

Development of a non-invasive liquid biopsy for detection of cmvIL-10

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Human cytomegalovirus (HCMV) is a prevalent type of herpes virus in our population. HCMV infection has no effect on the majority of people, but in some cases HCMV is strongly correlated with various medical outcomes, such as breast cancer. We focus on the UL111A gene product of HCMV, which encodes the secreted protein cmvIL-10. CmvIL-10 is a homolog of human cytokine IL-10 (hIL-10), which has immunosuppressive effects and promotes proliferation and invasion of breast cancer cells *in vitro*. We are measuring cmvIL-10 in human blood and have found elevated levels of cmvIL-10 in cancer patients. Here, we are investigating the adaptation of the cmvIL-10 blood test for detection of the viral cytokine in saliva and urine. We are now conducting a study of healthy donors to monitor changes in cmvIL-10 levels over time in various body fluids. The results from this small pilot project may ultimately lead to an inexpensive and non-invasive diagnostic tool for detection of breast cancer.