

Graduate Schools  
Infection Immunity and Cancer, UniGe & UniL: CUS  
Biology & Medicine, CMU

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## Seminar in Microbiology

Monday, October 5, 2015

Salle de séminaire 7172, CMU

**11:30 – 12:30**

**Marc Solioz**

Laboratory of Biochemistry and Molecular  
Biology Tomsk State University, Tomsk, Russian Federation



## Bacterial heavy metal resistance - and death on metallic copper

Professor Marc Solioz is an expert on copper response in bacteria. He discovered two ATP dependent copper-pumps in the Gram-positive *Enterococcus hirae*. His expertise on metal drives his research on many other bacteriological copper resistance systems. He is now mainly involved in the mechanism called “contact killing” in which copper surfaces, such as door handles, are used to kill bacteria in order to circumvent nosocomial infections. The important impact of such knowledge opens huge opportunities and alternatives in the context of antibiotic resistant bacteria.

Mathews S, Kumar R, **Solioz M**. Copper Reduction and Contact Killing of Bacteria by Iron Surfaces. *Appl Environ Microbiol*. 2015 Sep 15;81(18):6399-403. doi: 10.1128/AEM.01725-15. Epub 2015 Jul 6.

Mancini S, Abicht HK, Gonskikh Y, **Solioz M**. A copper-induced quinone degradation pathway provides protection against combined copper/quinone stress in *Lactococcus lactis* IL1403. *Mol Microbiol*. 2015 Feb;95(4):645-59.

Abicht HK, Gonskikh Y, Gerber SD, **Solioz M**. Non-enzymic copper reduction by menaquinone enhances copper toxicity in *Lactococcus lactis* IL1403. *Microbiology*. 2013 Jun;159(Pt 6):1190-7. doi: 10.1099/mic.0.066928-0. Epub 2013 Apr 11.

Mathews S, Hans M, Mücklich F, **Solioz M**. Contact killing of bacteria on copper is suppressed if bacterial-metal contact is prevented and is induced on iron by copper ions. *Appl Environ Microbiol*. 2013 Apr;79(8):2605-11. doi: 10.1128/AEM.03608-12. Epub 2013 Feb 8.

Gaechter T, Wunderlin C, Schmidheini T, **Solioz M**. Genome sequence of *Enterococcus hirae* (Streptococcus faecalis) ATCC 9790, a model organism for the study of ion transport, bioenergetics, and copper homeostasis. *J Bacteriol*. 2012 Sep;194(18):5126-7.

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Sandwiches will be offered after the seminar