Biotinylated Recombinant Human BTN1A1/Butyrophilin

Catalog Number: BT8467

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human BTN1A1/Butyrophilin protein Ala27-Arg242, with a C-terminal 6-His tag, biotinylated via sugars Accession # Q13410
N-terminal Sequence Analysis	Ala27
Predicted Molecular Mass	25 kDa (unlabeled)

SPECIFICATIONS

SDS-PAGE	34-40 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 0.5-2.5 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. 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	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, ≤ -20 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution.

BACKGROUND

Butyrophilin 1A1 (also called BTN1A1), a 55 kDa type I transmembrane glycoprotein, is a member of the Ig superfamily. BTN1A1 is 494 amino acids (aa) long and is composed of an extracellular domain (ECD) (aa 27-242), a transmembrane domain and a cytoplasmic tail (aa 270-526) which contains the B30.2 domain. The BTN1A1 ECD displays two predicted IgV and IgC domains as do B7 and Skint proteins which interact with other Ig superfamily members (1).The B30.2 domain of BTN1A1 binds to xanthine oxidoreductase (XOR) (2). This interaction stabilizes the association of XOR with the milk fat globule membrane and appears to be essential in the control of milk fat globule secretion (3, 4, 5). Binding to XOR is conserved among BTN1A1 orthologs, but is not shared by BTN2A1 or BTN3A1 (2). The B30.2 domain of butyrophilins is also described as a sensor for detecting changes in intracellular phopho-antigen (pAg) concentrations. B30.2 binding to pAg induces a cascade of events leading to the activation of γδ T cells (6). In vitro, BTN1A1 has an inhibitory effect on $CD4^+$ T cell proliferation, and in addition reduces expression of cytokines associated with T cell activation such as IL-2 and IFN-γ (7, 8). Furthermore, in vivo, BTN1A1 has a protective effect against the development of experimental autoimmune encephalomyelitis (EAE) (9). The ECD of human BTN1A1 shares 68% aa sequence identity with both mouse and rat BTN1A1. Because butyrophilins are structurally related to B7 proteins and are functionally implicated in immune regulation, they may represent an emerging family of co-stimulatory/inhibitory molecules.

References:

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