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CD80 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1281a

Product Information

Application	IHC, ICC, E
Primary Accession	P33681
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	2A2
Isotype	IgG1
Calculated MW	33048
Description	The protein CD80 (Cluster of Differentiation 80) is a molecule found on activated B cells and monocytes which provides a costimulatory signal necessary for T cell activation and survival. It is also known as B7.1. Its principal mode of action is by binding to CD28. Along with CD86, these molecules provide the necessary stimuli to prime T cells against antigens presented by antigen-presenting cells. CD80 and CD86 also bind to CTLA-4, a cell surface molecule expressed on activated T cells. Interactions between CD80 or CD86 with CTLA-4 decrease the response of T cells. Mouse research by scientists at Emory University showed that estrogen-related bone loss is linked to recently discovered pathways involving various proteins, such as CD80 and other functions. In a nutshell, reactive oxygen stimulates dendritic cells, which activate other immune cells to up-regulate production of CD80, the molecule co-responsible for T cell activation."When this pathway is activated, it leads to increased T cell TNF production and ultimately to bone loss."In turn, T cells produce a protein, Tumor Necrosis Factor, which increases the formation of osteoclasts in rodents and humans. Osteoclasts cause minerals to be released from the bone, so that calcium is taken into the bloodstream to be used for other functions of the body. Osteoclast differentiation is inhibited by osteoprotegerin; Estrogen stimulates osteoprotegerin production.
Immunogen	Purified recombinant fragment of CD80 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	941
Other Names	T-lymphocyte activation antigen CD80, Activation B7-1 antigen, BB1, CTLA-4 counter-receptor B7.1, B7, CD80, CD80, CD28LG, CD28LG1, LAB7
Dilution	IHC~~1/200 - 1/1000 ICC~~N/A E~~N/A

Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	CD80 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CD80
Synonyms	CD28LG, CD28LG1, LAB7
Function	Costimulatory molecule that belongs to the immunoglobulin superfamily that plays an important role in T-lymphocyte activation (PubMed:38467718). Acts as the primary auxiliary signal augmenting the MHC/TCR signal in naive T-cells by acting as a ligand for the CD28 receptor which is constitutively expressed on the cell surface of T- cells (PubMed:12196291). In turn, activates different signaling pathways such as NF-kappa-B or MAPK leading to the production of different cytokines (PubMed:10438913). Also acts as an inhibitor of T- cell activation by acting as a ligand for CTLA4, a decoy receptor, thereby blocking CD28-mediated T-cell priming (PubMed:10583602, PubMed:11279502). In addition, CD28/CD80 costimulatory signal stimulates glucose metabolism and ATP synthesis of T-cells by activating the PI3K/Akt signaling pathway (PubMed:12121659). Also acts as a regulator of PDL1/PDCD1 interactions to limit excess engagement of PDL1 and its inhibitory role in immune responses (PubMed:36727298). Expressed on B-cells, plays a critical role in regulating interactions between B-cells and T-cells in both early and late germinal center responses, which are crucial for the generation of effective humoral immune responses (By similarity).
Cellular Location	Cell membrane; Single-pass type I membrane protein
Tissue Location	Expressed on the surfaces of antigen-presenting cells.

References

1. Transplant Proc. 2008 Oct;40(8):2729-33. 2. Nat Med. 2007 Dec;13(12):1440-9.

Images

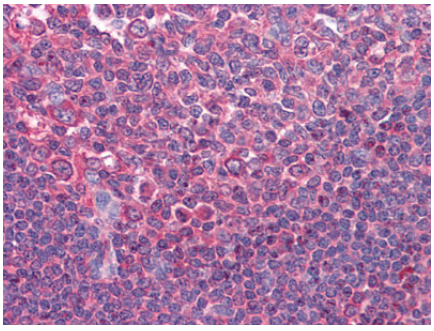
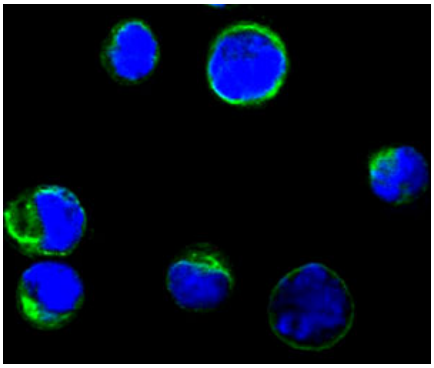


Figure 1: Immunohistochemical analysis of paraffin-embedded human Tonsil tissues using anti-CD80 mAb

Figure 2: Confocal immunofluorescence analysis of BCBL-1 cells using anti-CD80 monoclonal antioby(green), showing membrane localization. Blue: DRAQ5 fluorescent DNA dye.



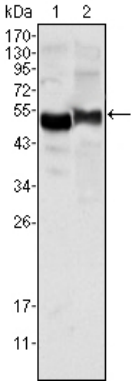


Figure 1: Western blot analysis using AAT mouse mAb against human plasma (1) and NIH/3T3 cell lysate (2).