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PEG-PEI-cholesterol Lipopolymer-encased IL-12 DNA Plasmid Vector GEN-1

National Cancer Institute

Source

National Cancer Institute. *PEG-PEI-cholesterol Lipopolymer-encased IL-12 DNA Plasmid Vector GEN-1*. NCI Thesaurus. Code C49178.

A nanoparticle-based formulation composed of a non-viral plasmid DNA vector encoding the human pro-inflammatory cytokine interleukin-12 (IL-12) encapsulated in a biodegradable, biocompatible lipoplex composed of polyethylene glycol (PEG), polyethylenimine (PEI), and cholesterol, with potential immunoactivating and antineoplastic activities. Upon intraperitoneal (IP) delivery of the PEG-PEI-cholesterol lipopolymer-encased IL-12 DNA plasmid vector GEN-1, the lipoplex is endocytosed by nearby cells, and the plasmid DNA is transported into the nucleus, which leads to local expression of IL-12. In turn, the increased IL-12 production at the tumor site activates the immune system by promoting the activation of natural killer cells (NKs), inducing secretion of interferon-gamma (IFN-g) and promoting cytotoxic T-cell responses against tumor cells.