

## BTN3A1 Protein, Human, Recombinant

## General Information

Synonyms:	BTF5;CD277;BTN3.1;BT3.1;butyrophilin subfamily 3 member A1
Protein Construction:	Gln30-Gly254
Species:	Human
Expression Host:	HEK293 Cells
Accession:	O00481-1
Molecular Weight:	24.15 kDa (predicted); 26-32 kDa (reducing conditions)

## QC Testing

Biological Activity:	Immobilized Human BTN3A1, No Tag at 0.5 µg/ml (100 µl/well) on the plate. Dose response curve for Anti-BTN3A1 Antibody, hFc Tag with the EC50 of 8.8 ng/ml determined by ELISA.
Purity:	≥ 90 % as determined by SDS-PAGE. ≥ 90 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from 0.22 µm filtered solution in PBS (pH 7.4). Normally 8% trehalose is added as protectant before lyophilization.

## Preparation and Storage

## Reconstitution:

Reconstitute the lyophilized protein in distilled water. The product concentration should not be less than 100 µg/ml. Before opening, centrifuge the tube to collect powder at the bottom. After adding the reconstitution buffer, avoid vortexing or pipetting for mixing.

## Stability &amp; 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  $\gamma\delta$  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  $\gamma\delta$  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 Immunotherapy Immune Checkpoint Immunotherapy Targeted Therapy

### Reference

Rhodes DA, Chen H-C, Price AJ, et al. Activation of human  $\gamma\delta$  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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