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Anti-Programmed Cell Death Protein 1 Antibody Expressing Pluripotent Killer T-Lymphocytes

National Cancer Institute

Source

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A specific population of pluripotent killer (PIK) T-cells that have been induced to express high levels of antibodies against the negative immunoregulatory human cell surface receptor programmed cell death protein 1 (PD-1; PDCD1; CD279), with potential antitumor activity. Although the exact mechanism(s) of action through which PIK-PD-1 cells exert their effects has yet to be elucidated, upon infusion, these cells secrete antibodies that target PD-1 expressed on the surface of activated T-cells and tumor cells. This may block the interaction of PD-1 with its ligands, programmed cell death 1 ligand 1 (PD-L1, PD-1L1; CD274) and PD-1 ligand 2 (PD-L2, PD-1L2; CD273). The inhibition of ligand binding prevents PD-1-mediated signaling and results in both T-cell activation and the induction of T-cell-mediated immune responses against tumor cells. PD-1, an immunoglobulin (Ig) superfamily transmembrane protein and inhibitory receptor, negatively regulates T-cell activation; PD-L1 is overexpressed on certain cancer cells, and PD-L2 is primarily expressed on antigen presenting cells (APCs).