

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human BTN1A1/Butyrophilin in direct ELISAs.
Source	Recombinant Monoclonal Rabbit IgG Clone # 2151B
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human BTN1A1/Butyrophilin Ala27-Arg242 Accession # Q13410
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

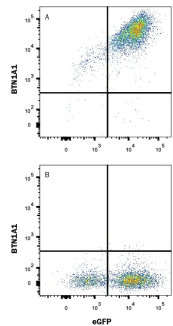
APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Flow Cytometry	0.25 µg/10 ⁶ cells	See Below
Immunocytochemistry	0.3-25 µg/mL	See Below

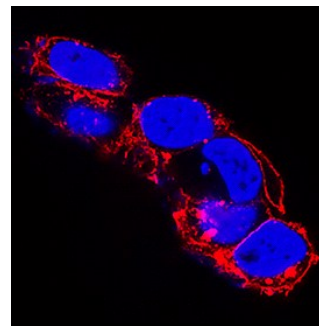
DATA

Flow Cytometry



Detection of BTN1A1 in HEK293 Human Cell Line Transfected with Human BTN1A1 and eGFP by Flow Cytometry. HEK293 human embryonic kidney cell line transfected with either (A) human BTN1A1 or (B) irrelevant transfectants and eGFP was stained with Rabbit Anti-Human BTN1A1 Monoclonal Antibody (Catalog # MAB84671) followed by APC-conjugated Goat-anti Rabbit IgG secondary antibody (Catalog # F0111). Quadrant markers were set based on control antibody staining (Catalog # MAB1050). View our protocol for [Staining Membrane-associated Proteins](#).

Immunocytochemistry



BTN1A1/Butyrophilin in HEK293 Human Cell Line. BTN1A1/Butyrophilin was detected in immersion fixed HEK293 human embryonic kidney cell line using Rabbit Anti-Human BTN1A1/Butyrophilin Polyclonal Antibody (Catalog # MAB84671) at 0.3 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Rabbit IgG Secondary Antibody (red; Catalog # NL004) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <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. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Butyrophilin 1A1 (also called BTN1A1), a 55kDa 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 phospho-antigen (pAg) concentrations. B30.2 binding to pAg induces a cascade of events leading to the activation of $\gamma\delta$ 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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6. Sandstrom, A. *et al.* (2014) Immunity **40**:490.
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