Ph.D grant from A*MIDEX in Marseille

We are currently looking for excellent and highly motivated Ph.D candidates for a three-year French scholarship at Aix Marseille Université. Candidates should have a Master 2 degree in Chemistry or Biochemistry (physical, inorganic and/or biological chemistry).

Deadline for starting: fall 2015.
Salary: ca. 1680 €/month (net salary ca. 1360 € / month)

Project:

This project is centered on exploring the structure and dynamics of a non heme Fe(II) containing enzyme, involved in the last step of ethylene biosynthesis in plants. Ethylene is a phytohormone involved in many steps of plant growth and defense. Only one structure of ACCO has been reported and it is probably not an active conformation of the enzyme. Obtaining accurate and relevant structural data of a macromolecule is an important step towards the understanding of the chemical mechanisms involved in the biological functions. Proteins are dynamic entities that possess an inherent flexibility, a fundamental property that allows them to function through molecular interactions with other molecules (either substrates, cofactors or proteins).

To investigate the structure and the dynamics of the enzyme we will use Site-Directed Spin Labeling or SDSL (using nitroxide derivative labels) followed by Electron Paramagnetic Resonance (EPR) spectroscopy, a perfectly adapted technique for the study of conformation and dynamics of proteins. It is based on the insertion of a paramagnetic label at a selected site of a protein, either on a native residue or on a specific residue introduced by site-directed mutagenesis, and its subsequent analysis by EPR spectroscopy. This project is strengthened by the multidisciplinary EPR center of Aix-Marseille, one of the most important EPR centers of the French EPR network (TGE-RPE).

The candidate will be involved in the production of the proteins, the chemical modification steps to introduce the spin labels, the characterization of the labeled proteins and the EPR studies. This project relies on the strong collaboration between two teams of Aix Marseille Université: i) the BiosCiences group of iSm2 (UMR 7313 CNRS/Aix Marseille Université) that has a strong expertise in the field of metal-containing enzymes and ii) the BIP (UMR 7281 CNRS/Aix Marseille Université) that has a longstanding expertise in the application of EPR spectroscopy in particular for studying metalloproteins and developing original SDSL-EPR approaches. The thesis will therefore be co-directed by Dr. A. Jalila Simaan (iSm2) and Prof. Valérie Belle (BIP).

Application:
please send by e-mail:
- your CV
- a letter of motivation
- transcripts of master and undergraduate studies,
- at least 1 recommendation letter
- a master thesis abstract

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