





intra-tumor heterogeneity and give key information regarding which treatment approach should be pursued according to the predicted natural history and risk of progression immediately after diagnosis.

### **Objectives and specific aims**

This project aims to provide an accurate strategy to guide the decision making relying on tumor biopsies using standard histology, immunohistochemistry (IHC), spatial transcriptomics, genomics combined with Magnetic Resonance Imaging (MRI) and radiomics. Moreover, we will explore potential markers indicative of response to systemic agents or ablative (non-surgical) therapy in distinct primary RCCs.

### **Expected outcomes**

A dedicated translational radiomics and biopsy approach will be developed with an unbiased, artificial intelligence-based methodology that associates tumor grade with quantitative imaging parameters and molecular tumor features. We will create the first detailed map of transcriptomic, genetic and microenvironmental intra tumor heterogeneity in SRM. Finally, radiomics and molecular features associated with different therapeutic outcomes will be identified.

### **Skills that the student should acquire** (max. 600 characters including spaces):

The student should be able to manipulated and analyse multimodal imaging data with advanced computational approach, including radiomics and artificial intelligence models, identifying the best approach to answer to clinical need and creating multimodal predictive model of tumour aggressiveness and prognosis.

### **References** (max. 15)

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