

## V-ATPase F siRNA (h): sc-36795

### BACKGROUND

Vacuolar-type H<sup>+</sup>-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. A peripheral V<sub>1</sub> domain, which is responsible for ATP hydrolysis, and a integral V<sub>0</sub> domain, which is responsible for proton translocation, compose V-ATPase. Nine subunits (A-H) make up the V<sub>1</sub> domain and five subunits (a, d, c, c' and c'') make up the V<sub>0</sub> domain. Like F-ATPase, V-ATPase most likely operates through a rotary mechanism. V-ATPase E controls acidification of the vacuolar system and provides the main protonmotive force. The gene encoding human V-ATPase E maps to chromosome 22q11.2. The human gene encoding the ubiquitous V-ATPase F subunit maps to chromosome 1p32.3. The human gene encoding the human V-ATPase H subunit maps to chromosome 5q35.3.

### REFERENCES

1. Baud, V., et al. 1994. The E subunit of vacuolar H<sup>+</sup>-ATPase localizes close to the centromere on human chromosome 22. *Hum. Mol. Genet.* 3: 335-339.
2. Oka, T., et al. 1997. Three vha genes encode proteolipids of *Caenorhabditis elegans* vacuolar-type ATPase. Gene structures and preferential expression in an H-shaped excretory cell and rectal cells. *J. Biol. Chem.* 272: 24387-24392.
3. Ludwig, J., et al 1998. Identification and characterization of a novel 9.2 kDa membrane sector-associated protein of vacuolar proton-ATPase from chromaffin granules. *J. Biol. Chem.* 273: 10939-10947.
4. Nishi, T., et al. 2002. The vacuolar H<sup>+</sup>-ATPases—nature's most versatile proton pumps. *Nat. Rev. Mol. Cell Biol.* 3: 94-103.
5. LocusLink Report (LocusID: 8992). <http://www.ncbi.nlm.nih.gov/LocusLink/>

### CHROMOSOMAL LOCATION

Genetic locus: ATP6V1F (human) mapping to 7q32.1.

### PRODUCT

V-ATPase F 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 F shRNA Plasmid (h): sc-36795-SH and V-ATPase F shRNA (h) Lentiviral Particles: sc-36795-V as alternate gene silencing products.

For independent verification of V-ATPase F (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-36795A, sc-36795B and sc-36795C.

### 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) for detailed protocols and support products.

### 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 F siRNA (h) is recommended for the inhibition of V-ATPase F 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 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 F gene expression knockdown using RT-PCR Primer: V-ATPase F (h)-PR: sc-36795-PR (20 μl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.