SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase C2 siRNA (m): sc-63206

BACKGROUND

Vacuolar-type H^+-ATPase (V-ATPase) is a multisubunit enzyme responsible for acidification of eukaryotic intracellular organelles. V-ATPases pump protons against an electrochemical gradient, while F-ATPases reverse the process, thereby synthesizing ATP. The V-ATPase is comprised of a peripheral V_1 domain, which is responsible for ATP hydrolysis, and an integral V_0 domain, which is responsible for proton translocation. Nine subunits (A?H) make up the V_1 domain and five subunits (a, d, c, c' and c") make up the V_0 domain. Like F-ATPase, V-ATPase most likely operates through a rotary mechanism, coupling ATP hydrolysis by the V_1 domain to proton translocation by the V_0 domain. V-ATPase C2, also known as ATP6V1C2, ATP6C2 or VMA5, is a member of the V-ATPase C subunit family and is specifically expressed in lung and kidney. The V-ATPase C subunit is required for the proper assembly of the catalytic portion of the V-ATPase enzyme and it may have a specific catalytic function.

REFERENCES

1. Smith, A.N., et al. 2002. Molecular cloning and characterization of novel tissue-specific isoforms of the human vacuolar H^+-ATPase C, G and d subunits, and their evaluation in autosomal recessive distal renal tubular acidosis. Gene 297: 169-177.
2. Sun-Wada, G.H., et al. 2003. Mouse proton pump ATPase C subunit isoforms (C2-α and C2-β) specifically expressed in kidney and lung. J. Biol. Chem. 278: 44843-44851.
3. Sun-Wada, G.H., et al. 2003. Diversity of mouse proton-translocating ATPase: presence of multiple isoforms of the C, d and G subunits. Gene 302: 147-153.
4. Feng, N.H., et al. 2005. Differential expression of a V-type ATPase C subunit gene, Atp6v1c2, during culture of rat lung type II pneumocytes. J. Biomed. Sci. 12: 899-911.
5. Jouret, F., et al. 2005. Ubiquitous and kidney-specific subunits of vacuolar H^+-ATPase are differentially expressed during nephrogenesis. J. Am. Soc. Nephrol. 16: 3235-3246.
6. 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: Atp6v1c2 (mouse) mapping to 12 A1.1.

PRODUCT

V-ATPase C2 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 V-ATPase C2 shRNA Plasmid (m): sc-63206-SH and V-ATPase C2 shRNA (m) Lentiviral Particles: sc-63206-V as alternate gene silencing products.

For independent verification of V-ATPase C2 (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-63206A, sc-63206B and sc-63206C.

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 C2 siRNA (m) is recommended for the inhibition of V-ATPase C2 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 V-ATPase C2 gene expression knockdown using RT-PCR Primer: V-ATPase C2 (m)-PR: sc-63206-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.