T cell recognition of colon adenocarcinoma and pancreatic cancer cells

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Adoptive T cell therapy, wherein a cancer patient receives T cells in an effort to fight cancerous tumors, relies on the identification of a protein whose antigen is expressed on tumor cells but not normal cells. Wilms' tumor antigen 1 (WT1) is overexpressed in a variety of solid tumor cancers, in addition to acute myeloid leukemia. WT1-specific T cells have previously been shown to be effective in recognizing and targeting myeloblasts in acute myeloid leukemia that express WT1, but efficacy of these T cells against colon adenocarcinoma and pancreatic cancer is being investigated. We determined the relative levels of WT1 expression in several colon adenocarcinoma and pancreatic cancer tumor lines via simple Western, in addition to previous work in the lab confirming HLA-A2 expression by these tumor lines using flow cytometry. WT1-specific and irrelevant Merkel cell carcinoma (MCC)-specific Jurkats were co-cultured against colon adenocarcinoma tumor lines to assess differences of Nur77 expression according to IFNg exposure. Then, WT1-specific and irrelevant MCC primary T cells were co-cultured against the same colon adenocarcinoma tumor lines along with pancreatic cancer tumor lines to assess cytokine and CD107a expression. While no significant difference was observed between Jurkat IFNg co-cultures, primary T cells appear to recognize tumor lines and demonstrate indication of cytotoxic activity through the expression of cytokines and CD107a, respectively. The SW480 and Panc10.05 tumor lines that instigated the highest T cell response to either Jurkats or primary T cells are promising targets for future T cell therapies.