The Oncogenetic Laboratory

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The Oncogenetic laboratory studies the incurable hematological malignancy multiple myeloma (MM) and its interactions with its bone marrow (BM) niche. Our group has uncovered intricate signals underlying a dynamic crosstalk between the MM and BM resident Mesenchymal Stem Cells (MSCs) that design the malignant cells' phenotype and niche and drive the malignant process from pre-malignant states to treatment refractory disease. One such mechanism is manipulation of translation-initiation in niche BM-MSCs and MM cells by direct contact and secreted components such as extra cellular matrix and microvesicles. Ongoing studies using cutting edge cellular/molecular and high throughput techniques have led to the identification of signals unique to the malignant dialogue that may be selectively targeted to improve MM treatment. Further discoveries have shown that MM-conditioned BM-MSCs disperse unique cargoes via microvesicles thereby promoting MM progression. Indeed, much of our interest is now focused at delineating the conversion of BM-MSCs into cancer supporting entities.

Throughout our studies we maintain tight collaboration with expert clinicians at the Meir Medical Center that gives us direct access to primary tissue samples and maintain relevance to state of the art treatments and clinical approaches. The research is expected to yield markers for disease progression and new therapeutic targets central to MM-BM niche collaboration, which is perceived as the major obstacle to MM cure.