ASBMR 2022 Annual Meeting
Meet the Professor: MicroRNAs in breast cancer bone niche
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Significance of the Topic

During the last decades, non-coding RNAs, including microRNAs (miRNAs) have emerged as crucial regulators of various physiological and pathological processes. miRNAs act post-transcriptionally impairing their target mRNA stability and translation and thus protein abundance. While miRNAs are required for tissue homeostasis, their dysregulation is associated with several diseases, including bone disorders and various cancers. These dysregulated miRNAs can serve as attractive non-invasive prognostic or diagnostic biomarkers. Furthermore, miRNAs can be pharmacologically targeted reduce or increase the abundance of specific miRNAs in a number of disease conditions, including primary and secondary bone cancers.
The bone microenvironment plays a pivotal role in breast cancer homing and growth in bone. The bone microenvironment contains various cell types including bone cells, adipocytes, endothelial cells and immune cells that communicate through direct cell-cell contacts and soluble factors. Although miRNAs function mainly within the cell, they can also be secreted in extracellular vesicles or bound to proteins. Secreted miRNAs can be taken up by resident or distant cells and thus, miRNAs mediate cellular interactions for instance in the bone-cancer niche.

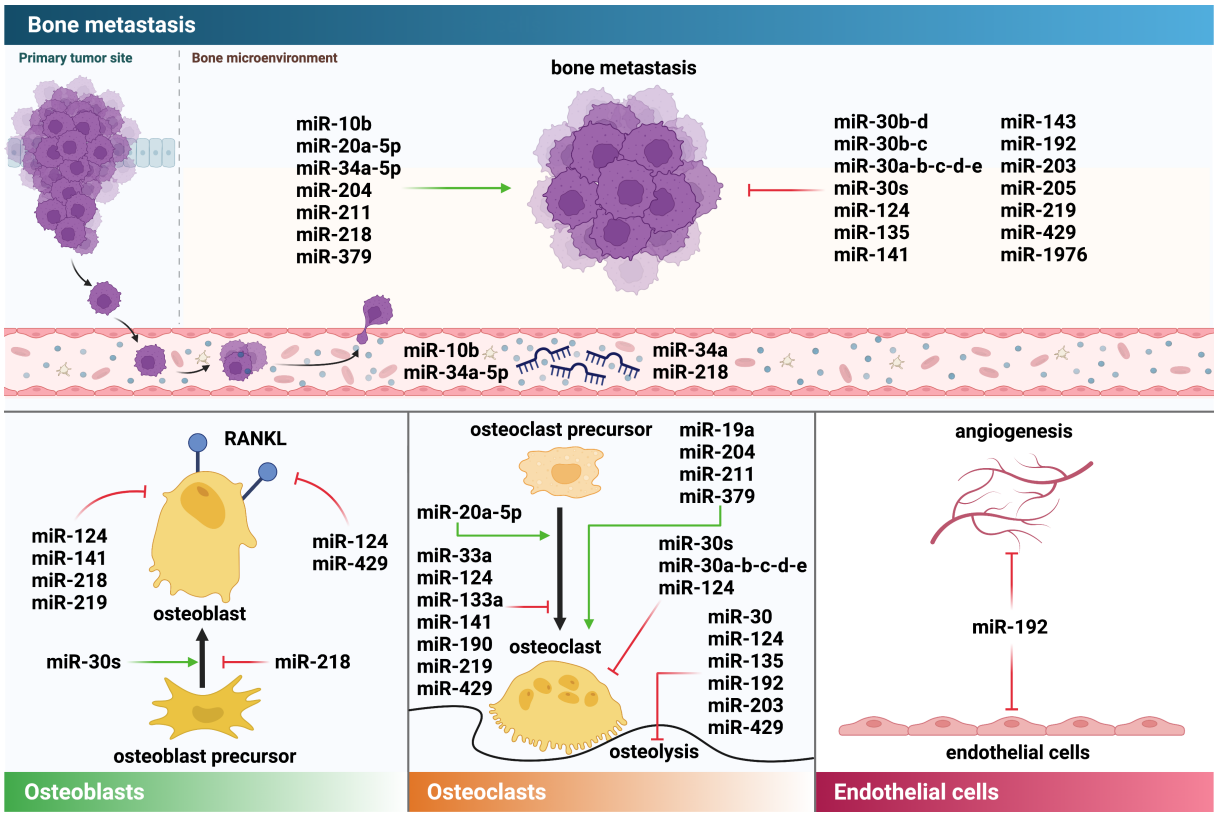
Learning Objectives

During this session, the following topics will be discussed:

- Physiological and pathological functions of miRNAs in bone
- Cellular and molecular interactions within the cancer-bone niche
- miRNAs as mediators of cellular crosstalk in bone-cancer microenvironment and effect on different cell types (see figure below)
- miRNA dysregulation in bone diseases and potential as biomarkers
- Therapeutic targeting of miRNAs to treat breast cancer bone metastases and other bone diseases

Other remarks

- The session in interactive so feel free to send your topics of interest/questions before-hand: hanna.taipaleenmaeki@med.uni-muenchen.de or bring them up during the session



Haider et al. MicroRNAs: Emerging Regulators of Metastatic Bone Disease in Breast Cancer. Cancers, 2022