

Cell trafficking and tumor metastasis - two sides of the same coin

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Cell trafficking and cell metastasis in hematological malignancies and solid tumors represents the main mechanism by which malignant cells migrate to different tissues to generate systemic spread. This is represented in the widespread dissemination seen in hematological malignancies such as leukemias, lymphomas or multiple myeloma, or in metastatic spread in solid tumors as in lung cancer, breast cancer and melanoma.

Metastasis remains the main cause of death in most patients with cancer. Therefore, there is an urgent need to better understand the mechanisms by which cells undergo the process of cell dissemination and what is the role of the metastatic niche in providing support to the tumor cells for growth and proliferation.

In this thematic tissue, we provide insights into the mechanisms of cell trafficking and cell metastasis in five distinct malignancies, chronic myelogenous leukemia, chronic lymphocytic leukemia, multiple myeloma, lung cancer and melanoma. Although these

cancers are genetically distinct, they share many common alterations that lead to cell dissemination. These include epithelial-mesenchymal transition, chemokine receptor activation, integrin stimulation, stem-cell phenotype acquisition, evasion of the immune system during circulation in the peripheral blood, regulation of the pre-metastatic niche to be permissive for tumor colonization, and activation of the tumor microenvironment to allow tumor growth and proliferation. Many of these changes are genetic or epigenetic; they could also be intrinsic to the tumor clone or extrinsic in the supporting microenvironmental cells leading to niche-dependent oncogenesis in these tumor types.

Indeed, the field of metastasis and cell trafficking has shown significant advances in recent years. This will hopefully lead to more advances in the treatment of metastasis and longer survival of patients with metastatic disease. This thematic issue discusses those intriguing findings of cell trafficking and cell metastasis in cancer.



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