SANTA CRUZ BIOTECHNOLOGY, INC.

BTN1A1 siRNA (m): sc-141782

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 (butrophilin)/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.

CHROMOSOMAL LOCATION

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

PRODUCT

BTN1A1 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BTN1A1 shRNA Plasmid (m): sc-141782-SH and BTN1A1 shRNA (m) Lentiviral Particles: sc-141782-V as alternate gene silencing products.

For independent verification of BTN1A1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-141782A, sc-141782B and sc-141782C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BTN1A1 siRNA (m) is recommended for the inhibition of BTN1A1 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BTN1A1 gene expression knockdown using RT-PCR Primer: BTN1A1 (m)-PR: sc-141782-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.