



Claudia D'Ercole

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EDUCATION

Bachelor's Degree in Biological Sciences

Università Politecnica delle Marche (Italy)
2014 - 2018

Master's Degree in Molecular and Applied Biology

University of Florence (Italy)
2018 - 2020

PhD in Molecular Genetics and Biotechnology

University of Nova Gorica (Slovenia)
October 2020 - February 2025

JOBS

Research Assistant

University of Nova Gorica (Slovenia)
2024 - Present

SKILLS

Lab skills

- Subcloning (Gibson assembly/restriction and ligation)
- Phage display biopanning
- Native/Non-native electrophoresis
- Western and contact blotting
- Protein production in bacteria and yeast
- Protein purification through chromatographic techniques (IMAC, IEX, SEC)
- Biophysical techniques for protein complex analysis (DLS, Mass Photometry, nanoDSF, HDX-MS)
- Cell culture
- Protoplast isolation

RESEARCH PROJECT

Master thesis: Study of the effect of exotic plants species on phylogenetic diversity of common reeds communities in Italy

PhD thesis: Development of methods for comprehensive evaluation of forest tree healthy and stress conditions Identification of adhirons (synthetic binders) specific for plant cell surface Identification of nanobodies targeting ascorbate peroxidase (plant protein involved in stress conditions) Biophysical and structural characterization of protein complexes (Nanobody/Adhiron - Antigen) Development of rapid and easy method for the detection of protein complex in their native conditions

Research: in vitro isolation of hCDKL5-specific antibody fragments and set-up of a method to quantify hCDKL5 and possibly distinguish between its isoforms

HONORS AND AWARDS

- Selected participant for MOSBRI course - BLS1: Quality control for Biology
- Selected participant for CCP4/BCA Summer School
- Winner of the student fellowship for the participation at the Instruct-ERIC Biennial Structural Biology Conference

CONFERENCES

CYBO - Conference of young botanist

Genova, Italy (2020)

Talk: Effect of exotic species on phylogenetic diversity of common reed communities

MOSBRI course - BLS1: Quality control for Biology (QC4Bio)

Institute Pasteur, France (04/2022)

ICPP21 - International Conference of Photoacoustic and Photothermal

Bled, Slovenia (06/2022)

Organization committee

19th P4EU meeting

Trieste, Italy (05/2023)

2nd Scientific MOSBRI Conference

Zaragoza, Spain (06/2023)

CCP4/BCA Summer School

University of York, UK (08/2023)

IX International Plant Science Conference

University of Pisa (Italy)

University of Pisa (Italy)

Poster presentation: Isolation of synthetic binders for identification and evaluation of forest plant stress biomarkers

Cryo-EM in industry and academia - EMBL conference

Virtual participation (01/2024)

Instruct-Eric Biennial Structural Biology Conference

Cascais, Portugal (05/2024)

Poster presentation: Instruct-ERIC network Biophysical characterization of antigen-nanobody complexes

3rd Scientific MOSBRI Conference

Ljubljana, Slovenia (06/2023)

Poster presentation: Native agarose gels and contact blotting as means of optimize the protocols for the formation of antigen-ligand complexes

Structural bioinformatics - EMBL/EBI course

Virtual course (11/2024)

PUBLICATIONS

- **Macroporous Epoxy-Based Monoliths Functionalized with Anti-CD63 Nanobodies for Effective Isolation of Extracellular Vesicles in Urine**
(<https://doi.org/10.3390/ijms24076131>)
- **Native Agarose Gels and Contact Blotting as Means to Optimize the Protocols for the Formation of Antigen-Ligand Complexes**
(<https://doi.org/10.3390/bioengineering10101111>)
- **Biological Applications of Synthetic Binders Isolated from a Conceptually New Adhiron Library**
(<https://doi.org/10.3390/biom13101533>)
- **Isolation of Adhirons Specific for Plant Protoplast Membrane Biomarkers Is Simplified by Phagemid Design**
(https://doi.org/10.1007/978-1-0716-3279-6_3)
- **A Practical Guide for the Quality Evaluation of Fluobodies/Chromobodies**
(<https://doi.org/10.3390/biom14050587>)
- **Generation of anti-ascorbate peroxidase nanobodies and their use for biosensor functionalization: an affordable platform to monitor stress biomarkers in forest trees**
(under review)
- **Computational study of the HLTF ATPase remodeling domain suggests its activity on dsDNA and implications in damage tolerance**
(<https://doi.org/10.1016/j.jsb.2024.108149>)