING APOPTOSIS COMPETENCE VIA COMMUNICATIVE REPROGRAMMING, a novel anticancer**

therapy", organized by Prof Lina Ghibelli and Prof Albrecht Reichle in Rome "Tor Vergata", 19-20/04/2020. **Title of my presentation: Metronomic etoposide induces caspase-free apoptosis and differentiation.**

October 2017:

- **Participation (certified) in the conference on** "Animal or vegetables proteins? A balance in progress", organized by SINU (Società Italiana di Nutrizione Umana), held in Rome 28/10/2017

June 2017:

- **Participation (certified) to the course on** "labelling, promotion and advertising of food products", organized by ENPAB, held in Rome, 9-10/06/2017

June 2017:

- **Participation (Certified) to the final conference of TERRAVIVA project** on "Biodiversity, territory and nutrition: the sustainability of Italian agro-food". Organized by CREA (Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria), held in Rome, 08/06/2017.

September 2016:

- **Participation to the International Symposium** on "Secondary leukemia and leukemogenesis", organized by Prof Francesco Lo Coco, Prof Livio Pagano and Prof Maria Teresa Voso, held in Rome, 22-23-24/09/2016

March 2016:

- **Participation as invited speaker and collaboration as scientific committee and organizing committee, to organization of 1st International Meeting "PROGRAMMING CANCER CELLS VIA ANAKOINOSIS AS A NOVEL ANTICANCER APPROACH: FACTS, EXPECTATIONS AND OPEN QUESTIONS"**, organized by Prof Lina Ghibelli and Prof Albrecht Reichle in Rome "Tor Vergata", 07-08/03/2016. **Title of my presentation: low dose of DNA damaging agents differentiate tumor cells: mechanisms and therapeutic strategies.**

April 2013:

- **I actively collaborated in organizing the first symposium on "THERAPEUTIC POTENTIAL OF REDOX ACTIVE NANOPARTICLES AND NATURAL COMPOUNDS"**, organized by Prof Lina Ghibelli in Rome "Tor Vergata", 23/04/2013

May 2010:

- **Participation as invited speaker** to the XXI ABCD Annual Conference on "CELLULAR STRESS: SURVIVAL AND APOPTOSIS", in Urbino, 7-8/05/2010, with a presentation entitled:

Magnetic fields promote a pro-survival non-capacitative Ca²⁺ entry via phospholipase C signalling.

Personal skills and Computer Knowledge

- Mother tongue: Italian
- Foreign language:
 - English: level of writing, reading and speaking skills: Good
- Excellent knowledge of Microsoft Office Pack: Word, Excel, Power Point, Publisher
- Excellent knowledge and use of video and photo editing programs: Photoshop, GIMP, MovieMaker
- Excellent knowledge of Microsoft Windows operating system
- Excellent knowledge of platform WordPress
- Excellent knowledge and use of software for scientific data analysis (Image J, Flowing Software 2, WinMDI, ZEN)

Publications

- **Lowering Etoposide Doses Shifts Cell Demise From Caspase-Dependent to Differentiation and Caspase-3-Independent Apoptosis via DNA Damage Response, Inducing AML Culture Extinction**, authors: **Bruni E**, Reichle A, Scimeca M, Bonanno E, Ghibelli L. *Front Pharmacol.* 2018 Nov 13;9:1307. doi: 10.3389/fphar.2018.01307. eCollection 2018.
- **Biomodulatory Treatment With Azacitidine, All-trans Retinoic Acid and Pioglitazone Induces Differentiation of Primary AML Blasts Into Neutrophil Like Cells Capable of ROS Production and Phagocytosis**, authors: Klobuch S, Steinberg T, **Bruni E**, Mirbeth C, Heilmeyer B, Ghibelli L, Herr W, Reichle A, Thomas S. *Front Pharmacol.* 2018 Nov 27;9:1380. doi: 10.3389/fphar.2018.01380. eCollection 2018.
- **Slow release of etoposide from dextran conjugation shifts etoposide activity from cytotoxicity to differentiation: A novel tool for dosage control in anticancer metronomic therapy**, authors: Milena De Nicola, **Emanuele Bruni**, Enrico Traversa, Lina Ghibelli L. *Nanomedicine.* 2017 Aug;13(6):2005-2014. doi: 10.1016/j.nano.2017.05.004. Epub 2017 May 20. PMID: 28535989

- **Nanoceria protects from alterations in oxidative metabolism and calcium overloads induced by TNF α and cycloheximide in U937 cells: pharmacological potential of nanoparticles**, authors: González-Flores D, De Nicola M., **Bruni E.**, Caputo F., Rodríguez A.B., Pariente J.A., Ghibelli L. Mol Cell Biochem. 2014 Dec;397(1-2):245-53. doi: 10.1007/s11010-014-2192-2. Epub 2014 Aug 23.