

Project title: “Metastasis Organotropism: where to go?”

Abstract

Cancer cells undergo important metabolic changes that enable them to survive dissemination through the blood. Yet, metastasis to specific organs, known as metastatic organotropism, is a non-random process. This process is determined by several factors such as cancer subtype, metabolic features, and interactions with local cells. Metastatic cancer cells are metabolically plastic and adapt to outgrow in the microenvironment of distant target organs.

Our aim is to identify targetable metabolic dependencies for organotropic metastases outgrowth; the objectives of this scientific approach is significantly supported by our unpublished findings that e.g. melanoma liver metastases are dependent on alanine metabolism to outgrowth. We hypothesize that intrinsic metabolic features, such as amino acid metabolism, determine the organotropism of melanomas, and cancer cells undergo metabolic adaptations to survive and grow at distant metastatic sites. Hence, our goal is to uncover novel metabolic vulnerabilities that inhibit the outgrowth of metastatic cells in distant organs.