CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP110005

Project Title:
The miR-200 family and metastatic prostate cancer

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
Baylor College of Medicine

Lay Summary:

Though metastatic cancer is the major cause of prostate cancer-related morbidity and mortality, the underlying molecular mechanisms have not been well characterized. There is also a lack of mouse models that develop high-penetrance metastatic prostate cancer. Cancer stem cells have been shown recently to play active roles in initiating metastatic tumor. Recent cell biological studies revealed that the miR-200 family negatively regulates self-renewal and epithelial-mesenchymal transition (EMT), two basic properties of cancer stem cells. We hypothesize that decreased miR-200 activity induces prostate cancer to metastasize. A prostate regeneration assay will be utilized as a genetic approach to investigate the role of miR-200 in prostate cancer metastasis. We will determine whether miR-200 serves as a prognostic marker for metastasis-prone aggressive prostate cancer and whether inhibiting miR-200 activity promotes prostate cancer metastasis. In addition, we have identified a novel miR-200 target. We will investigate its role in miR-200 induced mesenchymal-epithelial transition and investigate whether it facilitates prostate cancer metastasis. Finally, we will identify novel miR-200 targets that are associated with metastasis in the prostate. Our study may establish the miR-200 family as a novel prognostic marker or therapeutic agent for metastatic prostate cancer, develop novel mouse models of metastatic prostate cancer and help accelerate prostate cancer treatment.