IMPACT : Immune-driven plasticity of cancer cells during metastatic colonization in TNBC - Eloïse Grasset, CRCI^{2}NA

Despite recent advances in diagnosis and treatment, patients with triple-negative breast cancer (TNBC) frequently experience relapse, and there is currently no curative therapy for metastatic disease. This underscores an urgent need to better understand the mechanisms driving metastasis in order to uncover new therapeutic vulnerabilities. The IMPACT project addresses this gap by investigating a novel concept of metastatic colonization. We have identified that cancer cell can colonize distant organs using epithelial–mesenchymal transition (EMT).

While EMT is known to promote immunosuppression in primary tumors, its role in shaping the immune microenvironment at metastatic sites remains poorly understood. My preliminary data suggest that immune cells modulate cancer cell behavior during colonization, potentially influencing their phenotypic state. I hypothesize that cancer cells dynamically adapt along the epithelial–mesenchymal spectrum in response to immune pressures.

The goal of the IMPACT project is to characterize cancer cell plasticity and the associated immune responses during TNBC metastatic colonization. Supported by Labex ImmuNE, I will use multiplex immunostaining to map cancer and immune cell states during metastatic outgrowth, with or without the presence of a primary tumor. I will then functionally assess the role of specific immune cell populations in metastatic progression through targeted depletion experiments.

This project will generate high-quality preliminary data and provide critical experience in spatial analysis and immuno-oncology, thereby positioning me to compete for major funding opportunities such as the ERC Starting Grant and ANR JCJC.