**DOTTORATO DI RICERCA IN BIOLOGIA CELLULARE E DELLO SVILUPPO**

**39th CYCLE**

**Project proposal for a PhD scholarship financed by an external institution**

**Title: Effects of an obesogenic diet on human adipose tissue and evaluation of the cross-talk between adipose tissue and central nervous system**

**Supervisor:** Dott.ssa Maria Antonietta Ajmone Cat ([mariaantonietta.ajmone-cat@iss.it](mailto:mariaantonietta.ajmone-cat@iss.it))

**Tutor:** Prof. Emanuele Cacci ([emanuele.cacci@uniroma1.it](mailto:emanuele.cacci@uniroma1.it))

**Host institution:** Istituto Superiore di Sanità

**Summary**

Obesityis a complex condition involving the interaction among different environmental factors, such as the diet and the so-called *metabolic disrupting compounds* (MDCs). MDCs affect adipocyte development altering endocrine, autocrine, and paracrine signalling, and the cross-talk of the adipose tissue (TA) with other organs. In collaboration with Dr. D’Archivio (ISS), we will study the potential protective effects of specific nutrients (e.g. flavonoids) on TA exposed to the MDC acetamiprid, and evaluate the cross-talk between TA and Central Nervous System (CNS), using human microglial cell lines and murine brain organotypic cultures, with techniques of cell and molecular biology, biochemistry and omics. Prof. Silecchia (Medicine and Psychology, Sapienza) will provide TAs from males and females bariatric patients. The study will contribute to the knowledge of the mechanisms of communication TA/SNC and to the development of prevention strategies for obesity-related metabolic diseases.