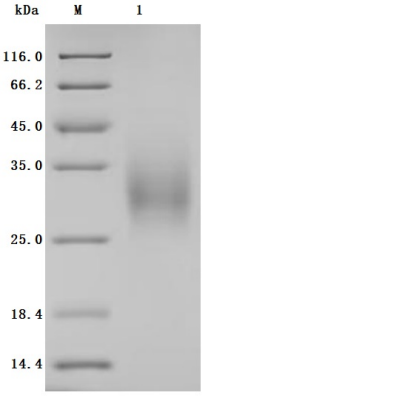
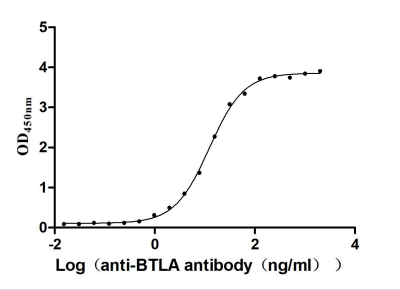
Recombinant Human B- and T-lymphocyte attenuator(BTLA), partial (Active)

Product Code	CSB-MP773799HU1
Abbreviation	Recombinant Human BTLA protein, partial (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q7Z6A9
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, 6% Trehalose, pH 7.4
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Human BTLA at 2 μg/mL can bind Anti-BTLA recombinant antibody(CSB-RA773799MAIHU). The EC50 is 11.56-13.00 ng/mL.
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	KESCDVQLYIKRQSEHSILAGDPFELECPVKYCANRPHVTWCKLNGTTCVKLEDRQTSWKEEKNISFFILHFEPVLPNDNGSYRCSANFQSNLIESHSTTLYVTDVKSASERPSKDEMASRPWLLYR
Source	Mammalian cell
Target Names	BTLA
Expression Region	31-157aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4? for up to one week.
Tag Info	C-terminal 10xHis-tagged
Mol. Weight	16.1 kDa
Protein Length	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Activity
Measured by its binding ability in a functional ELISA. Immobilized Human BTLA at 2μg/mL can bind Anti-BTLA recombinant antibody(CSB-RA773799MAIHU)?the EC_{50} is 11.56-13.00 ng/mL.

Description

To produce the recombinant human BTLA protein, a plasmid carrying the gene sequence for residues 31-157 of the human BTLA is expressed in mammalian cells. The target gene fragment is co-expressed with a C-terminal 10xHis-tag gene. SDS-PAGE confirms the BTLA protein purity exceeds 95%, and endotoxin content, measured using the LAL assay, remains below 1.0 EU/μg. ELISA testing validates the BTLA protein's functionality, with specific BTLA recombinant antibody(CSB-RA773799MAIHU) binding and an EC_{50} range of 11.56-13.00 ng/mL.

Human BTLA is an important co-inhibitory receptor that plays a significant role in regulating immune responses. BTLA is a member of the immunoglobulin superfamily and is primarily expressed on various immune cells, including T cells, B cells, NK cells, and dendritic cells (DCs) [1][2]. It negatively regulates immune activation, thereby maintaining immune homeostasis and preventing excessive immune responses that could lead to autoimmunity or tissue damage [1][3].

The binding of BTLA to the herpes virus entry mediator (HVEM) inhibits T cell and B cell activation, leading to reduced cytokine production and proliferation [4][5]. Specifically, BTLA engagement has been shown to decrease phosphorylation of key signaling molecules in T cells, such as CD3ζ, and in B cells, including Syk and PLCγ2, thereby dampening their activation [6][7]. This inhibitory signaling pathway is crucial for the regulation of immune responses, particularly in the context of chronic infections and cancer, where BTLA expression is often upregulated [8][9].

In the context of cancer, BTLA has been implicated in creating a protumor microenvironment by promoting immune evasion mechanisms [4][10]. Studies

have demonstrated that high levels of BTLA expression correlate with poor outcomes in various cancers, including chronic lymphocytic leukemia and melanoma [10][11]. The blockade of BTLA signaling has been proposed as a potential therapeutic strategy to enhance anti-tumor immunity by reinvigorating T cell responses [8][12].

Moreover, BTLA is involved in the regulation of immune tolerance and the maintenance of homeostasis within the immune system. It plays a role in the differentiation of Tregs and the modulation of dendritic cell functions, which are essential for inducing tolerance to self-antigens and preventing autoimmune diseases [13][14]. The dual role of BTLA in promoting both immune suppression and tolerance highlights its complexity as an immune checkpoint molecule [15][16].

References:

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Endotoxin	Less than 1.0 EU/ug as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20?/-80?. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.