



Renata Mangione

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Gender: Female

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📍 **Home:** (Italy)

ABOUT ME

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EDUCATION AND TRAINING

PhD Student in Basic Biomedical Sciences and Public Health

Catholic University of Rome [10/2020 – 10/2023]

Address: Largo F. Vito, 1 , 00168 Roma (Italy)

Field(s) of study: Metabolic biochemistry

Research activity at the Laboratory of Biochemistry and Molecular Biology, Department of Basic Biotechnological Sciences, Intensive and Perioperative Clinics, Section of Biochemistry (supervisor Prof. Barbara Tavazzi).

Title of the research project "**PATHOBIOLOGICAL MECHANISMS, BIOMARKERS AND POSSIBLE ANTIOXIDANT THERAPIES IN A NEW EXPERIMENTAL MODEL OF AMYOTROPHIC LATERAL SCLEROSIS IN THE MOUSE: A METABOLOMIC AND PROTEOMIC APPROACH**".

The main scientific research interests focus in particular on the following lines:

-Research and development of new analytical methods by means of high liquid chromatography resolution (HPLC) for the determination of the main products of energy metabolism e of the cellular redox state. Evaluation of energy metabolism, molecular and biochemical mechanisms of tissue damage brain injury in anesthetized rat in a moderate and severe head injury (TBI) model.

-Research and development of new analytical methods by means of high liquid chromatography resolution (HPLC) for the determination of the main products of cellular metabolism.

-Biochemical diagnosis of hereditary diseases of metabolism (IEM), by analysis of metabolites specific in biological fluids (purines, pyrimidines, amino acids and N-acetylated amino acids).

-Determination of the activities of the specific enzymes responsible for the hereditary deficiency. Research mutations related to the IEM defect under study using molecular biology techniques (PCR; qRT-PCR).

Guest PhD Student

EPFL - École Polytechnique Fédérale de Lausanne [01/03/2022 – 30/11/2022]

City: Lousanne

Country: Switzerland

Field(s) of study: Biotechnology and Bioengineering

Research activity at the Laboratory of Integrative Systems Physiology, Section of Biotechnology and Bioengineering (Supervisor Prof. Johan Auwerx).

The purpose of the research conducted was to highlight the role of the CERS1 gene in age-related muscle diseases. In order to obtain the desired results and derive as much information as possible, the experiments were performed both in vitro and in vivo;

-In vitro study on primary cell cultures of human muscle cells:

-In vitro study of human skeletal muscle gene expression.

-In vitro study on lonza cells and C2C12 cells:

- Use of the CRISP-CAS9 genetic engineering technique in order to perform a knock-down of the CERS1 gene
- lentivirus production
- cell culture and cell transfection with lentivirus and adenovirus
- RNA isolation and real time-qPCR
- immunocytochemistry

In vivo study:

- Knock-down of the CERS1 gene in young and old mice by intramuscular injection of AAV9 containing silencing RNA (siRNA) against murine CERS1.
- Endurance running test.
- grip strength test
- qualitative and quantitative analysis of muscle sphingolipids by lc-ms/ms techniques.
- Histological analysis of muscle tissue in order to reveal
- inhibition of the ortholog of CERS1, LAGR-1, in c. Elegans by siRNA administration.
- Study of muscle morphology and contractile capacity in C.Elegans, following inhibition of LAGR-1

Training Course for the Protection of Laboratory Animals in Scientific Research

Catholic University of Rome [10/2021]

Address: Largo F. Vito, 1, 00168 Roma (Italy)

MURINE MODEL AND RAT

Management, Control and Maintenance

- animal monitoring
- replacement of the cage
- taking and containment
- sexing and weaning
- identification and registration of animals

Administration and Withdrawals

- Administration of substances (i.m., i.v., i.p., s.c., o.g.)
- Sampling: caudal and facial blood, laryngeal swab and faeces sampling
- Gas and injectable anesthesia (preparation and administration)
- Euthanasia: cervical dislocation
- Necropsy (preparation, technique and organ harvesting)
- Sutures and application of osmotic pumps

RABBIT:

Management, Control and Maintenance

- Animal monitoring
- Taking and containment

Administration and Withdrawals

- Administration of substances (i.m., s.c., i.v.)
- Deliveries: auricular and saphenous blood
- Injectable anesthesia (preparation and administration)

ZEBRAFISH:

- Recognition of signs of well-being
- Human adult endpoints
- Observation of eggs, viability and embryonic stage

Supplementary teaching of Organic Chemistry and Chemical Laboratory to the Degree Course of Cosmetological Sciences

Catholic University of Rome [02/2021 – 06/2021]

Address: Largo F.Vito, 1, 00168 Roma (Italy)

Training Course for the use of the Incucyte SX5 instrument

Catholic University of Rome [02/2021]

Address: 00168 Roma (Italy)

The Incucyte SX5 is a live-cell analysis system, which offers up to five different fluorescence channels, up to three at a time, extending the applications and cell models that can be explored, highlighting, through a single experiment, different attributes like cell health, proliferation, metabolism, morphology and movement are each visualized with a different channel.

This is an assay platforms that supports applications across various areas of research, including immunology, oncology, immuno-oncology, neuroscience, cell therapy, antibody discovery, small molecule discovery, and virology.

Collaboration Contract Holder

Catholic University of Rome [01/02/2020 – 30/09/2020]

Address: Largo F. Vito 1, 00168 Roma (Italy)

Field(s) of study: Biochemistry and Molecular Biology

Research activity at the Laboratory of Biochemistry and Molecular Biology, Department of Basic Biotechnological Sciences, Intensive and Perioperative Clinics, Section of Biochemistry (supervisor Prof. Barbara Tavazzi).

- *Study of biochemical and molecular modifications in male and female infertility, through the biochemical analysis of follicular and seminal fluid samples; research and identification of new metabolic biomarkers indicative of the physiological and / or pathological state of the reproductive system and the state of health of the patient. This research was carried out using high performance liquid chromatography (HPLC) methods developed in our laboratories and specific for the qualitative and quantitative analysis of:*
 - Purine and pyrimidine compounds and their derivatives
 - Water-soluble and fat-soluble vitamins
 - Amino acids and free amino compounds
- *Study of the metabolic-biochemical evaluation of the neurodegenerative disease Amyotrophic Lateral Sclerosis (ALS), with particular attention to the search for biomarkers in biological fluids (serum, urine, liquor), for the identification of the stage and degree of progression of the disease.*
- *Study of energy metabolism and mitochondrial dysfunction in a mild and severe head injury (TBI) model in experimental animals. The study was carried out using a targeted metabolomics approach in tissue extracts, for the qualitative and quantitative analysis in HPLC of low molecular weight metabolites related to the energy state, oxidative / nitrosative stress and antioxidant defenses of neuronal cells subjected to TBI.*

Qualification to practice the profession of Biologist

University of Catania [12/2019]

Master's Degree in Biology of Health and Molecular and Cellular Biology (110/110 cum laude)

University of Catania [11/10/2019]

Field(s) of study: Metabolic biochemistry

Final grade: 110/110 cum laude

Thesis: Congenital disorders of glycosylation: correlation between metabolic pathways and pathogenesis

Erasmus Traineeship

University of Birmingham [28/03/2019 – 31/05/2019]

Address: Birmingham B15 2TT, Birmingham (United Kingdom)

Field(s) of study: Molecular neuroscience

Molecular Neuroscience Laboratory (Supervisors: Prof. V.Di Pietro, Dr G.Beghum)

Evaluation of the expression of salivary miRNAs in patients with brain trauma, in order to identify potential specific diagnostic and prognostic biomarkers.

To carry out this study, the following techniques were used:

- Phenol - chloroform RNA extraction
- qRT-PCR

During the Erasmus traineeship, it has been acquired experience also in different techniques, applied in other research project carried out at the guest lab:

- Preparation and maintenance of primary and secondary cell cultures.
- Luciferase assay

Thesis with laboratory internship in Metabolic Biochemistry

University of Catania [07/01/2019 – 10/10/2019]

Field(s) of study: Metabolic biochemistry

Metabolic Biochemistry Laboratory (Professors: Prof. G. Lazzarino, Prof.ssa A.M. Amorini)

- Use of techniques for the preparation of biological fluids (blood, urine), cells, tissues (muscles and spinal cord from rats) for the metabolomic analysis:
 - homogenization
 - organic deproteinization
 - inorganic deproteinization
 - extraction of water-soluble and fat-soluble compounds
- Use of specific HPLC methods for the metabolomic analysis and in particular for the qualitative and quantitative analysis of:
 - Purine, pyrimidine compounds and their derivatives
 - Water-soluble and fat-soluble vitamins
 - Free amino acids
- Protein assay in biological samples

WORK EXPERIENCE

TEACHING ACTIVITIES

Universita' Cattolica del Sacro Cuore

City: Roma

Country: Italy

Teaching Activities at Catholic University of the Sacred Heart - Rome:

A.Y. 2022/2023:

Teaching "**Virtual Labster Using Labster Platform**", SSD BIO/10 (6 hours) - LM Medicine and Surgery

Teaching Activities at Catholic University of the Sacred Heart - Rome

A.Y. 2020/2021:

-Tutor of the subject of the course "**Chemical Laboratory Techniques**", Integrated Course of "Chemistry Organic and Chemical Laboratory Exercises," as part of the Bachelor's Degree Course: "Sciences and Technologies Cosmetology"

- Responsible for organizing theoretical and practical exercises at the laboratory of **Biochemistry and Molecular Biology**, at the Institute of Biochemistry and Clinical Biochemistry.

- Classroom lectures for the course "**Chemical Laboratory Techniques**"

- Member of the examination committee for the integrated course of "**Organic Chemistry and Chemistry Laboratory**"

CONFERENCES AND SEMINARS

Conferences

- Mangione R, Graziani A, Lazzarino G, Tavazzi B. **Biochemical Composition Of Follicular Fluid Correlates With Female Infertility And The Success Of In Vitro Fertilization.** CONGRESSO ICOCIMS, Parma, Novembre 2023.
- Mangione R, Lazzarino G, Graziani A, Saab WM, Pittalà A, Signoretti S, Di Pietro V, Amorini AM, Lazzarino G, Tavazzi B. **Brain Injury Alters Cerebral Concentrations and Redox States of Coenzymes Q9 and Q10 in the Rat.** CONGRESSO SIB, Settembre 2023.
- Lazzarino G, Amorini AM, Mangione R, Saab MW, Di Stasio E, Di Rosa M, Tavazzi B, Lazzarino G, Onder G, Carfi A. **Biochemical Discrimination of the Down Syndrome-Related Metabolic and Oxidative/Nitrosative Stress Alterations from the Physiologic Age-Related Changes through the Targeted Metabolomic Analysis of Serum.** VI Convegno Scientifico Nazionale "SINDROME DI DOWN: DALLA DIAGNOSI ALLA TERAPIA" 21-22 Ottobre 2022, Virtual Edition.
- Mangione R, Lazzarino G, Logan A, Lars B, Persson LI, Tavazzi B. **ILB® Attenuates Clinical Symptoms and Serum Biomarkers of Oxidative/Nitrosative Stress and Mitochondrial Dysfunction in Patients with Amyotrophic Lateral Sclerosis.** CONGRESSO SIB 23-24 Settembre 2022, Online.
- Lazzarino G, Pallisco R, Bilotta G, Listorti I, Mangione R, Tavazzi B. **Altered Follicular Fluid Metabolic Pattern Correlates with Female Infertility and Outcome Measures of In Vitro Fertilization.** CONGRESSO SIB 23-24 Settembre 2022, Online.

NATIONAL AND INTERNATIONAL SCIENTIFIC COLLABORATIONS

Research collaborations

[2020 – Current]

Biochemical and biomolecular mechanisms in neurodegenerative diseases:

- Prof. Barbara Tavazzi, UniCamillus - Saint Camillus International University of Health Sciences, Rome, Italy
- Prof. Giacomo Lazzarino, UniCamillus - Saint Camillus International University of Health Sciences, Rome, Italy
- Prof. Giuseppe Lazzarino, Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy
- Prof. Ann Logan, Axolotl Consulting Ltd, Droitwich, Worcestershire.
- Dr. Lars Bruce, Tikomed AB, Viken, Sweden.
- Prof. Antonio Belli and Prof. V. Di Pietro, College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK
- Prof. Angela Maria Amorini, Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy
- Profs. Giovanni Li Volti, Daniele Tibullo, Rosalba Parenti, Nunzio Vicario, Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy
- Prof. Roberto Piacentini, Department of Neuroscience, Catholic University of Rome, Italy

Biochemical and biomolecular mechanisms in skeletal muscle diseases:

- Prof. Johan Auwerx, Laboratory of Integrative Systems Physiology, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
- Dr. Martin Wohlwend, Laboratory of Integrative Systems Physiology, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

Biochemical mechanisms and biomarkers of male and female infertility:

-Prof. Barbara Tavazzi, UniCamillus - Saint Camillus International University of Health Sciences, Rome, Italy

- Prof. Giacomo Lazzarino, UniCamillus - Saint Camillus International University of Health Sciences, Rome, Italy

-Prof. Giuseppe Lazzarino, Department of Biomedical and Biotechnological Sciences, University of Catania,

-Prof. Pasquale Bilotta, Alma Res Fertility Center, Obstetrics and Gynecology, Rome, Italy

-Drs. Ilaria Listorti, Romina Pallisco and Gabriele Bilotta, Alma Res Fertility Center, Laboratory of Andrology and Embriology, Rome, Italy

-Prof. Angela Maria Amorini, Department of Biomedical and Biotechnological Sciences, University of Catania, Catania, Italy

BIBLIOMETRIC INDICATORS

BIBLIOMETRIC INDICATORS (updated to 2023)

The total scientific production consists of 14 total publications, in 3 of which the position of prominence (first name), plus 2 book chapters.

The bibliometric parameters related to the overall scientific production are as follows:

Publications = 14

Citations = 83

h-index = 5

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

Inglese

LISTENING B2 READING B2 WRITING B2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

French

LISTENING B1 READING B1 WRITING A2

SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

ECDL Full Standard / Certificato ECDL Full Standard Certificato ECDL IT-Security
