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Birthdate: March 7th 1964 in Paris, France

2 children



Current scientific position:

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Biography

After graduation on basic biochemistry I obtained my PhD in molecular pharmacology in 1992 at the University Pierre and Marie Curie (Paris VI) under the supervision of professor J-C. Chottard in the Laboratory of Toxicological and Pharmacological Chemistry and Biochemistry. Paris, France. My PhD was devoted to mechanistic studies of non-heme iron enzymes, Lipoxygenases
After a post-doctoral position in the laboratory of Professor Larry Que Jr in the Department of chemistry (Minneapolis, USA), working on mechanistic and spectroscopic studies of non-heme metalloproteins such as catechol dioxygenase, I obtained a full time scientist position in Grenoble in 1994 where I started to work on binuclear manganese metalloproteins before to focus my research on metalloregulators such as the Ferric Uptake regulator (FUR) and NikR.
I obtained my Habilitation diploma to direct research in 1999 and became a research director in 2004. Since 2009 I am in charge of a research group which became the BioMet group in 2011 involving 10 permanent staffs including 4 researchers, 2 engineers, 1 assistant professor and 3 technicians. Non-permanent people supervision since 2010: 7 Post-doc, 3 PhD students, 1 CDD engineer, 8 others students (masters...)

Scientific interests of my group: (www-dsv.cea.fr/irtsv/lcbm/biomet)

Metallic cations are bound to a set of biomolecules that control their detection, transport, bioavailability and when available, their intracellular storage. The cellular homeostasis of these metals is finely regulated at the level of gene expression and protein synthesis.

The main goals of the BioMet group are the understanding of the molecular and cellular mechanisms responsible for transport and regulatory sensing events of metal ions which are all essentials and whose homeostasis is tightly controlled in prokaryotic and eukaryotic cells. We are also interested in understanding how metallic stresses generated either by toxic metals (such as Cd) or by metallic nanoparticles interfere with the homeostasis of physiological metals.

My main scientific interests focused on metalloregulatory proteins able to control gene expression in response to a metal ions status on the cell and key actors of the metal homeostasis. I am interested in their structural and functional properties to understand their mechanisms of action. Furthermore, the intricate regulations between nickel and iron homeostasis under NikR and Fur metalloregulator control, in the pathogen *Helicobacter pylori*, have been studied.

These proteins found only in bacteria and essential for some pathogens, are targets for anti-virulence strategy and we try to select specific inhibitors able to inhibit FUR.

Since 2010 we are also concerned with the mechanistic understanding of interferences between metallic nanoparticles and metal homeostasis (Cu and Fe).

Selected scientific production of the BioMet group since 2010

(in blue the work where I have been directly involved)

- Bouron A and Oberwinkler J. Contribution of calcium-conducting channels to the transport of zinc ions. *Pflugers Archiv: European Journal of Physiology*, 2014, 466(3): 381-387
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- Cuillel M, Chevallet M, Charbonnier P, Fauquant C, Pignot-Paintrand I, Arnaud J, Cassio D, **Michaud-Soret I** and Mintz E. Interference of CuO nanoparticles with metal homeostasis in hepatocytes under sub-toxic conditions. *Nanoscale*, 2014, 6(3): 1707-1715
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- Muller C, Bahlawane C, Aubert S, Delay CM, Schauer K, **Michaud-Soret I** and De Reuse H. Hierarchical regulation of the NikR-mediated nickel response in *Helicobacter pylori*. *Nucleic Acids Research*, 2011, 39(17): 7564-7575.
- Pujol AsM, Cuillel M, Renaudet O, Lebrun C, Charbonnier P, Cassio D, Gateau C, Dumy P, Mintz E and Delangle P. Hepatocyte targeting and intracellular copper chelation by a thiol-containing glycocyclopeptid. *Journal of the American Chemical Society*, 2011, 133(2): 286-296
- Schmitt C, Strazielle N, Richaud P, Bouron A and Ghersi-Egea JF. Active transport at the blood-cerebrospinal fluid barrier contributes to manganese influx into the brain. *Journal of Neurochemistry*, 2011, 117: 747-756.
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