



Società Chimica Italiana

Divisione di Spettrometria
di Massa

<http://www.spettrometriadimassa.it>

DSM Speciale GIOVANI: lavori in corso

Posizioni aperte riguardanti la spettrometria di massa

**PhD position at the University of Trento, Department
of Civil Environmental and Mechanical Engineering,
and Fondazione Mach (A9 - "CSI")**

deadline August 22, 2018

The Department of Civil, Environmental and Mechanical Engineering of UNITN and the Research and Innovation Center of FEM are jointly offering the PhD position Compound Specific Isotopic analysis of premium alcoholic beverages - "CSI".

Fighting food frauds is urgent not only for consumers' safety and confidence as well as to avoid financial losses. The determination in specific compounds of stable isotope ratios have been one of the most effective and **innovative techniques successfully used for verifying the authenticity of different agro-food commodities**.

This project should develop novel methods for the determination of the isotopic composition of selected premium beverages. In particular, two of the most advanced and state of the art techniques currently available must be applied (GC-IRMS and GC-GC-IRMS). After the development and the validation of the methods, the analysis of a representative number of authentic samples of the selected beverages must be performed. In particular, the characteristic ranges of values of the different products, including their flavour profile, should be defined and 'isotopic identity cards' should be built. The final aim is to create statistical models, usable for determining the authenticity of products on the market.

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<https://www.fmach.it/Servizi-Generali/Lavora-con-noi/Annunci-lavoro-borse-di-studio-e-tirocini/PhD-opportunities-cofunded-by-Fondazione-Mach-in-collaboration-with-major-italian-and-international-Universities/PhD-position-at-the-University-of-Trento-Department-of-Civil-Environmental-and-Mechanical-Engineering-and-Fondazione-Mach-A9-CSI-deadline-August-22-2018>



PhD position in Chemistry of Biomolecules

TITLE: Novel Chemical Approaches to Ultratrace Selenoproteomics

Keywords: selenoproteins, selenopeptides, proteomics, mass spectrometry, chemical synthesis, organic/analytical chemistry.

Supervisors: Dr. Ryszard LOBINSKI et Luisa RONGA.

Project Summary:

Selenium is an essential trace element known for its antioxidant activities. The physiological role of selenium is principally awarded to its co-translational incorporation into selenoproteins as selenocysteine (SeCys), referred to as the 21st amino acid. Twenty-five selenoproteins have been predicted by bioinformatics and constitute the human selenoproteome. One third of these proteins have never been identified *in vivo* and their functions are unknown.

The understanding, on the molecular level, of the function and regulation of selenoproteins, often evoked in the context of cardiomyopathy, thyroid function, cancer, fertility and aging, is critically dependent on the availability of adequate analytical methodology. It should allow the comprehensive qualitative and quantitative analysis for the full set of selenoproteins (selenoproteome) at concentrations down to 1 ng/mL (as Se). Selenoproteins are low abundant (atto- to femtomolar level; selenoprotein/total protein ratio $<10^{-5}$) and only for few of them antibodies are available and often with low affinity.

This project proposes the development of novel chemical approaches for the characterization of selenoproteome. This strategy will be based on the synthesis of new solid supported reagents able to selectively bind Seleno Cysteines (SeCys) of selenoproteins in Cys-containing proteins. Starting from biological matrices, our tools will allow for selective recovery and preconcentration of selenoproteins for proteomic characterization and quantification.

This approach focuses on the understanding of the SeCys chemistry in order to develop new “fishing tools” that would offer an opportunity for the proteomic

analysis of selenoproteins (evoked in the context of cardiomyopathy, cancer, fertility, aging...) using cutting-edge proteomics approaches.

Hosting laboratories: The thesis project will be carried out at the IPREM institute, Université de **Pau** et des Pays de l'Adour (UPPA) and at ARNA laboratory, Université de **Bordeaux**.

The IPREM institute has the largest platform in France of the couplings of separation techniques with ICP-MS which has recently been completed by the latest nanoHPCL–Orbitrap technology (Fusion Lumos, Tribrid MS) for sensitive proteomic analysis.

Expected skills: Master's degree in the field of chemistry of biomolecules (synthesis, characterization, activity evaluation). Experience in synthetic chemistry or mass spectrometry is an advantage. Great motivation for scientific research. Good knowledge of English or French (speaking and writing).

Starting date: October 2018.

Application: send a pdf file including motivation letter, CV and recommendation letter(s) to luisa.ronga@univ-pau.fr

Prossimi Eventi



XXII International Mass Spectrometry Conference
August 26 – 31, 2018 www.imsc2018.it

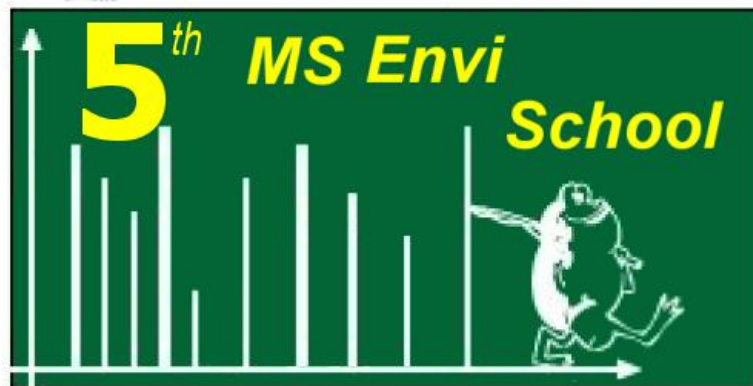


10 fellowships

Scuola di Formazione Pratica:

4th MS BIOPHARMA SCHOOL

Siena, 10-12 Ottobre 2018



17-18 Ottobre 2018



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