

HUMAN BLOOD CELL ISOLATION: THE CRITICAL FIRST STEP IN OUR LABORATORY'S IMMUNOBIOLOGY EXPERIMENTAL PROTOCOLS

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The Denton Immunobiology Laboratory focuses on enhancing human natural killer (NK) cell killing capabilities, particularly in the context of combating cancer. NK cells are immune cells that have the ability to kill diseased cells via two mechanisms: direct killing, and antibody-dependent cell-mediated cytotoxicity (ADCC). We recently published our novel approach to testing both methods of killing by using NK cells derived from the same human donor. Our testing approach allows us to evaluate the impacts on human NK cell functions by any number of immunotherapeutic strategies. To do any of this work, we need human NK cells. Therefore, we obtain blood products from anonymized healthy human donors via a procurement service. From these products, we isolate a subset of white blood cells, called peripheral blood mononuclear cells (PBMCs), which includes the desired NK cells. Because this PBMC isolation process is so critical to the eventual success of any NK cell experiment in our laboratory, we put a strong emphasis on cross training each lab member to perform this task. This presentation will focus on the major steps of the PBMC isolation process up to, but not including the NK cell enrichment aspects of the laboratory's research efforts. The presentation will also detail the key outcomes of the PBMC isolation process. The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant # 5P20GM103427