PhD fellowship available in:

**Vagus nerve stimulation and food allergy: new options for treatment?**

**Promotor:** Prof. Guy E. Boeckxstaens MD, PhD  
**Co-promotor:** Dr. Gianluca Matteoli DVM, PhD

In healthy individuals, innocent commensal bacteria and food antigens are recognized by the immune system in the gut as harmless to avoid unnecessary activation of the immune system. This is also referred to as 'oral tolerance'. Loss of oral tolerance towards food is believed to underlie food allergy. Food allergy is a severe disease characterized by gastrointestinal as well as pulmonary symptoms affecting large numbers of small children and adults. As there is no effective therapy available, patients face the threat of an anaphylactic shock upon unexpected contact with the offending food, as avoiding food allergens is sheer impossible. Previously, we introduced the concept that the innate immune system can be dampened by activation of the vagus nerve. Vagus nerve stimulation induces the release of acetylcholine, which dampens cytokine release via $\alpha_7nAChR$ activation on resident macrophages. In recent experiments, we collected evidence suggesting that activation of the vagus nerve also modulates the adaptive immune system. In models of oral tolerance and food allergy, immune cell number and function (T regulatory cells and mast cells) were significantly affected by changes in cholinergic tone. In the present project, we will investigate the mechanisms underlying these observations, which should lead to the discovery of new targets to treat or improve food allergy.

This project will involve the use a wide range of techniques including in vitro and in vivo experimental models, state-of-the-art in vivo imaging, flow cytometry, molecular biology and microscopy.

The project will be carried out at the Translational Research Center for Gastrointestinal Disorders (TARGID). TARGID is a leading centre for gastrointestinal research in the Europe. Our aim is to undertake research into gastrointestinal disorders that can be translated into clinical practice to improve the diagnosis and treatment.

We offer, starting from September 2013, a 4 year PhD research fellowship in a challenging and well equipped research environment with excellent facilities in one of the largest biomedical institutions in Belgium. **We seek extremely motivated and excellent candidates graduated in biomedical sciences, medical sciences or bio-ingeneering with an interest in immunology.**

Please send CV including full details of all University course grades, motivation letter and two references to: **Dr. Gianluca Matteoli: gianluca.matteoli@med.kuleuven.be**

The opportunity will be open until the position is filled. PhD student fellowship will be around 1700,- euro netto per months plus benefits.

**Location:** Translational Research Center for Gastrointestinal Disorders (TARGID); University of Leuven; Herestraat 49; 3000 Leuven, Belgium.

Further details and the project description can be found on:**http://www.targid.eu/*