Title: Studies of inhibition mechanisms, dimerization and DNA binding of the transcription regulator Fur

Name: S. Nader, G. Veronesi, I. Michaud Soret, J. Pérard, S. Crouzy.
Affiliation: Univ. Grenoble Alpes, CNRS, CEA, BIG-LCBM, 38000 Grenoble, France

Abstract (upto 300 words)

Facing the major public health threat of bacterial resistance to antibiotics, the development of new strategies to fight pathogens should be a priority. An interesting strategy is to interfere with the "Battle for Iron" that takes place between hosts and pathogens as iron is vital for all forms of life. To do so, we must target iron dependent sensors like the Ferric Uptake Regulator (Fur) protein, a transcription regulator with a large regulatory network implicated in iron homeostasis and bacterial virulence. Fur proteins from different species have a relatively similar tertiary structure, but quaternary structures vary between species: some are homo-dimers and others are homo-tetramers. Our main objective is to study the inhibition mechanism of Fur proteins and design new inhibitors. To reach this goal, structure-function studies of the relationship between Fur proteins from different species and their inhibitors have been performed and in silico models of the interactions (Docking, Free Energy Profiles) have been proposed. These models will guide experiments answering the same problematic using techniques like X-ray absorption spectroscopy and crystallography. The structural information gathered from this work will be used to better understand the inhibition mechanism of Fur proteins and the development of new anti-virulence alternatives to antibiotics to which pathogens are becoming resistant.

Biography (upto 150 words)

Serge Nader started his PhD in October 2015 at the Chemistry and Biology of Metals Laboratory, Grenoble, France. His work focuses on understanding Fur proteins mechanistics using a double approach combining *in silico* simulations and *in vitro* experiments.

Email ID: serge.nader@cea.fr

Presenter Name: Serge Nader
Type of Presentation: Oral presentation
Contact Number: (33) 4 38 78 48 48

