

Multimodal biomarker study by PET and digital microscopy of the response to sunitinib on a luminal B (HER2+) -type mammary carcinoma model

Interest of combining in vivo and ex vivo imaging for preclinical research in Oncology

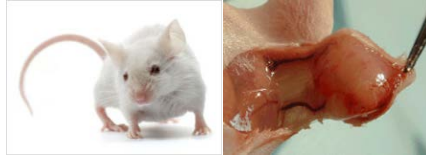


	Positron Emission Tomography (PET)	Digital microscopy
Benefits	<ul style="list-style-type: none"> - Quantitative measure of the radiotracer signal → global macroscopic analysis - Non invasive - Longitudinal monitoring - Pharmacokinetic modelling / biodistributions 	<ul style="list-style-type: none"> - Quantification of biomarkers and morphometric parameters → high content local analysis - High resolution (μm) - Large catalogue of probes - Highly specific labelling
Limitations	<ul style="list-style-type: none"> - Low resolution (mm) - Radiotracer production constraints - Resulting signal can be multifactorial 	<ul style="list-style-type: none"> - Invasive - Snapshot of the pathological features - Staining reproducibility
Interest & applications	<ul style="list-style-type: none"> → Cancer diagnosis → Tumour target imaging → Evaluation of the tumour response to therapy 	

Multimodal biomarker study by PET and digital microscopy of the response to sunitinib on a luminal B (HER2+) -type mammary carcinoma model

Digital microscopy image analysis correlated with PET and applied to chemotherapy response evaluation

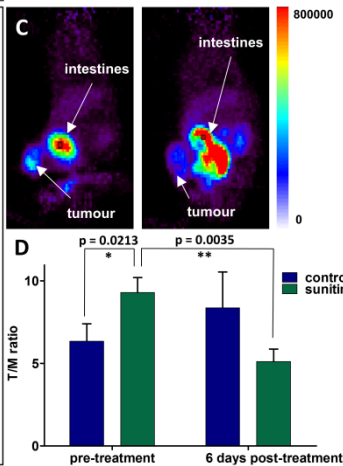
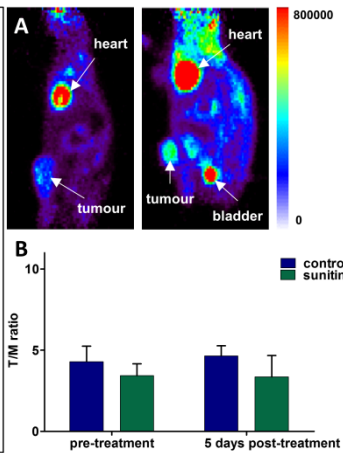
In vivo evaluation of glucose metabolism and hypoxia by Positron Emission Tomography



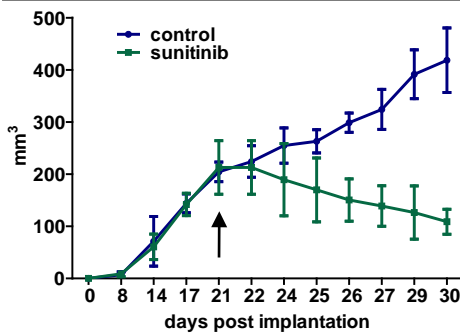
Ex vivo digital microscopy analysis with ImageJ and CellProfiler software

Model : Syngeneic transplanted model generated from PyMT transgenic mice
Study design : Chemotherapy vs control study

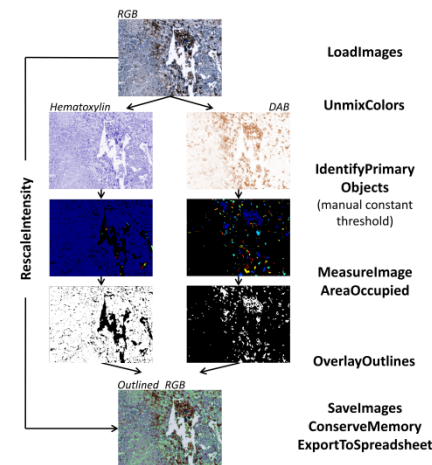
Tumour monitoring with PET



Tumour growth monitoring by caliper



Typical CellProfiler workflow



Anapathological evaluation by digital microscopy

