

# Ph.D. program in genetics, molecular and cellular biology

**Project title:** Structural and biochemical characterization of flavoenzymes with potential bio-catalysis application

**Supervisor:** Claudia Binda

**Reviewer:** Alberta Pinnola



## Lorenzo Basile

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Pavia

3 July, 1997

### SUMMARY

Proactive, passionate and dedicated Molecular Biologist with 2 years of professional lab experience in protein expression, purification and crystallization. Possess skills in orthogonal cell-free assay for biochemical characterization and knowledge in Cryo-EM samples preparation and processing data

### EXPERIENCE

- 2022 - PRESENT**  
**University of Pavia**  
**ACADEMIC TUTOR**
  - Laboratory of Biomolecular Methods
  - Sample preparation
  - Teaching lectures
- 2020 - PRESENT**  
**University of Pavia**  
**INTERNSHIP**
  - Structure Biology Lab
  - Biochemical and structure characterization of the membrane complex NADPH OXIDASE 2 (NOX2)

### EDUCATION

- 2020 - 2022**  
**University of Pavia**  
**MOLECULAR BIOLOGY AND GENETICS**
  - Thesis title: "The chimeric single-chain cytosolic activator TrimerA as a new tool for the biochemical and structural investigation of the native NADPH Oxidase 2".
  - Final mark: 110/110 Cum Laude
- 2017 - 2020**  
**University of Pavia**  
**BIOLOGICAL SCIENCES**
  - Final mark: 110/110
- 2016 - 2017**  
**University of Pavia**  
**BIOENGINEERING**
  - Exams done before changing the course:
  - Analytics 1, Geometry and Algebra
- 2011 - 2016**  
**Pavia**  
**SCIENTIFIC HIGH SCHOOL**
  - high school N. Copernico

### SKILLS AND COMPETENCE

- Recombinant cytosolic and membrane protein expression in prokaryotic and eukaryotic (mammalian) cells. Culture of human cell lines
- DNA amplification (PCR)
- Protein (cytosolics, membrane complexes) purification (affinity, immunoaffinity, ion exchange, size exclusion chromatography) with Äkta system (FPLC) and in batch systems
- Protein characterization (SDS-PAGE, Western blot)

- Enzymatic assays [for ROS measurements: cytochrome c assay, NADPH consumption assay, MCLA [2-Methyl-6-(4-methoxyphenyl)-3,7-dihydroimidazo[1,2-a]pyrazin-3-one, hydrochloride] chemiluminescence assay]
- Characterization of protein 3D structure by X-ray methods (X-ray crystallography with vapour diffusion techniques)
- Cryo-electron microscopy sample and grids preparation (Vitrobot System).

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**BIOINFORMATIC SKILLS**

- Protein structure analysis (Pymol)
- Transmission electron microscopy 2D class averages and refinement of 3D reconstructions (RELION)
- The use of databases as Protein Data Bank, Clustal Omega, BLAST, UniProt.
- GraphPad Prism
- Basic knowledge of RStudio and Virtual Box
- Basic knowledge of Linux

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**LANGUAGES**

- Italian: Native
- English: Intermediate
- Spanish: School level