



Elena Zerbini

Nationality: Italian
Date of birth: 3rd July 1996

CONTACT



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Driving license B

About me:

Ambitious, passionate and hard-working young researcher with solid skills in Biochemistry, Molecular Biology and Cell Cultures. Background of more than four-years experience both in Italian and international laboratories that led to important professional and personal achievements. Strongly driven to provide my best contribution to the scientific research in an efficient and relevant manner.

PROFESSIONAL EXPERIENCE

Nov. 2020 – Mar. 2024

Ph.D. in Life Sciences and Biotechnologies

- Studies of post-translational modifications of the human enzymes of the L-serine biosynthetic pathway to identify possible regulatory mechanisms.
- Cellular studies of the effects associated with pathological mutations in *hPHGDH* gene, codifying the first enzyme of the L-serine biosynthetic pathway.

“The Protein Factory 2.0” laboratory, Department of Biotechnologies and Life Sciences, University of Insubria, Dunant street, 3 - Varese ITALY.

Apr. 2023 – Feb. 2024

Research period in Sup'Biotech (France)

CRISPR-Cas9 genome editing of human induced-pluripotent stem cells (hiPSCs) to produce cellular models of PHGDH deficiency disorder.

“Celltechs-Ingénierie de la Pluripotence” laboratory, Sup'Biotech -SEPIA, CEA, Panorama street, 18 - Fontenay-aux-Roses FRANCE.

Jan. 2024

Fixed-term contract for “Research methodologies” teaching

Sup'Biotech, Guy Môquet street, 66 - Villejuif FRANCE.

Sep. 2019 – Jun. 2020

Curricular internship of Master's degree

Preliminary studies, production and characterization of PLP-dependent enzymes involved in cysteine biosynthetic pathway in *Toxoplasma gondii*.

Department of Biotechnologies, University of Verona, Le Grazie street, 15 - Verona ITALY.

Mar. 2018 – Apr. 2018

Curricular internship of Bachelor's degree

Preliminary characterization of the PLP-dependent enzyme cystathionine beta-synthase (CBS) of *Toxoplasma gondii*.

Department of Biotechnologies, University of Verona, Le Grazie street, 15 - Verona ITALY.



EDUCATION

Nov. 2020 – Mar. 2024

Ph.D. in Life Sciences and Biotechnologies

Thesis project: Investigating serine metabolism in the brain

Supervisor: Prof. Sacchi Silvia

Date: 4th March 2024

Department of Biotechnologies and Life Sciences, University of Insubria, Dunant street, 3 - Varese ITALY.

Nov. 2018 – Jul. 2020

Master's degree in Molecular and Medical Biotechnology (LM9)

Thesis project: Molecular and biochemical characterization of key enzymes in the cysteine metabolic pathways of *Toxoplasma gondii*

Supervisor: Prof. Astegno Alessandra

Vote: 110/110 with honor and mention

Date: 14th July 2020

Department of Biotechnologies, University of Verona, Le Grazie street, 15 - Verona ITALY.

Nov. 2015 – Nov. 2018

Bachelor's degree in Biotechnologies (L2)

Thesis project: Production and characterization of cystathionine beta-synthase (CBS) of *Toxoplasma gondii*

Supervisor: Prof. Astegno Alessandra

Vote: 110/110 with honor

Date: 21th November 2018

Department of Biotechnologies, University of Verona, Le Grazie street, 15 - Verona ITALY.

Sep. 2010 – Jun. 2015

High School studies

Vote: 90/100

"Liceo Scientifico Galileo Galilei", Verona street, 35 - Ostiglia, Mantova ITALY.

PERSONAL SKILLS

Language skills

Native language: Italian (mother tongue)

Foreign languages:

- English (B2 level)¹ (C1 level)²

¹Certificate of B2 English level (European level: B2) released by "Centro Lingue My Open School Srl for Cambridge", 14th October 2023 – Busto Arsizio, Varese ITALY.

² Certificate of C1 English level (European level: C1) released by "Centro linguistico di Ateneo (CLA)" of University of Verona, 10th October 2019 – Verona ITALY.



- **French (sufficient knowledge)**

Good understanding and sufficient ability to communicate with the language (self-evaluation). Ongoing studies to achieve the European French level B2.

Digital skills

Software skills

- **Word processor: advanced** (self-evaluation)
 - **Social media: intermediate** (self-evaluation)
 - **Graphic design: intermediate** (self-evaluation)
 - **Presentations: advanced** (self-evaluation)
 - **Programming: intermediate (Python)** (self-evaluation)
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Technical skills

Knowledge and practice in the main biochemical and molecular biology techniques:

- Heterologous expression and purification of recombinant proteins;
- Spectroscopic techniques: UV-VIS, CD and fluorescence spectroscopy;
- Chromatographic techniques: FPLC, HPLC;
- Enzymatic assays;
- Molecular biology techniques: PCR, cloning, site-directed mutagenesis, CRISPR-Cas9 genome editing;
- Western Blotting;
- Immunoprecipitation of proteins.

Knowledge and practice in cell cultures:

- Maintenance and transfection (transient and stable) of immortalized cell lines: in particular, cell lines derived from glioblastoma, neuroblastoma, hepatocarcinoma and embryonic kidneys;
 - Maintenance, transfection (transient), single-cell isolation via fluorescence-activated cell sorting (FACS) and clonal propagation of induced pluripotent stem cells (iPSCs);
 - Differentiation of iPSCs in neuronal progenitor cells (NPCs) and of NPCs in astrocytes;
 - Immunostaining;
 - Optical and fluorescence microscopy.
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Other skills

Interpersonal and communication skills:

During my experience, I learnt the importance of proactively and synergistically working in a team to reach common goals. I have been also developing my communication skills by seeking dialogue with my peers and superiors.

Organizational and procedural skills:

Excellent organization of the work.

Cognitive skills:

Good attitude to innovation and excellent problem-solving ability.



FURTHER INFORMATION

Scientific Publications

- Murtas G, Zerbini E, Rabattoni V, Motta Z, Caldinelli L, Orlando M, Marchesani F, Campanini B, Sacchi S, Pollegioni L. Biochemical and cellular studies of three human 3-phosphoglycerate dehydrogenase variants responsible for pathological reduced L-serine levels. *Biofactors*. 2024 Jan-Feb;50(1):181-200. doi: 10.1002/biof.2002. Epub 2023 Aug 31. PMID: 37650587.

Congresses

- Presentation of the poster “Studies of three missense mutations involved in the 3-phosphoglycerate dehydrogenase deficiency—a syndrome associated with reduced L-serine synthesis” at the congress “**FEBS 2023 - Together in bioscience for a better future**” (8-12th July 2023 -Tours, FRANCE). Selected for a speed talk;
- Presentation of the poster “Effects of pathological mutations in human PHGDH” at the congress “**International Conference of D-Amino Acid Research (IDAR)**” (25-27th July 2022, University of Illinois - Urbana-Champaign, USA).

International schools

- Oral presentation “D-amino acid oxidase as an important player in cellular senescence, is pLG72 also in the match?” at the “**IUBMB Advanced School: Cofactor Assembly, Transport and Insertion - Novel insights into their relevance to human health and well-being**” (16-19th May 2022 - Spetses, GREECE).

Workshops

- First prize in the “**Innovation camp**” educational competition, a course dedicated to the dissemination of the concepts of entrepreneurship and innovation organized by the University of Insubria (March-July 2022 – Como/Varese/Busto Arsizio, ITALY);
- “**Technology Transfer in Life Sciences Human Technopole**” organized by Netval and IUSS Pavia (23-24th February 2022 – Milan, ITALY);

On-line courses/seminars

- “**Horizon Europe: le postdoctoral fellowships nelle azioni Marie Skłodowska-Curie (MSCA)**” organized by Agenzia per la Promozione della Ricerca Europea (11th May 2023);
- “**Come scrivere una proposta di successo nel programma Marie Skłodowska-Curie actions in Horizon Europe**” (18th November 2022);
- “**Python for data analysis**” organized by Xstream (December 2021);
- “**32° Riunione nazionale dei dottorandi di ricerca in discipline biochimiche**” (13-16th September 2021);



- “**Public Speaking per Tutor**”, aimed at teaching how to be efficient in communicating with students organized by PNLs 2020-2021 (8-22th January 2021);
- “**Verso i nuovi bandi individuali delle MSCA in Horizon Europe: postdoctoral fellowships**” organized by Agenzia per la Promozione della Ricerca Europea (17th December 2020);
- “**Membrane transporters and disease**” held by Prof. Sandra Pérez Torras of the University of Barcelona (17th November 2020).

Other didactic activities

- **Subject expert** in the “Molecular Biology” and “Recombinant Proteins” teachings held by Prof. Sacchi Silvia, University of Insubria (academic year: 2022-2023).
- **Teaching tutoring**
 - Jun. 2023 – Jul. 2023
“**Sup’Biotech International Summer school – Stem cells and Genetic engineering**”
Sup’Biotech, Guy Môquet street, 66 - Villejuif FRANCE.
 - Nov. 2022 – Jan. 2023
“**Laboratory of Recombinant Proteins**”
Department of Biotechnologies and Life Sciences, University of Insubria, Dunant street, 3 - Varese ITALY.
 - Apr. 2022 – June 2022
“**Molecular Biology**” educational laboratories
Department of Biotechnologies and Life Sciences, University of Insubria, Dunant street, 3 - Varese ITALY.
 - Nov. 2021 – Dec. 2021
“**Laboratory of Recombinant Proteins**”
Department of Biotechnologies and Life Sciences, University of Insubria, Dunant street, 3 - Varese ITALY.
 - Oct. 2019 – Dec. 2019
“**Analytical Biochemistry**”
Department of Biotechnologies, University of Verona, Le Grazie street, 15 - Verona ITALY.
- **Tutoring and co-supervision of Bachelor’s theses:**
 - Tommaso Alberelli
Thesis: “Studi cellulari di varianti patologiche dell’enzima umano 3-fosfoglicerato deidrogenasi”
Supervisor: Prof. Silvia Sacchi; Correlators: Prof. Loredano Pollegioni, Elena Zerbini
Academic year: 2021-2022
University of Insubria - Varese ITALY.
 - Marta Bettoni
Thesis: “D-amminoacido ossidasi e senescenza – variazione dei livelli di espressione in un sistema cellulare modello”
Supervisor: Prof. Silvia Sacchi; Correlator: Elena Zerbini
Academic year: 2020-2021



University of Insubria - Varese ITALY.

- Alessandra Macchi

Thesis: "Regolazione della biosintesi della serina: analisi in silico dei putativi siti di modificazione post-traduzionale negli enzimi coinvolti"

Supervisor: Prof. Silvia Sacchi; Correlators: Prof. Loredano Pollegioni, Elena Zerbini

Academic year: 2020-2021

University of Insubria - Varese ITALY.

I, hereby, give my consent to the use of my personal data, according to the GDPR and the Italian and European Legislation.

Varese, March 20th 2024

Elena Zerbini