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Anti-B7-H4 Monoclonal Antibody FPA150

National Cancer Institute

Source

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A fully human, glycoengineered monoclonal antibody targeting B7-H4 (V-set domain-containing T-cell activation inhibitor 1; VTCN1; B7x; B7S1) with potential antineoplastic and immune checkpoint inhibitory activities. Upon intravenous administration, anti-B7-H4 monoclonal antibody FPA150 binds to B7-H4 on the surface of tumor cells, thereby preventing B7-H4 binding to T-cells and abrogating the B7-H4-mediated negative regulation of T-cell activation. This increases a cytotoxic T-lymphocyte (CTL)-mediated immune response against B7-H4-expressing tumor cells. In addition, the afucosylated Fc region of the anti-B7-H4 monoclonal antibody FPA150 enhances its binding affinity for human FcγRIIIa receptors (CD16) on natural killer (NK) cells, resulting in enhanced antibody-dependent cellular cytotoxicity (ADCC) against B7-H4-expressing tumor cells. B7-H4, a member of the B7 family of immune modulators, is upregulated in a variety of tumor cell types and negatively regulates T-cell immune responses.