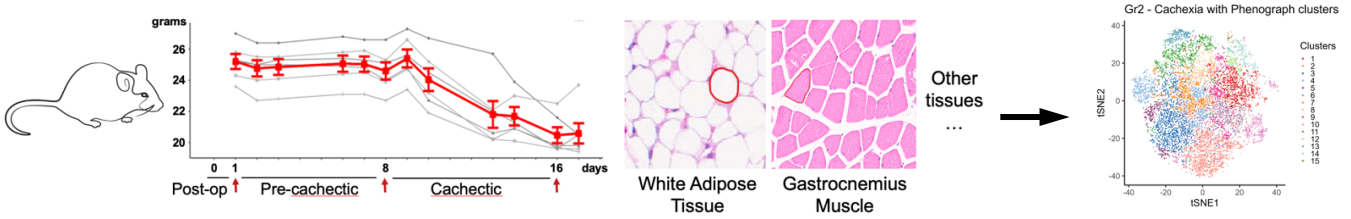
# Tissue remodelling during cancer associated cachexia

Period: 6 months from January/February to June/July 2025
Contact: alexandre.djiane@inserm.fr
Internship location: Institut de Recherche en Cancérologie de Montpellier (IRCM – Inserm U1196)


**Summary**
Cachexia is a general metabolic syndrome associated with several chronic illnesses, including many cancers, in particular cancers of the gastro-intestinal tract (colon, pancreas) and lung cancers. It is characterised by an rapid and involuntary weight loss (>5% in less than 6 months), adipose tissue atrophy, skeletal muscle wasting (sarcopenia), general inflammation, and insulin resistance. The general weakness associated with cachexia leads to treatment interruptions and loss of chances for cancer patients. It is estimated that cachexia is involved in 20-30% of cancer related death. Despite its obvious public health importance, and recent intense research, cachexia is still poorly understood with no accepted biomarkers, nor commonly accepted treatment. In the lab we study cachexia using Drosophila or Mouse animal models, such as the murine C26 colon adenocarcinoma or KPC pancreatic adenocarcinoma models. Using spatial biology approaches (Hyperion mass imaging) combined with more classical biochemical and molecular approaches, we are particularly interested in the remodelling of tissues occurring during cachexia in these mouse models. While the atrophied tissues (adipose and muscle tissues) are obviously remodelled, we have shown that other tissues are also profoundly remodelled and could thus be participating in the syndrome.


**Student work**
The Master student will participate in the design of custom spatial biology panels (Hyperion or 10x Xenium) to study tissue remodelling, and in particular metabolic reprogramming, in colorectal and pancreatic cancer mouse cachexia models. The student will participate in the acquisition and analyses of the data. In parallel, the student will also perform molecular (qPCR) and biochemical (western blots, metabolite measurement kits…) assays to complement the spatial analyses and further characterise the tissue adaptations. Depending on advancement, these analyses could be performed on mice receiving candidate treatments for cachexia to evaluate their effectiveness and/or side effects.

**Skills acquired:**
1. Project management including through interactions with collaborating teams and facilities
2. Image and spatial biology analyses
3. Tissue preparation, molecular and biochemical analyses techniques

**Required skills and soft skills**
1. Scientific English
2. Molecular biology, and basic physiology and immunology
3. Scientific curiosity, Rigor, Working ethic
4. Good interpersonal skills