

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived		
	Human CD277/BTN3A1 (Phe31-Gly254) Accession # O00481	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus
N-terminal Sequence Analysis	Phe31		
Structure / Form	Disulfide-linked homodimer		
Predicted Molecular Mass	51 kDa		

SPECIFICATIONS

SDS-PAGE	54-62 kDa, reducing conditions
Activity	Measured by its ability to inhibit anti-CD3 antibody induced IL-2 secretion in human T lymphocytes. The ED ₅₀ for this effect is typically 1-5 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE with silver staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA

<p>Bioactivity</p> <p>Recombinant Human CD277/BTN3A1 inhibits anti-CD3 antibody-induced IL-2 secretion in human T lymphocytes. The ED₅₀ for this effect is typically 1-5 µg/mL.</p>	<p>SDS-PAGE</p> <p>1 µg/lane of Recombinant Human CD277/BTN3A1 (Catalog # 8539-BT) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing bands at 58.8 and 150 kDa, respectively.</p>
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BACKGROUND

Butyrophilin 3A1 (also called BTN3A1) is a 57 kDa type I transmembrane glycoprotein member of the Ig superfamily. It is expressed on a wide variety of immune cells. Similar to BTN3A2 and BTN3A3, BTN3A1 (484 amino acids) is composed of an extracellular N-terminal IgV and a membrane-proximal IgC domain followed by a transmembrane domain and a cytoplasmic tail. These Ig domains are also found in B7 family co-stimulatory molecules, suggesting structural and functional similarities between the two protein families (1). The intracellular portion of BTN3A1 contains a B30.2 domain (2). Although the B30.2 domain of BTN1A1 binds to xanthine oxidoreductase (XOR) and is conserved among BTN1A1 orthologs, this interaction with XOR is not shared by BTN3A1 (3). The B30.2 domain of butyrophilins also functions as a sensor for detecting changes in intracellular phospho-antigen (pAg) concentrations produced during tumorigenesis and microbial infections (4, 5). The specific binding of pAg by the B30.2 domain of BTN3A1 induces a conformational change in its ECD, leading to the activation of V γ 9V δ 2 T cells (6). Thus, BTN3A1 acts as a critical protein for the activation of V γ 9V δ 2 T cells following detection of distressed cells (7). The anti-tumor responses of V γ 9V δ 2 T cells may be enhanced with agonistic anti-BTN3A1 antibodies (8). No BTN3A1 homolog has yet been identified in rodents. However, Human BTN3A1 shares 92.4% and 91.6% sequence identity with baboon and rhesus monkey BTN3A1 respectively (9).

References:

1. Abeler-Dorner, L. *et al.* (2012) *Trends Immunol.* **33**:34.
2. Rhodes, D.A. *et al.* (2001) *Genomics* **71**:351.
3. Jeong, J. *et al.* (2009) *J. Biol. Chem.* **284**:22444.
4. Harly, C. *et al.* (2012) *Blood* **120**:2269.
5. Constant, P. *et al.* (1994) *Science* **264**:267.
6. Sandstrom, A. *et al.* (2014) *Immunity* **40**:490.
7. Harly, C. *et al.* (2015) *Front. Immunol.* **5**:657.
8. Bonneville, M. *et al.* (2006) *Curr. Opin. Immunol.* **18**:539.
9. Wang, H. *et al.* (2013) *J. Immunol.* **191**:1029.