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Host laboratory:
Biologie et Biotechnologie pour la Santé
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Title of the M2 research internship:
Ex vivo analysis of renal cancer tropism using a metastasis chip

Project summary:
Oncology is currently promoting the search for predictive methods for personalized medicine. The metastatic spread of cancer cells is responsible for 90% of cancer-related mortality. In particular, clinical data show that in 30% of renal cancers, the appearance of metastases results in a 5-year survival of less than 10%. To understand this metastatic process, experimental models mimicking tumor environments and metastatic sites are developed.

Our ambition is, using a metastasis chip, a device making it possible to visualize an escape of tumor cells, to evaluate the metastatic potential of patients' tumors and their tropism for matrices of different target organs, this thanks to the observation of cells which have formed metastases in this ex vivo experimental model. The cells making up these metastases will be characterized in order to identify signatures according to the preferred metastatic sites. Finally, this chip will make it possible to evaluate the effectiveness of inhibitors of this part of the metastatic process, which is the implantation of tumor cells in an organ distant from the primary tumor.

Keywords:
tumoroid, metastasis, microenvironment

Relevant publications of the team:

Roelants, C.; Giacosa, S.; Pillet, C.; Bussat, R.; Champelovier, P.; Bastien, O.; Guyon, L; Arnoux, V.; Cochet, C.; Filhol, O. Combined inhibition of PI3K and Src kinases demonstrates synergistic therapeutic efficacy in clear-cell renal carcinoma. Oncotarget 2018, 9, 30066-30078, doi:10.18632/oncotarget.25700.

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Perera Y, Ramos Y, Padrón G, Caballero E, Guirola O, Caligiuri LG, Lorenzo N, Gottardo F, Farina HG, Filhol O, Cochet C, Perea SE. CIGB-300 anticancer peptide regulates the protein kinase CK2-dependent phosphoproteome.Mol Cell Biochem. 2020 Jul;470(1-2):63-75. doi: 10.1007/s11010-020-03747-1.

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Thery, M., Margaron, Y., Filhol-Cochet, O. - Method for determining the invasive potential of a tumor cell. US Patent App. 16/615,418, 2020