Title of the project: Does citrulline produced by the intestine control muscle function?

Objectives (up to 3 lines):
Evaluate the role of intestinal citrulline in the regulation of muscle protein-energy metabolism.

Abstract (up to 10 lines):
Citrulline, a non-essential amino acid, is now well known, when it is given as a supplement, to play a role in nitrogen homeostasis (1) and, more particularly, to be an inducer of muscle protein synthesis (2-3). But there is no data of the role of endogenous citrulline, produced almost exclusively by the intestine via Ornithine Transcarbamylase (OTC), on the control of nitrogen homeostasis and in the regulation of muscle protein synthesis.

In order to better understand the role of this citrulline produced by the intestine, a mouse model with a conditional KO for the intestinal OTC gene was created in order to evaluate in vivo the consequences of inactivation of the gene of the OTC on protein-energy homeostasis at the level of the whole organism.

Methods (up to 3 lines):
After the inactivation of the OTC gene in the mice, at 8 weeks, metabolic parameters are studied (body weight, food intake, glycaemia, plasma amino acid concentration,...) and muscle function is performed with measured of energy expenditure, endurance test, muscle protein content, muscle protein synthesis...

Up to 3 relevant publications of the team:

Requested domains of expertise (up to 5 keywords):
Nutrition, Protein metabolism, Biochemistry, Genetic