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NY-ESO-1/MAGE-A4/PRAME/Survivin/SSX2-specific Autologous Cytotoxic T Lymphocytes

National Cancer Institute

Source

National Cancer Institute. *NY-ESO-1/MAGE-A4/PRAME/Survivin/SSX2-specific Autologous Cytotoxic T Lymphocytes*. NCI Thesaurus. Code C118367.

A preparation of autologous cytotoxic T-lymphocytes (CTL) that are specifically reactive to five tumor-associated antigens (TAAs), cancer-testis antigen NY-ESO-1, melanoma-associated antigen 4 (MAGE-A4), preferentially expressed antigen in melanoma (PRAME), survivin and synovial sarcoma X breakpoint 2 (SSX2; cancer/testis antigen 5.2; CT5.2), with potential antineoplastic activity. Autologous peripheral blood mononuclear cells (PBMCs) are collected and exposed ex vivo to autologous dendritic cells (DCs) that are pulsed with pepmixes, which contain overlapping peptide libraries (15 mers overlapping by 11 amino acids) spanning the entire sequence of each of the five target antigens, and simultaneously treated with the Th1-polarizing and pro-proliferative cytokines interleukin (IL) 6 (IL-6), IL-7, IL-12 and IL-15. The treated cells are expanded in culture with IL-2 and IL-15. Upon administration of the NY-ESO-1/MAGE-A4/PRAME/survivin/SSX2-specific autologous CTLs, these cells target tumor cells expressing these TAAs, which leads to cell lysis and inhibition of cell proliferation. These five TAAs are upregulated in a variety of tumor cells and play key roles in tumor cell proliferation and survival, but are absent or minimally expressed on normal, healthy human cells.