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Dupilumab

National Cancer Institute

Source

National Cancer Institute. *Dupilumab*. NCI Thesaurus. Code C162455.

A recombinant human monoclonal immunoglobulin G4 (IgG4) antibody directed against the alpha chain of the interleukin-4 receptor (IL-4R alpha) with potential immunomodulatory activities. Upon injection, dupilumab selectively binds to the IL-4R alpha chain. This disrupts IL-4/IL-13 signaling and prevents the activation of downstream pathways that mediate type 2 inflammation and may potentially inhibit tumor cell proliferation, survival, and metastasis. IL-4 and IL-13 receptors are present on the surface of numerous cells involved in the pathophysiology of type-2 helper T-cell (Th2) allergic responses, including B-lymphocytes, eosinophils, dendritic cells (DCs), monocytes, macrophages, basophils, keratinocytes, bronchial epithelial cells, endothelial cells, fibroblasts, and airway smooth muscle cells. Additionally, both IL-4 and IL-13 receptors are overexpressed in a variety of cancers and IL-4 and IL-13 and may serve as biomarkers for cancer aggressiveness. IL-4 and IL-13 are thought to be key regulatory cytokines in the tumor microenvironment (TME) and may play a role in the activation of tumor-associated macrophages (TAMs) and myeloid-derived suppressor cells (MDSCs) that mediate tumor cell survival.