Application for PhD grant, NuMeA INRA lab, France

The NuMeA lab (Nutrition Metabolism, Aquaculture, INRA/University de Pau et des Pays de l'Adour, Saint-Pée-sur-Nivelle, France) is seeking for outstanding and highly motivated **master 2 students to apply for <u>PhD grants</u>** proposed by the E2S UPPA in 2020.

Research context of the NuMeA unit:

NuMeA lab's research scopes are focused on the nutritional response of the animal to dietary modifications with **an integrative approach from molecules to animal physiology**. This main biological question is addressed on 2 models, rainbow trout and duck (Muscovy, Pekin and mule) within 2 agricultural contexts: aquaculture and fatty liver production, respectively with the common objective to improve sustainability of these productions. The aquaculture context aims at increasing salmoniculture sustainability by substituting fishmeal and fish oil obtained from wild fisheries by alternative ingredients. Indeed, despite recent progress in this field, total substitution has not been achieved as it still reduces growth performance and flesh quality. In this context, scientific knowledge is therefore deeply required to sustain and develop eco-friendly aquaculture activities. Concerning the poultry context, the aim is to develop sustainable feeding procedure to improve fatty liver production by reducing the period of force-feeding, suppressing force-feeding mortality and developing alternative method to force-feeding.

In this context, the NuMeA laboratory aims to understand the regulation of the metabolic pathways by nutrients in fish and duck, using an integrative approach. The NuMéA lab benefits from experimental and analytical facilities allowing to implementation of experiments on nutrition and intermediary metabolism in various pioneering topics :

- **environmental (nutritional and non-nutritional) programming**
- **feeding behavior and central control of feed intake (brain and lingual system)**
- **gut microbiota and host response**
- **nutrition**
- **flesh quality related to new ingredients**
- **nutritional metabolism (including glucose, lipids, amino acids and micronutrients)**
- **autophagy**
- **pre- and post-transcriptional regulation of genes (including epigenetics, miRNA, transcriptomic)**
- **cellular regulation at signaling level (mTOR signaling, insulin/glucose signaling, amino acids signaling…)**

Altogether, these topics help to identify key molecular events that control growth and metabolism in order to fulfill our final goal: propose recommendations for new dietary strategies optimizing growth, feed efficiency and development of high quality animal products while respecting animal welfare and production sustainability.

Eligibility:

Required application documents (provided in a single PDF file)

- A first page mentioning your name, licence and master rank, current university and domain of interest within those mentioned above (programming, feeding behavior, microbiota, nutrition, flesh quality, metabolism, autophagy, gene regulation, mTOR/cell signalling)
- Cover letter
- Curriculum vitae
- Copies of certificates of any academic degrees and marks reports during their master studies; for candidates with a Master's degree in progress during the 2019-2020 academic year, please join marks and rankings corresponding to the first semester of the M2.
- Copies of certificates of French and/or English language proficiency (for non French or English speaking applicants)
- Two letters of recommendation.

Applications should be sent by email at the following: PhD&Postdoc-NuMeA@inra.fr

Dead Line: 15th of January 2020

Key words:

Nutrition, Metabolism, Aquaculture, Fatty liver production, Duck, Fish; Autophagy, Environmental/nutritional programming, Feeding behavior, Central control of feed intake, nutrition, brain, nutritional metabolism, microRNA, amino acid transporters, mTOR/cell signaling, flesh quality, Microbiota