

# BTN1A1 (D-20): sc-21035

## BACKGROUND

BTN1A1 (butyrophilin, subfamily 1, member A1), also known as BTN or BT, is a single-pass type I membrane protein that belongs to the BTN (butyrophilin)/MOG family of the immunoglobulin (Ig) superfamily. Localizing to the apical membrane and abundantly expressed in the secretory epithelium of the lactating mammary gland, BTN1A1 contains one B30.2/SPRY domain and two Ig-like V-type domains. BTN1A1 is secreted into milk as an integral membrane protein of fat droplets and plays a vital role in proper lipid secretion. Supporting its role in lipid secretion, BTN1A1 knockout mice exhibit accumulation of lipid in the mammary cells and secretion of large misshapen fat droplets. More specifically, BTN1A1 binds to xanthine oxidase, forming a complex that interacts with ADRP (adipophilin), thereby linking milk secretory granules to the plasma membrane and facilitating envelopment of the granule for secretion.

## REFERENCES

1. Mather, I.H. and Jack, L.J. 1993. A review of the molecular and cellular biology of butyrophilin, the major protein of bovine milk fat globule membrane. *J. Dairy Sci.* 76: 3832-3850.
2. Amadou, C., et al. 1995. Localization of new genes and markers to the distal part of the human major histocompatibility complex (MHC) region and comparison with the mouse: new insights into the evolution of mammalian genomes. *Genomics* 26: 9-20.
3. Solinas-Toldo, S., et al. 1995. Comparative genome map of human and cattle. *Genomics* 27: 489-496.
4. Ashwell, M.S., et al. 1996. The bovine butyrophilin gene maps to chromosome 23. *Anim. Genet.* 27: 171-173.
5. Ogg, S.L., et al. 1996. Structural organization and mammary-specific expression of the butyrophilin gene. *Mamm. Genome* 7: 900-905.
6. Tazi-Ahnini, R., et al. 1997. Cloning, localization, and structure of new members of the butyrophilin gene family in the juxta-telomeric region of the major histocompatibility complex. *Immunogenetics* 47: 55-63.
7. Rhodes, D.A., et al. 2001. The cluster of BTN genes in the extended major histocompatibility complex. *Genomics* 71: 351-362.
8. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601610. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
9. Ogg, S.L., et al. 2004. Expression of butyrophilin (Btn1a1) in lactating mammary gland is essential for the regulated secretion of milk-lipid droplets. *Proc. Natl. Acad. Sci. USA* 101: 10084-10089.

## CHROMOSOMAL LOCATION

Genetic locus: Btn1a1 (mouse) mapping to 13 A3.1.

## SOURCE

BTN1A1 (Y-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of BTN1A1 of mouse origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-21035 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

BTN1A1 (D-20) is recommended for detection of BTN1A1 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for BTN1A1 siRNA (m): sc-141782, BTN1A1 shRNA Plasmid (m): sc-141782-SH and BTN1A1 shRNA (m) Lentiviral Particles: sc-141782-V.

Molecular Weight of BTN1A1: 59 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.