Autologous CAR-mbIL15-Safety Switch T-cells PRGN-3005

National Cancer Institute

Source

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A preparation of autologous T-lymphocytes that have been genetically modified to co-express three transgenes using the Sleeping Beauty (SB) transposon system and include a chimeric antigen receptor (CAR) targeting an undisclosed tumor-associated antigen (TAA), a membrane-bound IL-15 (mbIL15) and a safety/kill switch, with potential immunostimulating and antineoplastic activities. Upon introduction of the autologous PRGN-3005 into the patient, the T-cells target and bind to the TAA-expressing tumor cells, thereby inducing selective toxicity in the TAA-expressing tumor cells. IL-15 is a pro-survival cytokine that is required for the maintenance of long-lived CD8+ memory T-cells and use of mbIL15 preserves T stem-cell memory (TSCM) through sustained IL-15 signaling, improves T-cell persistence and potentiates the immune response against tumor cells. The safety switch can promote selective elimination of the CAR-T cells. The SB system permits integration of the CAR, the IL-15 fusion variant and safety switch transgenes into T-cells without the need for viral vectors and accelerates the manufacturing process.