Data Sheet (Cat.No.TMPY-05398)

TargetMol

BTN3A1 Protein, Human, Recombinant (His), Biotinylated

General Information

Synonyms:	BT3.1;BTF5;CD277;BTN3.1;butyrophilin subfamily 3 member A1
Protein Construction:	A DNA sequence encoding the human BTN3A1 (NP_919423.1) (Met1-Gly254) was expressed with a polyhistidine tag at the C-terminus. The purified protein was biotinylated in vitro. Predicted N terminal: Gln 30
Species:	Human
Expression Host:	HEK293 Cells
Accession:	O00481-2
Molecular Weight:	25.6 kDa (predicted)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

BTN3A1 has the structure of a type I receptor of the Ig superfamily and is part of a family of seven BTN receptors encoded by genes in the MHC. BTN molecules are composed of two Ig domains (IgV, IgC2), a single transmembrane domain, and a large carboxyl-terminal domain termed B3.2 (or PRYSPRY) located in the cell cytoplasm. There are three human BTN3A loci, BTN3A1, BTN3A2, and BTN3A3, and clear orthologs of BTN3A

molecules, now called CD277, are absent from the mouse genome. Despite its similarity to B7 molecules, BTN3A1 was proposed to act not as a coreceptor or costimulatory molecule, but rather to directly present pAg to the γδ TCR in a manner analogous to MHC-restricted peptide presentation. However, this model of BTN3A1 function has been challenged by conflicting data, which show pAg binding to a positively charged pocket in the cytosolic B3.2 domain, and that BTN3A1 does not directly engage the γδ TCR. This contradictory picture has emerged as a result of the complexity of the system and in particular by the use of endogenous and exogenous routes of Ag delivery in in vitro assays.Cancer ImmunotherapyImmune CheckpointImmunotherapyTargeted Therapy

Reference

Rhodes DA, Chen H-C, Price AJ,et al.Activation of human γδ T cells by cytosolic interactions of BTN3A1 with soluble phosphoantigens and the cytoskeletal adaptor periplakin. Journal of immunology (Baltimore, Md: 1950). 2015; 194(5):2390-2398.

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