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Anti-APRIL Monoclonal Antibody BION-1301

National Cancer Institute

Source

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A humanized monoclonal antibody targeting a proliferation-inducing ligand (APRIL; tumor necrosis factor ligand superfamily member 13; TNFSF13), with potential antineoplastic and immune checkpoint inhibitory activities. Following administration, anti-APRIL monoclonal antibody BION-1301 binds to APRIL and inhibits its binding to both of its receptors, B-cell maturation antigen (BCMA; tumor necrosis factor receptor superfamily member 17; TNFRSF17) and transmembrane activator and CAML Interactor (TACI; tumor necrosis factor receptor superfamily member 13B; TNFRSF13B). This inhibits the activation of both BCMA and TACI, and their downstream signaling pathways, which prevents tumor growth, tumor cell adhesion to bone marrow cells and immune suppression. Additionally, BION-1301 may reduce APRIL-induced drug resistance which occurs in some tumors. APRIL, an extracellular protein and member of the tumor necrosis factor ligand superfamily (TNFSF), is expressed by bone marrow plasma cells and myeloid cells, and overexpressed in multiple myeloma (MM), chronic lymphocytic leukemia (CLL), and colorectal carcinoma. APRIL induces immune suppression and tumor progression through the activation of BCMA- and TACI-dependent signaling pathways.