



UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA

Seminar announcement

“Making molecular prosthetics”*

Martin D. Burke, PhD, MD
University of Illinois at Urbana-Champaign
Professor of Chemistry
Carle-Illinois College of Medicine
Interim Associate Dean of Research
USA

12- 07- 2017

14:30

Aula 3° piano
Padiglione Beccaria (COM)
Policlinico, Via del Pozzo 71

Professor Burke is speaking as a guest of Prof. Pietrangelo within the PhD program in Molecular and Regenerative Medicine (www.mrm.unimore.it)

*From the recent paper published in Science by dr. Burke's team “Restored iron transport by a small molecule promotes absorption and hemoglobinization in animals”

Multiple human diseases ensue from a hereditary or acquired deficiency of iron-transporting protein function that diminishes transmembrane iron flux in distinct sites and directions. Because other iron-transport proteins remain active, labile iron gradients build up across the corresponding protein-deficient membranes. Here we report that a small-molecule natural product, hinokitiol, can harness such gradients to restore iron transport into, within, and/or out of cells. The same compound promotes gut iron absorption in DMT1-deficient rats and ferroportin-deficient mice, as well as hemoglobinization in DMT1- and mitoferrin-deficient zebrafish. These findings illuminate a general mechanistic framework for small molecule-mediated site- and direction-selective restoration of iron transport. They also suggest that small molecules that partially mimic the function of missing protein transporters of iron, and possibly other ions, may have potential in treating human diseases”.

Science. 2017 May 12;356(6338):608-616.