The Group focuses on three main aspects induced by obesity:

1. The alteration of adipose tissue and, consequently, the secretion of adipokines. We have observed that in adipose tissue, during obesity, stress kinases are activated, the mitochondria become dysfunctional, and the circadian clock is altered. Our aim is to delve into whether these factors could serve as drivers of adipose tissue dysfunction during obesity and the associated comorbidities. The primary focus of our investigation lies in unravelling the endocrine function of adipose tissue, with particular attention to the distinctive role of brown adipose tissue in thermogenesis.

2. The onset of chronic inflammation, which is associated with an increased risk of cancer. We want to comprehend how stress kinases and alterations in metabolism within inflammatory cells impact the development of the disease.

3. Cell metabolism alteration as a driver of disease. Metabolism controls the functionality of cells in our body, as it is their means of obtaining ATP to carry out their functions or, in the case of tumours, to proliferate. Therefore, disruptions in cellular metabolism can serve as drivers of diseases, but the modulation of metabolism can also offer new therapies for cardiovascular diseases and cancer. By utilising animal models to manipulate metabolism, we aim to understand how metabolism is implicated in the development of diseases.

Our main research areas are:

- Organ Interaction and Health-Related Disorders.
- Adipose Tissue Dysfunction in Pathological Progression.
- Chronic Inflammation and Cancer Association.
- Cell Metabolism as a Driver of disease.

**OVERVIEW**

The Organ Crosstalk in Metabolic Diseases Group is dedicated to understanding how metabolic alterations and obesity trigger other secondary diseases such as cancer, diabetes, and cardiovascular diseases. Our research takes a holistic approach, aiming to comprehend how these alterations occurring in obesity disrupt the communication between organs. In this context, we have found that during obesity several stress kinases are activated in different tissues, and that this activation can affect the development of a tumour.