SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase A2 siRNA (h): sc-63201

BACKGROUND

Vacuolar-type H^+-ATPase (V-ATPase) is a multisubunit enzyme responsible for the acidification of eukaryotic intracellular organelles. V-ATPases pump protons against an electrochemical gradient, while F-ATPases reverse the process, thereby synthesizing ATP. A peripheral V1 domain, which is responsible for ATP hydrolysis, and an integral V0 domain, which is responsible for proton translocation, comprise the V-ATPase complex. Nine subunits (A-H) make up the V1 domain and five subunits (A, D, C, C' and C") make up the V0 domain. As part of the V0 domain, V-ATPase A2 (ATPase, H^+ transporting, lysosomal V0 subunit α2), consists of 856 amino acids and is also known as ATP6V0A2, V-type proton ATPase subunit a isoform 2, vacuolar proton translocating ATPase subunit a isoform 2, lysosomal H^+-transporting ATPase V0 subunit α2 or TJ6. V-ATPase A2 is a multi-pass membrane protein with localization in the cell membrane, endosome membrane and the subapical vesicles of the kidney's proximal tubules. V-ATPase A2 plays an important role in Golgi function by regulating pH. Wrinkly skin syndrome (WSS) and cutis laxa type II (ARCL type II) are caused as a result of V-ATPase A2 defects.

REFERENCES

1. Tulin, E.E., et al. 2001. A novel secreted form of immune suppressor factor with high homology to vacuolar ATPases identified by a forward genetic approach of functional screening based on cell proliferation. J. Biol. Chem. 276: 27519-27526.
2. Tulin, E.E., et al. 2002. Inhibition of human endothelial cell proliferation by ShIF, a vacuolar H^+-ATPase-like protein. Oncogene 21: 844-848.
3. Morava, E., et al. 2005. Defective protein glycosylation in patients with cutis laxa syndrome. Eur. J. Hum. Genet. 13: 414-421.
4. Nakajima, H., et al. 2006. Immune suppressor factor confers stromal cell line with enhanced supporting activity for hematopoietic stem cells. Biochem. Biophys. Res. Commun. 340: 35-42.
5. Pietrement, C., et al. 2006. Distinct expression patterns of different subunit isoforms of the V-ATPase in the rat epididymis. Biol. Reprod. 74: 185-194.

CHROMOSOMAL LOCATION

Genetic locus: ATP6V0A2 (human) mapping to 12q24.31.

PRODUCT

V-ATPase A2 siRNA (h) 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 V-ATPase A2 shRNA Plasmid (h): sc-63201-SH and V-ATPase A2 shRNA (h) Lentiviral Particles: sc-63201-V as alternate gene silencing products.

For independent verification of V-ATPase A2 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-63201A, sc-63201B and sc-63201C.

RESEARCH USE

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

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

V-ATPase A2 siRNA (h) is recommended for the inhibition of V-ATPase A2 expression in human 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 60 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 V-ATPase A2 gene expression knockdown using RT-PCR Primer: V-ATPase A2 (h)-PR: sc-63201-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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