

TuMIC- An integrated concept of tumor metastasis: implications for therapy
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From many perspectives our concept of the process of metastasis is inadequate and needs to be revised. In particular, the potential impact of recent ideas about the cellular basis of tumor growth (cancer stem cells) and the establishment by remote tumors of special permissive microenvironments in target organs prior to metastasis (metastatic niches) remains to be explored. In the TuMIC project we will use novel experimental approaches to integrate these newly emerging principles and ideas with the different hypotheses that have until now tried to explain the process of metastasis. Specifically we aim to understand how cancer stem cells behave in and contribute to metastasis, and how networks and pathways that are known to regulate metastasis affect their properties. Further objects are to determine how a permissive microenvironment for metastasis formation is established in given organs, how this contributes to determining patterns of metastasis, and how these microenvironments interact with cancer stem cells. These studies will facilitate the development of an improved and more accurate concept about the process of metastasis. In turn, this will have fundamental ramifications for the way in which novel anti-cancer therapies are designed, and most importantly should provide important new insights into how cancer and in particular metastatic disease can be successfully treated. With this in mind we will also perform preclinical studies that build on TuMIC findings with the aim of developing novel anti-cancer therapies.

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