

BTN1A1 (L-16): sc-101900

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

- 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.
- Amadou, C., Ribouchon, M.T., Mattei, M.G., Jenkins, N.A., Gilbert, D.J., Copeland, N.G., Avoustin, P. and Pontarotti, P. 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.
- Solinas-Toldo, S., Lengauer, C. and Fries, R. 1995. Comparative genome map of human and cattle. *Genomics* 27: 489-496.
- Ashwell, M.S., Ogg, S.L. and Mather, I.H. 1996. The bovine butyrophilin gene maps to chromosome 23. *Anim. Genet.* 27: 171-173.
- Ogg, S.L., Komaragiri, M.V. and Mather, I.H. 1996. Structural organization and mammary-specific expression of the butyrophilin gene. *Mamm. Genome* 7: 900-905.
- Tazi-Ahnini, R., Henry, J., Offer, C., Bouissou-Bouchouata, C., Mather, I.H. and Pontarotti, P. 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.
- Rhodes, D.A., Stammers, M., Malcherek, G., Beck, S. and Trowsdale, J. 2001. The cluster of BTN genes in the extended major histocompatibility complex. *Genomics* 71: 351-362.
- Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601610. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Ogg, S.L., Weldon, A.K., Dobbie, L., Smith, A.J. and Mather, I.H. 2004. Expression of butyrophilin (Bt1a1) in lactating mammary gland is essential for the regulated secretion of milk-lipid droplets. *Proc. Natl. Acad. Sci. USA* 101: 10084-10089.

STORAGE

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

CHROMOSOMAL LOCATION

Genetic locus: BTN1A1 (human) mapping to 6p22.1.

SOURCE

BTN1A1 (L-16) is a purified rabbit polyclonal antibody raised against BTN1A1 of human origin.

PRODUCT

Each vial contains 50 µg IgG in 500 µl PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.02% sucrose.

APPLICATIONS

BTN1A1 (L-16) is recommended for detection of BTN1A1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for BTN1A1 siRNA (h): sc-95176, BTN1A1 shRNA Plasmid (h): sc-95176-SH and BTN1A1 shRNA (h) Lentiviral Particles: sc-95176-V.

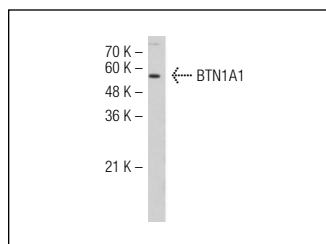
Molecular Weight of BTN1A1: 66 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



BTN1A1 (L-16): sc-101900. Western blot analysis of BTN1A1 expression in Hep G2 whole cell lysate.

RESEARCH USE

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