In the Microenvironment and Metastasis laboratory, we are using a variety of cell lines to study the crosstalk between tumour and stromal cells along metastatic progression. We are especially interested in investigating the role of small extracellular vesicles (sEVs) in premetastatic niche formation in melanoma, pancreatic and prostate cancer. These particles reinforce tumour cell homing and metastasis in organs. Besides the role of sEVs, we are interested in understanding the influence of obesity and platelets in triple negative breast cancer and obesity and platelets in triple negative breast cancer.

In this project, we hypothesised that obesity influences systemic changes that pre-condition future organs of metastasis, generating a specialised microenvironment that we have termed “obese premetastatic niche”. We found that obesity reshes metastatic organ composition, enhancing platelet activation, tumour cell homing and metastasis. Importantly, we identified that anti-platelet therapies reduced tumour cell homing and metastasis in obese mice, supporting the hypothesis that anti-coagulant agents could be used as anti-metastatic therapy in obesity models of breast cancer.

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