



**of the European Community for research, technological
development and demonstration activities (2007-2013)**

Collaborative Project

<i>GIPIO</i>

Project title: **Gastro-intestinal Peptides in Obesity**

Project number: **223057**

Project coordinator: **Universität Leipzig, Germany**

Project homepage: <http://uni-leipzig.de/gipio/index.html>

FZD participant: **Institute of Radiopharmacy**

Starting date: **01.10.2008**

Duration (months): **48**

Summary

Obesity is the fastest growing health problem in the Western World. In the United States, obesity as cause of preventable mortality (365,000 deaths in the year 2000) will soon overtake tobacco (435,000 deaths) and already has overtaken alcohol consumption (85,000 deaths), infectious diseases (75,000) and motor vehicle crashes (43,000). More important, it is also a problem in children and adolescent, and accordingly, one of the major future health problems.

We hypothesize that the reduction of hormones/signals, released or blocked after food intake as nutrition signal, significantly contributes to the feed-back in food intake, and subsequently to the onset in obesity. Accordingly, the focus of this project is the understanding of the contribution of gastro-intestinal peptides to the onset of obesity. It is aimed to identify the most relevant hormones or combinations of hormones, and subsequently to develop anti-obesity drugs that are based on endogenous hormone agonists or antagonists.

The project will include the following aspects and competences: Production of endogenous

hormones by synthetic approaches according to the guidelines of GMP and investigation in human volunteers by fMRT. Most promising candidates will be studied in more detail.

This will include ghrelin, orexin, GLP, PP and PYY. Experiments will occur on the molecular, cellular and animal level. Original and optimised hormones will be modified with DOTA and used for labelling, and subsequent analysis in PET studies to allow the follow up of distribution and stability. In a medicinal chemistry concept, non peptidic drugs and peptide mimetics will be further explored for PYY and PP first as well as for ghrelin, orexin and GLP.