Call for post-doc position Lab Lotti University of Milano Bicocca

https://www.btbs.unimib.it/it/marina-lotti

Deadline 23.11.2021

Call text in Italian and English <u>https://www.unimib.it/ateneo/gare-e-concorsi/assegni-ricerca-tipo-a2-a2-type-research-grants-2021</u>

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Psychrophilic organisms adapted to cold environments produce molecules of relevance for biotechnological application, in particular enzymes active at low temperatures and ice-binding proteins that control the growth of ice crystals. The use of cold-active enzymes supports low temperature processes that preserve heat labile compounds and can result, in some circumstances, in energy saving and are therefore or interest for application in the food, biotransformation and bioremediation sector. The goal of this project deals with the discovery of novel cold-active enzymes, with the production thereof as recombinant proteins and with improvement of performances by protein engineering and other techniques. Particular emphasis is on structure-function relationships as unveiled by structural and conformational analysis.

Recent publication of the group on this topic (complete record on orcid 0000-0001-5419-7572)

Orlando M., Buchholz P.C.F., Lotti M., Pleiss J. (2021) The GH19 Engineering Database: Sequence diversity, substrate scope, and evolution in glycoside hydrolase family 19. PLOS ONE 16(10): e0256817. <u>https://doi.org/10.1371/journal.pone.0256817</u>

Mangiagalli M, Barbiroli A, Santambrogio C, Ferrari C, Nardini M, Lotti M, Brocca S. (2021) The activity and stability of a cold-active acylaminoacyl peptidase rely on its dimerization by domain swapping. International Journal of Biological Macromolecules 181 (2021) 263–274

Mangiagalli M. and Lotti M. (2021) Cold-active β -galactosidases: insight into cold adaption mechanisms and biotechnological exploitation. Mar. Drugs 2021, 19, 43. https://doi.org/10.3390/md19010043

Mangiagalli M, Lapi M, Maione S, Orlando M, Brocca S, Pesce A, Barbiroli A, Camilloni C, Pucciarelli S, Lotti M^* , Nardini M^* (2021) The co-existence of cold activity and thermal stability in an Antarctic GH42 β -galactosidase relies on its hexametric quaternary arrangement. FEBS J. 288: 546–565

Orlando M., Pucciarelli S and Lotti M.(2020) Endolysins from Antarctic *Pseudomonas* display lysozyme activity at low temperature, Marine Drugs, *8*(11), 579; <u>https://doi.org/10.3390/md18110579</u>

Mangiagalli M., Orlando M., Brocca S., Lotti M (2020) The "cold revolution". Present and future applications of cold-active enzymes and ice-binding proteins. New Biotechnology 20;55:5-11