**UMR INRA 1019 Unité de Nutrition Humaine (A. Mazur)**

Hypometabolism is a biological state that has many advantages for long-duration human space flight, and the recent possibility of the induction of synthetic torpor in non-hibernating mammals reinforces the interest in studies of hibernation. However, one of the current major problems for long-duration space travel is exposure to cosmic radiations. Data in hibernating small rodents show mechanisms of radioresistance. Interestingly preliminary data obtained in our group with hibernating bear serum on human cells are also in favor of such a radioprotective effect . The thesis project aims to evaluate and characterize the ability of hibernating bear serum to prevent and/or promote repair of DNA damage and irradiated human cell cultures. This totally original approach will combine the expertise of 2 laboratories in Clermont-Ferrand, the UNH and the LPC, to simultaneously address the physic and biology aspects of this project.