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

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Région Nouvelle-Aquitaine

université de BORDEAUX

**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 bio-informatics 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

Società Chimica Italiana
Divisione di Spettrometria di Massa

ARPAC
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**10 fellowships**

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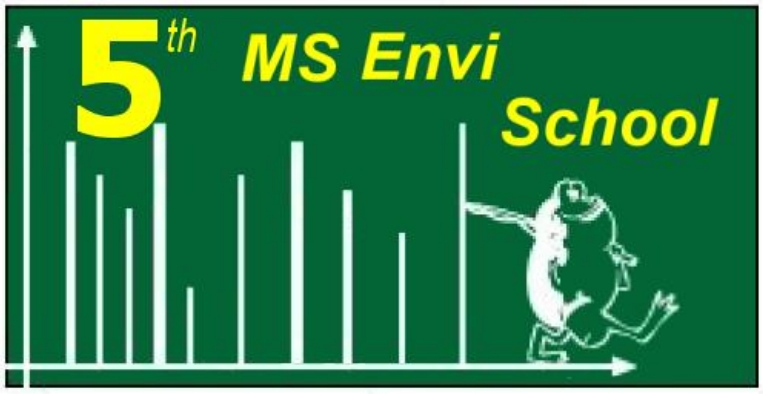
arpae emilia-romagna




**17-18 Ottobre 2018**

Società Chimica Italiana
Divisione di Chimica Farmaceutica

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10 fellowships

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