Effects of prostate cancer-derived extracellular vesicles on osteoclast formation and bone metastasis

Osteo

Task description
Tumor metastasis is one of the leading causes of cancer-related death in men. Bone is a common site of metastases and typically indicates a short-term prognosis in cancer patients. In fact, once cancer has spread to the bones it can rarely be cured.

One of the crucial steps during the establishment of bone metastases is the pre-metastatic niche formation. This process involves crosstalk among various tumor-secreted factors and the host stromal microenvironment. Recently, studies have demonstrated that tumor cell-derived extracellular vesicles (EVs) are key regulators of cancer initiation and progression. However, the role of tumor EVs in the establishment and maintenance of the tumor in bone remains still unclear.

The aim of our project, which is part of the DFG priority program “µBONE”, is to unravel the role of EVs in bone-prostate cancer (PCa) cell communication. Hence, the candidate will have the opportunity to assess cellular communication between PCa derived EVs and murine primary osteoclasts, acquiring experience on isolation and characterization of EVs, isolation of primary bone marrow stromal cells, osteoclast culturing and molecular biology techniques.

Requirements
Applicants must have a good knowledge of cell culture as well as biochemistry and molecular biology. Willingness to work with animals is a prerequisite.

About us
Our interdisciplinary team with members from six countries combines multiple talents bringing in expertise in cell and molecular biology, mouse genetics, development of biomaterials, clinical research and high-resolution imaging. We are a young and very enthusiastic group and we are always looking for bright new talents with whom to share new ideas and expertise.

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