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IAPA-based Dendritic Cells/Cytotoxic T Lymphocytes

National Cancer Institute

Source

National Cancer Institute. *iAPA-based Dendritic Cells/Cytotoxic T Lymphocytes*. NCI Thesaurus. Code C123922.

A cell-based product composed of dendritic cells (DCs) pulsed with tumor-associated antigens (TAAs) and devoid of the inhibitory effect of antigen presentation attenuators (iAPA) combined with cytotoxic T-lymphocytes (CTLs) (iAPA-DC/CTL), with potential immunostimulating and antineoplastic activities. DCs are transduced with a viral vector containing small interfering RNAs (siRNAs) against APAs, which prevents the expression of APA genes and inhibits attenuation of antigen presentation. Upon administration of iAPA-DC/CTL, the DCs are able to efficiently present antigens to the immune system, stimulate the immune system against tumor-associated antigens (TAAs) and hyperactivate TAA-specific CTLs and T-helper cells. Also, the iAPA-based DCs inhibit the activity of the T-regulatory cells (Tregs), thereby abrogating their negative effect on CTL activation and preventing their immunosuppressive activity against TAAs. Altogether, this inhibits tumor cell proliferation. Additionally, the administered CTLs induce direct cancer cell lysis. APAs negatively regulate antigen presentation, activate Tregs and their immunosuppressive activity, affect inflammatory cytokine production by DCs, and negatively regulate the immunostimulatory activity of DCs; they have an overall inhibitory effect on the stimulation of the immune system.