

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived
Ala27-Trp247, with a C-terminal 6-His tag
Accession # Q62556

N-terminal Sequence Analysis Ala27

Predicted Molecular Mass 25 kDa

SPECIFICATIONS

SDS-PAGE 34-42 kDa, reducing conditions

Activity Measured by its ability to inhibit IL-2 secretion by mouse T cells in the presence of anti-CD3.
The ED₅₀ for this effect is 0.3-1.5 µg/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >95%, 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

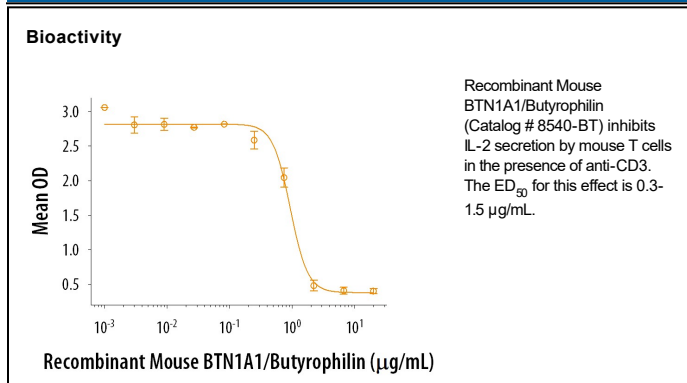
Reconstitution Reconstitute at 100 µg/mL in PBS.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 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



BACKGROUND

Butyrophilin 1A1 (also called BTN1A1), a 58 kDa type I transmembrane glycoprotein, is a member of the Ig superfamily. BTN1A1 is 498 amino acids (aa) long and is composed of an extracellular domain (ECD), a transmembrane domain and a cytoplasmic tail 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 phospho-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 mouse BTN1A1 shares 68% aa sequence identity with both human 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:

1. Abeler-Dorner, L. *et al.* (2012) Trends Immunol. **33**:34.
2. Jeong, J. *et al.* (2009) J. Biol. Chem. **284**:22444.
3. Vorback, C. *et al.* (2002) Genes Dev. **16**:3223.
4. Ogg, S.L. *et al.* (2004) Proc. Natl. Acad. Sci. USA **101**:10084.
5. Robenek, H. *et al.* (2006) Proc. Natl. Acad. Sci. USA **103**:10385.
6. Sandstrom, A. *et al.* (2014) Immunity **40**:490.
7. Arnet, H.A. and Viney, J.L. (2014) Nat.Rev.Immunol.**14**:559.
8. Smith, I.A. *et al.* (2010) J.Immunol. **184**:3514.
9. Mana, P. *et al.* (2004) J.Immunol. **16**:489.