PBMC Isolation from Clinical Trials

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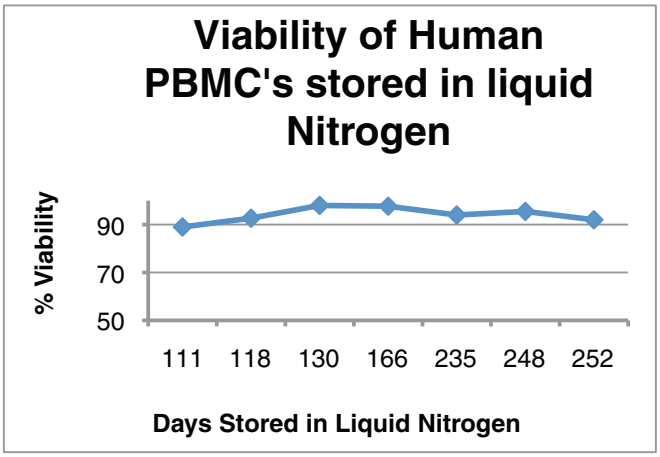
Clinical research trends are moving towards a cell-based bioanalysis of physiological changes. Investing in cell-based bioanalysis is aligned to Celerion's goal of providing robust and integrated ways for clients to evaluate the true potential of new drug candidates early in clinical development.

Figure 1. PBMC Freezing Stability Flow Cytometry



The data generated from cell-based analysis is the key to giving therapy advancement direction. When investigating the responsiveness of the immune system to treatment, the peripheral blood mononuclear cells (PBMCs) are an important element for analysis. PBMCs have multipotent progenitor cell populations (stem cells) to study treatment affects. Specific cell populations (such as NK cells) can be cultured and expanded from their initial PBMC isolation. Leukocytes can be used to determine the role of specific cytokines in cancer immunity. PBMC populations can be used for gene expression profiles when searching for potentially important biomarkers. The success of these types of studies is founded in the collection and cryopreservation of the PBMCs from the patient in a timely manner. Samples processed after overnight shipping can have a reduced functional immune assay responsiveness of up to 20% (Bull et al,. 2007). Cell viability is an indicator of well-being and reliable results can be obtained with viabilities as low as 66%.

Celerion has advanced its capabilities in the collection of study patient PBMCs. Located in the same facility, peripheral blood samples are processed minutes after being drawn. The PBMCs are in the freezing media and decreasing temperatures within hours rather than days. Celerion has well-established quality control measures for their analysts and facilities. Celerion has trained its analysts on a variety of PBMC isolation protocols and can suggest one appropriate for your needs or adopt your protocol. In general, our analysts isolate >1.5x10^6 cells/mL of whole blood sample. The cells are moved to cryogenic storage and then can be shipped around the world. Celerion can deliver cryogenically stored PBMCs to your location at high viability in any concentration required.

Thawed PBMCs can be used for a variety of experiments including genetic (DNA/RNA) analysis and sequencing, flow cytometry, cell culture, protein and ELISA studies, drug interactions, and propagation. Celerion's ability to provide a frozen supply of a subject's cells allows for answering questions not thought of at the time of experimentation. This will save time, money and enable a more thorough study that you may not have been able to do otherwise.

Figure 2. Cytometric Analysis - Dot Plot of Thawed PBMCs 237 Days Post Collection