A PhD fellowship on Translational Non-Invasive Metabolic Studies towards Novel Treatments of Chronic Hepatic Encephalopathy in Developing Brain

A PhD research fellowship position is available immediately in the Center for Biomedical Imaging of the EPFL in Lausanne, Switzerland. The fellow will participate in a multi-disciplinary research program developing novel imaging and spectroscopic techniques for chronic hepatic encephalopathy research. Primary research areas center on: 1) use of $^1$H, $^{31}$P, $^{13}$C MRS methods for non-invasive evaluation of chronic hepatic encephalopathy in adult and developing brain, and 2) evaluation of longitudinal neuroprotective role of creatine supplementation through multi-parametric MRI/MRS.

The proposed experiments aim to decipher the molecular underpinnings behind the differential vulnerability of the developing vs the mature brain to the insults of chronic hepatic encephalopathy by examining in detail the longitudinal variations in osmoregulation, neurotransmission, antioxidants, energy metabolites, white matter maturation and edema. Using this multimodal approach, we will specifically monitor differences in creatine metabolism and analyze the response to creatine supplementation in the diet of chronic hepatic encephalopathy animals, thereby testing for the first time the hypothesis that fluctuations in creatine may underlie the age-dependent differential susceptibility to hepatic encephalopathy, and the potential neuroprotective effect of creatine supplementation.

We are seeking for a graduated student with a background in physics, biomedical physics or biochemistry who is interested in magnetic resonance techniques and MRS data processing. Previous experience in neuroimaging is highly desirable. The candidate will be part of a team composed of several PhD students and experienced researchers involved in developing new MR methodologies and doing exciting applications of MR spectroscopy and imaging on humans and rodents.

We invite interested, qualified, and highly motivated candidates to submit a CV along with three references and a brief description of recent research interests and activities to: Dr. Cristina Cudalbu (cristina.cudalbu@epfl.ch).