

# Lorenzo Barolo, Ph.D.

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## WORK EXPERIENCE

- 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      **Biotechnology – 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

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 tricornutum*. 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.

#### PUBLICATIONS UNDER REVIEW AND/OR IN PREPARATION

**Barolo L**, Commault AS, Abbriano RM, Padula MP, Kim M, Kuzhiumparambil U, Ralph PJ, Pernice M. *Extracellular proteomic analysis of Chlamydomonas reinhardtii strain "UVM4" reveals high abundance of secreted cell wall glycoproteins*. Submitted to International Journal of Molecular Sciences.

**Barolo L**, Abbriano RM, Commault AS, Padula MP, Pernice M. *Transgene expression elicits widespread proteomic reprogramming in Chlamydomonas reinhardtii*. Submitted to The Plant Journal.

Abbriano RM, **Barolo L**, Commault AS, Fabris M, Adams T, Lovrecz G, Pernice M, Ralph PJ. *Production and characterization of recombinant panitumumab in the diatom Phaeodactylum tricornutum*. In preparation.

#### CONFERENCE PRESENTATIONS

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. 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. 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, mono and two-dimensional gel electrophoresis, Western blot, protein purification and separation techniques (RP, NP, affinity, ion exchange, size-exclusion, HILIC chromatography).

## 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,  $\beta$ -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), 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, Office.

## PERSONAL SKILLS

<b>Language skills</b>	<b>English</b> , overall IELTS score <b>7</b> (CEFR Level <b>C1</b> ) (2016)
<b>Relational and organizational skills</b>	Excellent interpersonal skills both with colleagues, strong predisposition to teamwork. 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 working in GMP conditions.

## REFERENCES

Dr Mathieu Pernice, [Mathieu.Pernice@uts.edu.au](mailto:Mathieu.Pernice@uts.edu.au)  
Dr Raffaella Abbriano, [Raffaella.AbbrianoBurke@uts.edu.au](mailto:Raffaella.AbbrianoBurke@uts.edu.au)  
Dr Audrey Commault, [Audrey.Commault@uts.edu.au](mailto:Audrey.Commault@uts.edu.au)  
Dr Andrea Carpentieri, [acarpent@unina.it](mailto:acarpent@unina.it)  
Dr Sheila Donnelly, [Sheila.Donnelly@uts.edu.au](mailto:Sheila.Donnelly@uts.edu.au)  
Pierre-Yves Corre, [Pierre-Yves.Corre@ametek.com](mailto:Pierre-Yves.Corre@ametek.com)  
Dr Angelo Palmese, [Angelo.Palmese@merckgroup.com](mailto:Angelo.Palmese@merckgroup.com)

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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 196/2003 for the purposes specified in this notice of application.

Date, 06/10/2021

Lorenzo Barolo