CURRICULUM VITAE ET STUDIORUM
Caterina Nardella

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EDUCATION

21-12-2018	PhD degree in 'Biochemistry', XXXI cycle Department of Biochemical Sciences *'A.Rossi Fanelli'* - 'Sapienza' University of Rome Thesis Title: "Structural and Functional Analysis of MocR-like Transcription Factors, Pyridoxal 5'-phosphate-dependent Regulators of Bacterial Metabolism"
2015- 2018	PhD student in 'Biochemistry', XXXI cycle Department of Biochemical Sciences *'A.Rossi Fanelli'* - 'Sapienza' University of Rome Tutor: Prof. Roberto Contestabile
December 2015	Qualification as a Professional Biologist (Esame di Stato per l'abilitazione alla professione di Biologo) 'Sapienza' University of Rome
26-03-2014	Second Level Degree in 'Genetics and Molecular Biology' *cum laude* 'Sapienza' University of Rome Thesis Title: "Inhibition Mechanism of Pyridoxal Kinase, an enzyme involved in vitamin B_6 metabolism"
23-06-2011	First Level Degree in 'Biological Sciences' (with marks 103/110) 'Sapienza' University of Rome Thesis Title: "Purinergic Regulation in cochlear transmission"
2003	Scientific High School Diploma (with marks 81/100) School: Liceo Scientifico Statale 'S.Cannizzaro'in Rome

RESEARCH EXPERIENCE

My research interests are focused on the expression, purification and functional characterization of enzymes involved in vitamin B_6 metabolism, as well as of PLP-dependent enzymes. During my stay in the laboratory for the Second Level Degree, I analyzed the inhibition mechanism of *E. coli* pyridoxal kinase (*e*PLK), a key enzyme of vitamin B_6 salvage pathway. I also analyzed human pyridoxal kinase (*h*PLK) activity in the presence of increasing 2-acetyl-4-((1R,2S,3R)-1,2,3,4-tetrahydroxybutyl)imidazole (THI) concentrations, which is a minor contaminant in caramel food colourings (E 150c).

During my PhD, I have been involved in the purification and characterization of two bacterial key enzymes of tetrapyrroles biosynthesis. I am also interested in the molecular mechanism of vitamin B_6-dependent transcriptional regulators (MocR-like Transcriptional Regulators), which are involved in the regulation of several metabolic pathways in Eubacteria. I contributed in a research project concerning the identification and the characterization of a new MocR-like transcriptional regulator, PtsJ from *Salmonella typhimurium*, which controls the expression of the *pdxK* gene encoding PLK of vitamin B_6 salvage pathway. I also turned my attention to another MocR-like transcriptional regulator, GabR from *Bacillus subtilis*, involved in the regulation of GABA metabolism. This work, that is still ongoing, is especially focused on characterization of the DNA-binding region recognised by GabR.

January 2019- present: Research Fellowship by Istituto Pasteur Italia - Fondazione Cenci Bolognetti, Department of Biochemical Sciences 'A. Rossi Fanelli' - 'Sapienza' University of Rome, research group of Prof. Roberto Contestabile.

November 2015-October 2018: PhD student in Biochemistry, Department of Biochemical Sciences 'A. Rossi Fanelli' - 'Sapienza' University of Rome, research group of Prof. Roberto Contestabile.

May 2012-March 2014: graduate student, Department of Biochemical Sciences 'A. Rossi Fanelli' - 'Sapienza' University of Rome, research group of Prof. Roberto Contestabile.

TECHNICAL SKILLS

Molecular biology techniques: vector design, gene cloning, expression of heterologous proteins in bacteria, site-directed mutagenesis, DNA and RNA extraction, PCR, RT-qPCR.

Biochemical techniques: protein purification by the use of different kinds of chromatography (FPLC); protein characterization through spectrophotometric, fluorometric and circular dichroism methods, gel electrophoresis, western blot and EMSA assays.

Computer Skills: MS Office (Excel, Powerpoint, Word); Operating Systems: Windows; good ability to navigate the internet; Graphpad Prism, data analysis software.

COURSES ATTENDED

January 2018	"Short Course in Membranes, Membrane Proteins and their interactions". Department of Biochemical Sciences *'A.Rossi Fanelli'* - 'Sapienza', University of Rome.
November/December 2017	"Fundamentals of enzyme kinetics". Department of Biochemical Sciences *'A.Rossi Fanelli'* - 'Sapienza', University of Rome.
June/July 2017	"Bioinformatics: theory and applications from genomes to drugs". Department of Biochemical Sciences *'A.Rossi Fanelli'* - 'Sapienza', University of Rome.

RELEVANT CONFERENCES ATTENDED

9-12 September 2018	"EMBO workshop: Enzymes, biocatalysis and chimica biology: The new frontiers". University of Pavia (Italy).
4-8 June 2018	30th *"A. Castellani"* Meeting of PhD students in Biochemical Sciences. Brallo di Pregola, Pavia (Italy).
26-28 June 2017	"Proteins in action: biophysical techniques for protein research". Faculty of Science, University of South Bohemia, Ceske Budejovice (Czech Republic).
18-19 May 2017	"Biophysics@Rome2017: multidisciplinary networks for innovation". CNR, Rome (Italy).
21-22 March 2016	"Tetrapyrrole Discussion Group Meeting". Liverpool, John Moores University (United Kingdom).

PUBLICATIONS

1. Tramonti A, Milano T, **Nardella C**, di Salvo ML, Pascarella S, Contestabile R. *Salmonella typhimurium* PtsJ is a novel MocR-like transcriptional repressor involved in regulating the vitamin B6 salvage pathway. *FEBS Journal* 2017, 284 (3): 466–484. PMID: 27987384. DOI: 10.1111/febs.13994.

2. Tramonti A, **Nardella C**, di Salvo ML, Pascarella S, Contestabile R. The MocR-like transcription factors: pyridoxal 5'-phosphate-dependent regulators of bacterial metabolism. *FEBS Journal* 2018, 285(21): 3925-3944. PMID: 29974999. DOI:10.1111/febs.14599.

3. Tramonti A, **Nardella C**, di Salvo ML, Barile A, Cutruzzolà F, Contestabile R. Human cytosolic and mitochondrial serine hydroxymethyltransferase isoforms in comparison: full kinetic characterization and substrate inhibition properties. *Biochemistry* 2018, 57 (51): 6984-6996. PMID: 30500180. DOI: 10.1021/acs.biochem.8b01074.

4. **Nardella C**, Boi D, Di Salvo ML, Barile A, Stetefeld J, Tramonti A, Contestabile R. Isolation of a complex formed between *Acinetobacter baumannii* HemA and HemL, key enzymes of tetrapyrroles biosynthesis. *Frontiers in Molecular Biosciences* 2019, Volume 6, Article 6. PMID: 30863751. DOI: 10.3389/fmolb.2019.00006.

5. Barile A, Tramonti A, di Salvo ML, Nogues I, **Nardella C**, Malatesta F and Contestabile R. Allosteric feedback inhibition of pyridoxine 5'-phosphate oxidase from *Escherichia coli*. *Journal of Biological Chemistry* 2019, 294(43):15593-15603. PMID: 31484724. DOI: 10.1074/jbc.RA119.009697.

Ai sensi del Decreto Legislativo 196/2003 Vi autorizzo al trattamento dei miei dati personali

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