Theo Battista, PhD

Education and Training

• November 2017 – December 2020

Ph.D. in Biochemistry at "Sapienza", University of Rome, Institute of Molecular Biology and Pathology – CNR, Department of Biochemical Sciences "A. Rossi Fanelli", Rome, Italy.

Ph.D. thesis: "Anti-trypanosomatidal drug discovery: a challenge for structural biology"

Main research projects:

- Structural and inhibitory studies of trypanothione metabolism drug targets
- Structural insights of the Sigma-1 Receptor, an enigmatic transmembrane protein involved in neurodegenerative diseases.

Supervisor: Dr. Gianni Colotti Ph.D. programme coordinator: Prof. Stefano Gianni

• December 2020

National scientific qualification as a **Professional Biologist**

• October 2014 – January 2017

Master degree in Pharmaceutical Biotechnologies at "Sapienza", University of Rome, Institute of Molecular Biology and Pathology – CNR, Department of Biochemical Sciences "A. Rossi Fanelli", Rome, Italy.

Degree grade: 110/110 *cum laude*

Research project: "Structural and inhibitory studies of trypanothione reductase from Leishmania infantum with diarilical compounds".

Supervisors: Dr. Gianni Colotti, Prof. Fabio Altieri

• November 2011 – November 2014

Bachelor in Biomedical Laboratory Techniques at University of Rome Tor Vergata, Department of Translational Medicine, Rome, Italy.

Degree grade: 110/110 *cum laude*

Research project: "Conversion of cytochrome c in a peroxidase: methods for the evaluation of mutations effectiveness".

Supervisor: Prof. Laura Fiorucci.

Work Experience

• November 2023 – May 2024

Post-doctoral researcher at Jagiellonian University, Dioscuri Centre - Structural dynamics of Receptors, Faculty of Biochemistry, Biology and Biotechnology, Krakow, Poland

Scientific Supervisor: Prof. Przemyslaw Nogly

• August 2022 – May 2023

Research Associate at Elettra Sincrotrone Trieste, Protein Production Facility – Structural Biology Lab, Trieste, Italy.

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Roma 06/12/2024

Scientific Supervisor: Dr. Paola Storici

• July 2021 – July 2022 **Post-doctoral researcher** at University of Trieste, Department of Chemical and Pharmaceutical Technologies, Trieste, Italy (in collaboration with the Protein Production Facility at Elettra Sincrotrone Trieste).

Scientific Supervisor: Dr. Sara Fortuna

Personal skills

Mother tongue Italian

Other languages

English

• Reading C2
• Writing C1
• Speaking C1

Technical skills and competences

Crystallography and structural biology: Crystallization screening/reagents preparation and handling with multiple automated systems (Crystal Phoenix, Mosquito, Tecan Freedom Evo), multiple crystallization techniques for soluble and membrane protein (vapor diffusion, batch, LCP), diffraction data collection at synchrotron radiation sources, data processing with XDS, use of Phenix, CCP4 and Coot for structure solution, model building and refinement, use of PyMOL and Chimera for structure visualization and analysis, structure validation and deposition, basics of time-resolved serial crystallography (crystallization, sample preparation for fixed target analysis, data collection at XFEL)

Biochemistry: Protein expression in prokaryotic and eukaryotic systems (*E. Coli, P. Pastoris, S. Frugiperda, HEK293)*, protein purification (IMAC, IEX, SEC), biophysical techniques for protein-ligand interaction characterization (enzyme inhibition kinetics, SPR, TSA, OMNISEC)

Structural Bioinformatics: Protein/nucleotide sequence alignment and analysis, use of Autodock and online tools for protein-ligand/protein-protein interaction prediction and validation (e.g. Swissdock, HADDOCK, Pdb-REDO);

Molecular biology: Constructs design, cloning (restriction enzyme, LIC, SLIC), PCR and mutagenesis;

Informatics: use of Linux and WIndows OS for scientific data managing and analysis.

Teaching and Supervision

• November 2018 – May 2024

Continuous supervision and tutoring of students and PhD candidates

Organizer and tutor of theoretical and practical sessions during the “HERCULES 2023 – European School” at Elettra Sincrotrone Trieste

Official guide at Elettra Sincrotrone Trieste for national and international undergraduate students (Topics: Crystallography, Biochemistry, Molecular Biology)

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Experiences

21st February 2020 – 7th March 2020
Visiting Ph.D. student at Aarhus University-DANDRITE, Dept. of Molecular Biology and Genetics, Head of the Lab: Prof. Poul Nissen

October 2019 – December 2019
Visiting Ph.D. student at Roma Tre University, Dept. of Science,
Head of the Lab: Prof. Paraskevi Tavladoraki

June 2018 – July 2018
Collaborator at Protein Production Facility at Elettra Sincrotrone Trieste,
Head of the Lab: Dr. Paola Storici

Participation to national and international schools, workshops and congresses

Serial Crystallography Workshop, 23 - 24 January 2024, Didcot, England

58th International School of Crystallography "Structural Drug Design 2023: Biology, Chemistry and Computers", 2 – 10 June 2023, Erice, Italy

19th P4EU Meeting, 22 – 23 May 2023, Padriciano, Trieste, Italy
4th Joint Conference of the Italian Crystallographic Association (AIC) and the Italian Synchrotron Light Association (SILS), 12 – 15 September 2022, Trieste, Italia

24th International Symposium on Molecular Medicine, 10 – 12 October 2019, Sparta, Greece (**Selected speaker**: "*New compounds inhibiting trypanothione reductase: an attractive target to develop drugs against Human African Trypanosomiasis*")

MISCA2019 Fifth meeting of the Italian (AIC) and Spanish (GE3C) Crystallographic Associations, 4 – 7 September 2019, Napoli, Italy

"IBPM annual meeting 2019: from model systems to therapies", 9 May 2019, Rome, Italy (**Selected speaker**: "*Structure guided drug design in antitrypanosomatidal drug discovery*")

Macromolecular Crystallography School 2019, 22 – 28 April 2019, Madrid, Spain

"Thiols: key players in the redox regulation of cellular functions" Symposium,
28 February – 1 March 2019, Jacksonville, Montevideo, Uruguay
(**Selected speaker**: "*A double approach for antitrypanosomatidal drug discovery: targeting Trypanothione reductase, a key enzyme for the redox equilibrium in Trypanosomatids*")

ICGEB Course "Redox chemistry and biology of thiols", 18 – 27 February 2019, Montevideo, Uruguay

ICGEB Workshop "Molecular biology of Leishmania", 22 – 24 October 2018, Padriciano, Italy

ARBRE biophysics – Training School "MOLECULE IN(ter)ACTION: from in vitro to zebrafish", 6 – 9 February 2018, Palermo, Italy

References

Dr. Andrea Ilari, Ph.D., IBPM Institute of Molecular Biology and Pathology–CNR
andrea.ilari@cnr.it

Dr.ssa Paola Storici, Ph.D., Elettra Sincrotrone Trieste
paola.storici@elettra.eu

Dr. Przemyslaw Nogly, Ph.D., Dioscuri Centre - Structural dynamics of Receptors
przemyslaw.nogly@uj.edu.pl

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