Anti-Human CTLA4, Human IgG1, Recombinant

Background:
Cytotoxic T-lymphocyte antigen 4 (CTLA4), also known as CD152, is a single pass type I transmembrane glycoprotein of the Ig superfamily. It is composed of an IgV-type extracellular domain, a transmembrane domain, and a cytoplasmic tail. CTLA4 is the founding member of the CD28/CTLA-4 family. Members of the CD28/CTLA-4 family either promote T cell activation (CD28 and ICOS) or inhibit T cell activation (CTLA4 and PD-1). Both CTLA4 and CD28 bind to the same B7 family ligands, CD80/B7-1 and CD86/B7-2. CTLA-4 binds to B7-1 and B7-2 with a 20-100 fold higher affinity than CD28. The CTLA4 gene is widely expressed with highest levels in lymphoid tissues. It is detected in activated T-cells where expression levels are 30- to 50-fold less than CD28 on the cell surface following activation. Mutations in CTLA4 gene is associated with insulin-dependent diabetes mellitus, Graves disease, Hashimoto thyroiditis, celiac disease, systemic lupus erythematosus, thyroid-associated orbitopathy, and other autoimmune diseases. Alternate transcriptional splice variants, encoding different isoforms of CTLA4, have been characterized. The membrane-bound isofunctional as a homodimer interconnected by a disulfide bond, while the soluble isoform functions as a monomer. The engineered CTLA4-Fc fusion proteins inhibit T-cell-dependent immune responses and are used as immunosuppressive agents by acting as a competitive inhibitor of CD28. Blockade of CTLA4 inhibitory activity with monoclonal antibodies enhances antitumor immunity and has been proven to be an effective approach for cancer immunotherapy.

References:

Construct Detail: Expressed as the combination of a heavy chain (HC) containing VH from anti-CTLA4 mAb and CH1-3 region of human IgG1 and a light chain (LC) encoding VL from anti-CTLA4 mAb and CL of human kappa light chain. Exists as a disulfide linked dimer of the HC and LC hetero-dimer under non-reducing condition.

Source: Mamamlian cells stably expressing anti-CTLA4 heavy chain and light chain (in human IgG1k format) and growing in chemical-defined media with no animal component or antibiotics.

M.W.: Calculated molecular mass (kDa): 146 (49 kDa for a single HC, 24 kDa for a single LC); Estimated by SDS-PAGE under non-reducing condition(kDa): 150.

Purity: >95% judged by SDS-PAGE under reducing condition (see the gel image inserted).

Formulation: Supplied at 1.0 mg/ml in sterile PBS pH7.4 without any carrier protein or preservative (the concentration was determined by UV absorption with an A280nm of 1.0 for 0.73 mg/ml of IgG and verified by SDS-PAGE and Coomassie blue staining).

Endotoxin: <0.1 EU per 1 μg of purified recombinant protein determined by the LAL method.

Bioactivity: Binds to CTLA4 extracellular domain (SKU#: FCL0720 and FCL0727) with high affinity (Ko < 1 nM as determined by ELISA). Recognizes cell surface CTLA4 by flow cytometry, IHC staining and fluorescent microscopy. Blocks CTLA4 binding to its ligands and neutralizes its inhibitory signaling activities. Enhances anti-tumor immunity.

Storage: The product is shipped at 4°C. Upon receipt, centrifuge the product briefly before opening the vial. Store small aliquots at the temperature below −20°C for long-term storage and the product is stable for at least 3 months. Avoid repeated freeze-thaw cycles.

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