Recombinant Human CTLA-4Fc

20200326BB

FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no.:	**100-059S**
Size:	50 µg
Lot. No.:	According to product label

Scientific Background

Gene-ID (NCBI):	*1493*
Synonyms:	Cytotoxic T-Lyphocyte-associated antigen 4, CD152

CTLA-4 and CD28 are receptors of the immunoglobulin superfamily that are expressed, along with the transmembrane glycoproteins B7-1 and B7-2, by antigen-presenting cells, and with these ligands constitute crucial co-stimulatory pathways for T and B cell regulatory responses. It is through engagement with CD28 and CTLA-4 that the B7 family ligands B7-1 and B7-2 play principal roles in immunity by activating immune response and maintaining immune tolerance. Co-stimulatory signals generated by B7-1 and B7-2 interactions with CD28 serve to stimulate T cell activation and prevent anergy through the amplification of T cell receptor (TCR) signaling. In contrast, interactions of the ligands with CTLA-4 serves to maintain T cell homeostasis and self-tolerance through the disruption of stimulatory signaling from B7 isoform-bound CD28 complexes, and by inducing powerful inhibitory signals in T cells. CTLA-4, like B7-1, is only poorly expressed on resting dendritic cells; therefore, up-regulation of their interaction and resultant amplification and regulation of T cell activity at peripheral inflammation sites is considerably delayed upon immune activation. Conversely, B7-2 and CD28 are constitutively expressed by resting hematopoietic and T cells, respectively, and as a result are able to rapidly induce up-regulation upon immune activation, making them critical to the early co-stimulatory signaling of immune response. Unlike B7-1 and B7-2, the ligands PD-L1 (or B7-H1) and B7-H2, which also belong to the B7 family, have not been shown to influence immunity through interaction with CTLA-4. B7-H2 has been shown to have restricted interaction with CD28. The difference in expression of B7-1, B7-2 and B7-H2 may enable temporally and spatially-specific regulation of T cell response through non-competitive CD28 interaction. Recombinant Human CTLA-4 Fc is a glycosylated, disulfide-linked homodimer of 714 amino acid residues whose monomer consists of the 124-amino-acid length extracellular portion of CTLA-4 fused to the 231-amino-acid length Fc portion of human IgG1 by two glycines. The calculated molecular weight of recombinant human CTLA-4 Fc dimer is 78.7 kDa; however, due to glycosylation, the monomer and dimer migrate at apparent molecular weights of approximately 45–50 kDa and 80–90 kDa by SDS-PAGE analysis under reducing conditions.

Sequence

```
MHVAQPAVVL ASSRGIASFV CEYASPGKAT EVRVTVLRQA
DSQVTEVCAA TYMMGNELTF LDDSICTGTS SGNQVNLTIQ
GLRAMDTGLY ICKVELMYPP PYYLGIGNGT QIYVIDPEPC
PDSDGGPKSC DKTHTCPPCP APELLGGPSV FLFPPKPKDT
LMISRTPEVT CVVVDVSHED PEVKFNWYVD GVEVHNAKTK
PREEQYNSTY RVVSVLTVLH QDWLNGKEYK CKVSNKALPA
PIEKTISKAK GQPREPQVYT LPPSRDELTK NQVSLTCLVK
GFYPSDIAVE WESNGQPENN YKTTPPVLDS DGSFFLYSKL
TVDKSRWQQG NVFSCSVMHE ALHNHYTQKS LSLSPGK
```

Database References

Protein RefSeq:	NP_005205.2
Uniprot ID:	P16410
mRNA RefSeq:	NM_005214.4

Product Specifications

Expressed in	E. coli
Purity	> 98% by SDS-PAGE & HPLC analyses
Endotoxin level	< 0.1 ng /µg of protein (<1EU/µg).
Formulation	Lyophilized (10mM Sodium Phosphate, pH 7.5 + 25mM NaCl)
Length (aa):	357
MW:	78,7 kDa (calculated)

Stability: The lyophilized protein is stable at room temperature for 1 month and at 4°C for 6 months. Reconstituted working aliquots are stable for 1 week at 2°C to 8°C and for 3 months at -20°C to -80°C.

Reconstitution: Centrifuge the vial prior to opening. Reconstitute in water to a concentration of 0.1-1.0 mg/m. *Do not vortex*. This solution can be stored at 2-8°C for up to 1 week. For extended storage, it is recommended to further dilute in a buffer containing a carrier protein (example 0.1% BSA) and store in working aliquots at -20°C to -80°C.

AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Not available.