


Dr. Luigi Mandrich
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Biography

Name: Luigi Mandrich
Date of birth: 28 February 1969

Since 2008 Luigi Mandrich is researcher at the Institute of Protein Biochemistry (CNR), during these periods he carried out research in the field of biochemistry, acquiring advanced skills in enzymology, molecular biology, biotechnological applications; he is the author of more than 40 papers on international journals and co-owner of two Italian patents, he has been nominated several times as reviewer for international journals. He is Editorial Board member for the journals "Frontiers in Marine Science", "Cloning and Transgenesis" and "Mediterranean Journal of Chemistry".

Actually, he is member of the Technical-Scientific Committee at the Institute of Protein Biochemistry.

Main interest are in area of the studies of structure/function relationship to elucidate the determinants of enzyme thermal stability, substrate specificity and reaction mechanism, with particular interest of lipases/esterases and phosphotriesterases and their possible biotechnological applications.

Education

2004. Ph.D. in Industrial Biotechnology under direction of Prof. Mosè Rossi at the University of Naples "Federico II".

1997. Degree in Biological Science with distinction under direction of Prof. Alberto Di Donato at the University of Naples "Federico II".

Work experiences

Present. Permanent position as researcher at the Institute of Protein Biochemistry (IBP), National Research Council (CNR), Naples, Italy.

02/2015. Stage at Weizmann Institute (Rehovot, Israel) as visit scientist to follow the project "Over-expression of recombinant human paraoxonase-2 PON2 in Baculovirus expression system and determination of its crystal structure" selected to be granted by the European platform "Instruct Integrating Biology". PID: 1056.

11/2013-05/2014. Tutor for technical and scientific training under the project "Safety chemical-toxicological environment" associated to the project code: PON01_01585. Title: "Innovative products for monitoring and decontamination/detoxification of nerve agents and explosives in the environment and/or for emergency management ". Duration: 170 hours.

06/2013-10/2013. Teacher in Environmental Biotechnology, associated to the project code: PON01-01585. Title: "Innovative products for monitoring and decontamination/detoxification of nerve agents and explosives in the environment and/or emergency management".

2007. Post Doctoral fellowship at the Institute of Protein Biochemistry (IBP), having as main target "Role of thermophilic esterase on cheese manufacturing and ripening".

2004-2006. Post Doctoral fellowship at the Institute of Protein Biochemistry (IBP), having as main target "Isolation, structural and functional characterization of thermostable paraoxonases".

2004. He visited the *Instituto de Lactologia Industrial* (INLAIN), *Universidad Nacional del Litoral* CONICET (Santa Fe, Argentina), regarding international collaboration between CNR (Italy) and CONICET (Argentina), based on topic "Incidence of a thermophilic esterase on rennet coagulation and cheese ripening of hard and semi-hard paste".

2003. Scientific collaboration related at the PhD project, at the "Department of Flavour, Nutrition and Ingredients" of NIZO food research, P.O. Box 20, 6710 BA, Ede, Holland.

2000-2001. Fellowship of Italian federation of industrial chemistry "Federchimica" in collaboration with "Società Recordati Spa", at the Institute of Protein Biochemistry. Principal topic "Optimization of enzymatic activity of new esterases and their development".

Award

06/2015. Travel award to the International Conference on Structural Genomics 2015 Deep Sequencing Meets Structural Biology. Weizmann Institute, Rehovot, Israel; 7-11 June 2015.

06/2014. "Over-expression of recombinant human paraoxonase-2 PON2 in Baculovirus expression system and determination of its crystal structure", project selected to be granted by the European platform "Instruct Integrating Biology".

06/2014. Special recognition at the 5th World Congress on Biotechnology, Valencia, Spain, as editorial board member of "Cloning and Transgenesis" journal.

Relevant skills

High competence in protein engineering, molecular biology, biochemistry, enzymology, biotechnological application and mass spectrometry.

Main expertise

Site-directed mutagenesis, cloning and DNA manipulation, hydrolases, analysis of kinetic parameters of enzymes.

Based on the data from Web of Science on November 2016, the total citation times are ~780. The H-index is 16.

Key Publications

- Pagliuso A, Valente C, Giordano LL, Filograna A, Li G, Circolo D, Turacchio G, Marzullo V, **Mandrich L**, Zhukovsky M, Formigini F, Polishchuk RS, Corda D, Luini A (2016) Golgi membrane fission requires the CtBP1-S/BARS-induced activation of lysophosphatidic acid acyltransferase δ . *Nature Communications*, 7:12148. doi: 10.1038/ncomms12148.

- **Mandrich L**, Cerreta M, Manco G (2015) An engineered version of human PON2 opens the way to understand the role of its post-translational modifications in modulating catalytic activity. *Plos One*, 10 (12): e0144579. DOI: 10.1371/journal.pone.0144579.

- **Mandrich L**. "Endocrine disruptors: the hazards for human health". *Cloning and Transgenesis*, 2014; 3 (1): e110 doi: 10.4172/2168-9849.1000e110. Editorial.

- **Mandrich L**, De Santi C., de Pascale D., Manco G. "Effect of low organic solvents concentration on the stability and catalytic activity of HSL-like carboxylesterases: analysis from psychrophiles to (hyper)thermophiles", *Journal of Molecular catalysis B: Enzymatic*, 2012; 82: 46-52.

- **Mandrich L** and Manco G. "Evolution in the amidohydrolase superfamily: Substrate-assisted gain of function in the E183K mutant of a phosphotriesterase-like metal-carboxylesterase", *Biochemistry*, 2009, **48** (24): 5602-5612.

- **Mandrich L.**, Menchise V., Alterio V., De Simone G., Pedone C., Rossi M. and Manco G. "Functional and structural features of the oxyanion hole in a thermophilic esterase from *Alicyclobacillus acidocaldarius*" *Proteins*, 2008; **71** (4): 1721-31.
- **Mandrich L.**, Manco G., Rossi M., Floris E., Jansen-van den Bosch T., Smit G. and Wouters J.A (2006) "Thermophilic esterase EST2 from *Alicyclobacillus acidocaldarius* acts in milk and cheese model" *Appl. Environ. Microbiol.* 72 (5): 3191-3197.
- **Mandrich L.**, Merone L., Pezzullo M., Cipolla L., Nicotra G., Rossi M. and Manco G. (2005) "Role of N-Terminus on enzyme activity, stability and specificity in thermophilic esterases belonging to the HSL family" *J. Mol. Biol.* **345** (3): 501-512.
- **Mandrich L.**, De Simone G., Menchise V., Giordano V., Febbraio F., Rossi M., Pedone C. and Manco G. (2004) "A substrate-induced switch in the reaction mechanism of a thermophilic esterase. Kinetic evidence and structural basis" *J. Biol. Chem.* **279** (8): 6815-6823.
- **Mandrich L.**, Pezzullo M., Del Vecchio P., Barone G., Rossi M. and Manco G. (2004) "Analysis of thermal adaptation in the HSL enzyme family" *J. Mol. Biol.* **335**: 357-369.
- **Mandrich L.**, Caputo E., Martin BM, Rossi M. and Manco G. (2002) "The Aes protein and the monomeric alpha-galactosidase from *Escherichia coli* form a non-covalent complex. Implication for the regulation of carbohydrate metabolism" *J. Biol. Chem.* **277**: 48241-48247.
- Caputo E., Manco G., **Mandrich L.**, Guardiola J. (2000) "A Novel Aspartyl Proteinase from Apocrine Epithelia and Breast Tumors" *J. Biol. Chem.* **275**: 7935-7941.