

Lorenzo Barolo, Ph.D.

WORK EXPERIENCE

- February 2022 – January 2024 **Researcher**
"Sapienza" University of Rome
Scattering-assisted localization of fluorescent aggregates of Alzheimer's Disease
Supervisor: Prof. Paola Baiocco
- April 2021 – January 2022 **Junior Researcher**
MERCK Serono
Structural Characterization Lab
Supervisor: Dr Angelo Palmese
- March – June 2019, 2020 **Teaching Associate**
University of Technology Sydney
Subject: Principle of Scientific Practice
Lecturer: Ms Kia Angus
- March – June 2019, 2020 **Teaching Associate**
University of Technology Sydney
Subject: Biotechnology
Lecturer: Dr Sheila Donnelly
- November – December 2017 **Account Acquisition**
AMETEK – Cameca
Supervisor: Pierre-Yves Corre
- March – June 2017 **Teaching Associate**
University of Technology Sydney
Subject: Chemistry 01
Lecturer: Dr Scott Chadwick

EDUCATION

- September 2016 – January 2021 **Biochemistry – PhD**
University of Technology Sydney
Completed
"Comparative protein analysis to investigate Chlamydomonas reinhardtii as a cell biofactory"
Supervisor: Dr Mathieu Pernice
Co-supervisors: Dr Raffaella Abbriano, Dr Audrey Commault, Dr Matt Padula
- September 2013 – December 2015 **Chemistry – Master of Science**
University of Naples "Federico II"
Mark: 110/110
"Analysis of post-translational modifications in biological matrices" in collaboration with University of Firenze.
Supervisor: Prof. Angela Amoresano
Co-supervisor: Dr Andrea Carpentieri

March 2013

Chemistry – Bachelor of Science

University of Naples “Federico II”

“Differential proteomic analysis of *Mycobacterium smegmatis* in presence of a methylating agent”.

Supervisor: Prof. P. Pucci

PEER-REVIEWED PUBLICATIONS

Capocefalo A, Gentilini S, **Barolo L**, Baiocco P, Conti C, Ghofraniha N. (2023) *Bio-sensing with free space Whispering Gallery microlasers*. J. Photonics Research, 11(5):732

Barolo L, Commault AS, Abbriano RM, Padula MP, Kim M, Kuzhiumparambil U, Ralph PJ, Pernice M. (2022). *Unassembled cell wall proteins form aggregates in the extracellular space of *Chlamydomonas reinhardtii* strain UVM4*. Applied Microbiology and Biotechnology, 1-12.

Windhagauer M, Abbriano RM, Ashworth J, **Barolo L**, Jaramillo Madrid AC, Pernice M, Doblin MA. (2021). *Characterisation of novel regulatory sequences compatible with modular assembly in the diatom *Phaeodactylum tricorutum**. Algal Research, 53, 102159.

Commault AS, Kaur Walia N, Fabris M, **Barolo L**, Siboni N, Adriaans J, Ralph PJ, Pernice M. (2020). *Effect of biphasic temperature regime on therapeutic recombinant protein production in the green alga *Chlamydomonas reinhardtii**. Algal Research, 50, 101997.

Barolo L, Abbriano RM, Commault AS, George J, Kahlke T, Fabris M, Padula MP, Lopez A, Ralph PJ, Pernice M. (2020). *Perspectives for glyco-engineering of recombinant biopharmaceuticals from microalgae*. Cells, 9, 633.

Carpentieri A, Gamberi T, Modesti A, Amoresano A, Colombini B, Nocella M, Bagni MA, Fiaschi T, **Barolo L**, Gulisano M, Magherini F. (2016). *Profiling Carbonylated Proteins in Heart and Skeletal Muscle Mitochondria from Trained and Untrained Mice*. Journal of Proteome Research, 15, 10.

SUBMITTED PAPERS

Barolo L, Gigante Y, Mautone L, Ghirga S, Soloperto A, Giorgi A, Ghirga F, Pitea M, Ruocco G, Boffi A, Di Angelantonio S, Baiocco P. (2023). *Ferritin nanocages delivery of tau fluorescent probe in iPSC-derived retinal cells*. Science Reports.

Liberati FR, **Barolo L**, Peruzzi G, Farina MV, Di Russo S, Spizzichino S, Di Fonzo F, Quaglio D, Pisano L, Botta B, Giorgi A, Boffi A, Cutruzzolà F, Paone A, Baiocco P. (2023). *Combined delivery of miR-15/16 through Humanized ferritin nanocages for the treatment of chronic lymphocytic leukemia*. Pharmaceutics.

CONFERENCE PRESENTATIONS

July 2023

Lorenza Mautone, Ylenia Gigante, **Lorenzo Barolo**, Paola Baiocco, Alberto Boffi, Silvia Di Angelantonio. *Visualizing Tau Tangles in AD Retina with a BODIPY-based Fluorescent Ligand*. Poster presentation. Alzheimer's Association International Conference, Amsterdam, Netherlands.

September 2019

Lorenzo Barolo, Audrey S. Commault, Raffaella M. Abbriano, Mathieu Pernice, Manoj Kumar, Matt Padula and Peter J. Ralph. *Proteome comparison of wild type and genetically modified strains of *Chlamydomonas reinhardtii* for recombinant protein production*. Oral presentation. Algae Biomass Summit, Orlando FL, USA.

December 2018 **Lorenzo Barolo, Audrey S. Commault, Manoj Kumar and Peter J. Ralph.** *Proteome comparison of wild type and genetically modified strains of Chlamydomonas reinhardtii for recombinant protein production.* Poster presentation. AlgaEurope, Amsterdam, Netherlands.

PROFESSIONAL SKILLS

MOLECULAR BIOLOGY AND BIOTECHNOLOGY

Plasmid design (Geneious, Benchling), plasmid construction (Gibson assembly, NEBuilder), growth of prokaryotic and eukaryotic cells, transformation techniques of prokaryotic and eukaryotic cells (heat-shock, electroporation, glass beads), PCR, fluorescence-activated analysis and cell sorting.

PROTEIN CHEMISTRY AND PROTEOMICS

Protein extraction from prokaryotic and eukaryotic organisms, protein purification and separation techniques (RP, NP, affinity, ion exchange, size-exclusion, HILIC chromatography), mono and two-dimensional gel electrophoresis, Western blot, Bradford and BCA assay, ELISA assay, protein UV-Vis spectrophotometry and fluorescence spectroscopy, fluorescent labelling of proteins, fluorescence polarization assay, incorporation of fluorescent probes and nucleic acids into protein nanocages, protein fibrillation.

PROTEIN ANALYSIS AND MASS SPECTROMETRY

Protein precipitation (using organic solvents), protein desalting and concentration (single-pot solid-phase enhanced preparation), *in-gel* and *in-solution* hydrolysis of proteins and glycoproteins (trypsin, chymotrypsin, N-endoglycosidase, β -elimination), whole molecule, peptide mapping, glycopeptide, and glycan mass spectrometry analysis (MALDI-TOF, LC-ESI-Q-TOF, LTQ Orbitrap).

INSTRUMENTS

Thermal Cycler (Bio-Rad, ThermoFisher, Superbio), Gene Pulser Xcell Electroporation System (Bio-Rad), CytoFLEX S Flow Cytometer (Beckman Coulter), Microplate Reader (BMG, Tecan), V-750 Spectrophotometer (Jasco), RF-6000 Spectro Fluorophotometer (Shimadzu), Mini-PROTEAN and Criterion Gel System (Bio-Rad), Trans-Blot Turbo System (Bio-Rad), ChemiDoc Imaging System (Bio-Rad), AKTA Start and AKTA Pure (GE Healthcare), ACQUITY UPLC System (Waters), Vanquish UPLC System (ThermoFisher), Xevo G2-S and G2-XS Mass Spectrometer (Waters), Orbitrap Lumos Fusion (ThermoFisher).

BIOINFORMATICS

Mascot (Matrix Science), PEAKS, MassLynx, Genedata Expressionist, BioPharma Finder, BioPharma Lynx, Xcalibur, ImageMaster, Geneious, Benchling, UNICORN 7, ImageJ, CytExpert, Image Lab, Primer3, BLAST, Python, Prism, BioRender, Spectra Manager V2, LabSolutions RF, Office.

PERSONAL SKILLS

Language skills **English**, overall IELTS score 7 (CEFR Level C1) (2016)

Relational and organizational skills Excellent interpersonal skills with colleagues, strong predisposition to teamwork, excellent leadership and supervision skills.
Excellent organizational skills in research laboratories, with autonomy in the management and coordination of research and instrumentation. Outstanding ability of designing, troubleshooting and completing projects. Extensive experience of designing, writing, and submitting scientific papers. Certified experience of working in GMP conditions.

REFERENCES

Prof. Paola Baiocco, paola.baiocco@uniroma1.it
Dr Mathieu Pernice, Mathieu.Pernice@uts.edu.au
Dr Raffaella Abbriano, Raffaella.AbbrianoBurke@uts.edu.au
Dr Audrey Commault, Audrey.Commault@uts.edu.au
Dr Andrea Carpentieri, acarpent@unina.it
Dr Sheila Donnelly, Sheila.Donnelly@uts.edu.au
Pierre-Yves Corre, Pierre-Yves.Corre@ametek.com
Dr Angelo Palmese, Angelo.Palmese@merckgroup.com

I certify that the information contained in this Curriculum Vitae are true and accurate.

I authorize the use of personal data, including sensitive ones, the purposes and effects of Legislative Decree 2016/679 GDPR (*General Data Protection Regulation*), for the purposes specified in this notice of application.

Rome, 27/02/2024

Lorenzo Barolo

