



BoostUrCareer PhD fellowship

Development of new antibiotics against clinical multidrug resistant bacteria from untapped marine microorganisms, a chemobiology approach.

Supervisors:

1. **Dr. Mohamed MEHIRI**, ICN (Institute of Chemistry of Nice, UMR CNRS 7272),
2. **Dr. Laurent BOYER**, C3M (Mediterranean Center for Molecular Medicine, INSERM U1065).

International partners:

Professor Giovanna Cristina VARESE, MUT (MYCOTHECA UNIVERSITATIS TAURINENSIS), University of Turin.

PhD topic:

Health problems and the quality of life are worldwide issues. The impact of antibiotic resistance on public health is considerable as it is estimated to be the leading cause of global mortality by 2050, resulting in more than 10 million deaths per year. Paradoxically, the pipeline for new antibiotics has experienced a long-term decline since 1987. The renewal of the therapeutic arsenal is therefore crucial in order to limit the impact of antibiotic resistance in the coming years.

Marine microorganisms represent an under-explored source of new natural products which exhibit *in situ* several biological activities (cytotoxic, antibiotic, antifungal, antifouling, etc.). Marine natural products have often original structures, different from those of the metabolites of the terrestrial environment, and exhibit potent pharmacological activities with novel mechanisms of action. They could therefore be used to address unmet medical needs such as antibiotic resistance.

In this context, the purpose of the e-MDR PhD project is the development of new antibiotics against clinical multidrug resistant bacteria from untapped marine microorganisms.

The selected PhD candidate will conduct three concomitant tasks:

Task1: Marine microorganisms cultivation (6-months secondment)

Task2: Extraction, isolation and structural elucidation of new marine microbial natural products

Task3: In vitro and In vivo antibacterial activities

The PhD project will be developed thanks to the interdisciplinary combination of analytical/organic chemistry, and biochemistry studies. The project and the PhD candidate will benefit of the interdisciplinary activities of the two supervisors (Dr. M. MEHIRI & Dr. L. BOYER) and also of the expertise of the international collaborator (Pr. G. Cristina VARESE) for marine microorganisms strains cultivation (6-months secondment). This is a highly challenging and very promising approach that would pave the road for the discovery of new antibiotics and will therefore guarantee employability in universities and R&D companies.

The PhD candidate should have strong backgrounds in analytical (chromatography, 1D and 2D NMR, HRMS, IR, UV, CD...) and organic chemistry. Knowledge and experiences in natural products chemistry and in biochemistry (biological screening of molecules) would be ideal.

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Application deadline: 09/03/2020

<http://univ-cotedazur.fr/fr/recherche/boosturcareer#.XjM-K4hCepo>