

WORKFLOW SOLUTIONS FOR HUMAN T CELL ISOLATION AND EXPANSION: EASYSEP™ T CELL ISOLATION WITH RELEASABLE RAPIDSPHERES™ AND IMMUNOCULT™ T CELL ACTIVATION AND EXPANSION SUPPLEMENT

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Adoptive cell cancer immunotherapy using patient derived, genetically modified T cells has demonstrated unprecedented success in early clinical trials. Currently, these revolutionary treatment approaches rely on several key steps including the isolation, genetic modification and expansion of patient derived T cells. Specialized reagents are required for each of these critical steps and must be seamlessly integrated into any workflow. We have developed novel reagents for the rapid isolation of highly purified human T cells from leukopheresis samples by a column-free immunomagnetic cell isolation method using EasySep™ Releaseable RapidSpheres™, a new type of magnetic particle that can be rapidly released from the isolated cells with a no-incubation, no-wash protocol performed at room temperature. Following their isolation, T cells are genetically modified to express a chimeric antigen receptor and must be expanded to therapeutically relevant numbers. To this end, we have developed an enabling technology using soluble monoclonal antibody complexes for the efficient activation and expansion of human T cells that can be incorporated into any T cell manufacturing workflow. Benefits of our novel ImmunoCult™ supplement include robust T cell expansion and the supplement is stable for at least two years at 2-8°C. Furthermore, the ImmunoCult™ supplement provides a gentle activation stimulus resulting in high viability of expanded T cells without skewing the ratio of CD4+ and CD8+ T cells and has been optimized for use with our new serum- and xeno-free ImmunoCult™-XF T Cell Expansion Medium. Taken together, we have developed a streamlined workflow solution for the isolation, activation and expansion of human T cells in serum-free culture conditions to enable this exciting new field. STEMCELL Technologies manufactures products under an ISO 13485 medical device quality management system and is actively pursuing higher compliant manufacturing of key reagents for cellular therapy applications.