Investigation of CD47 Dependent miRNAs as Early Cancer Detection Biomarker Using Liquid Biopsy Database

Konchou, Morelle Meegane (School: Eleanor Roosevelt High School)

Extracellular vesicles (EVs) also known as Exosomes which are secreted by cells and play functional role in cell-cell communications. Recent advances in EV field have shown that they can be used as diagnostic markers in cancer and other diseases. CD47 is membrane protein which is currently in many clinical trials for solid tumors. CD47 also expressed on EVs and contain distinct non-coding RNAs as compared to MHC1-1 and CD63 EV subsets. Recent findings have shown that CD47 regulate packing and sorting of miRNA in Jurkat T cells. The objective of my project is to find implication of CD47 dependent miRNAs as cancer biomarker using publicly available liquid biopsy platform. The research question that guided the study was can the differential expression of miRNAs between WT and CD47 deficient T cells (JinB8) be screened for cancer biomarkers? It was hypothesized that the CD47 dependant miRNAs may have altered in healthy vs disease patients and can be utilized as diagnostics marker using patients body fluids without surgical biopsy.

Awards Won: