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Autologous Interferon-producing Killer Dendritic Cells

National Cancer Institute

Source

National Cancer Institute. *Autologous Interferon-producing Killer Dendritic Cells*. NCI Thesaurus. Code C125667.

A preparation of autologous dendritic cells (DC) with a molecular expression profile similar to both natural killer (NK) cells and DCs, with potential antineoplastic activity. Autologous interferon-producing killer dendritic cells (IKDCs) are characterized by double-negative expression of CD3 and CD19; these cells also express low levels of CD11 and are positive for B220. They are distinguished from plasmacytoid DCs (pDCs) by the absence of lymphocyte antigen 6C (Ly6C, Gr-1) expression. IKDCs produce interferon gamma (IFN-gamma) and interleukin (IL) -12, and are able to kill typical NK target cells using NK receptors while retaining DC-like antigen-presenting activity. Upon administration of the autologous IKDCs, these cells secrete high levels of IFN-gamma and, when in contact with tumor cells, mediate TNF-related apoptosis-inducing ligand (TRAIL)-dependent direct lysis of tumor cells. The resulting apoptotic tumor antigens may be presented by the IKDCs, thus activating the immune system to exert a cytotoxic T-lymphocyte (CTL) response to further eliminate tumor cells.