SANTA CRUZ BIOTECHNOLOGY, INC.

ANT1 siRNA (m): sc-42354

BACKGROUND

Adenine nucleotide translocator 1 (ANT1) and the voltage-dependent anion-selective channel proteins 1 and 2 (VDAC1 and VDAC2) are components of the permeability transition pore complex (PTPC) of the mitochondrial inner and outer membranes, respectively. Formation of PTPCs, the subsequent dissipation of mitochondrial inner membrane potential and release of cytochrome c through the outer mitochondrial membrane are critical events in the early stages of apoptosis. Bax, a proapoptotic protein, has been shown to act upon ANT1 to induce the dissipation of mitochondrial inner membrane potential. ANT1 has a role in the maintenance of mitochondrial DNA by catalyzing the exchange of ADP and ATP across the mitochondrial inner membrane.

REFERENCES

1. Houldsworth, J., et al. 1988. Two distinct genes for ADP/ATP translocase are expressed at the mRNA level in adult human liver. Proc. Natl. Acad. Sci. U.S.A 85: 377-381. PMID 2829183
2. Cozens, A.L., et al. 1989. DNA sequences of two expressed nuclear genes for human mitochondrial ADP/ATP translocase. J. Mol. Biol. 206: 261-280.
3. Li, K., et al. 1989. A human muscle adenine nucleotide translocator gene has four exons, is located on chromosome 4, and is differentially expressed. J. Biol. Chem. 264: 13998-14004.
4. Blachly-Dyson, E., et al. 1993. Cloning and functional expression in yeast of two human isoforms of the outer mitochondrial membrane channel, the voltage-dependent anion channel. J. Biol. Chem. 268: 1835-1841.
5. Zamzami, N., et al. 1996. Mitochondrial control of nuclear apoptosis. J. Exp. Med. 183: 1533-1544.
6. Green, D.R., et al. 1998. Mitochondria and apoptosis. Science 281: 1309-1312.
7. Marzo, I., et al. 1998. Bax and adenine nucleotide translocator cooperate in the mitochondrial control of apoptosis. Science 281: 2027-2031.
8. Kaukonen, J., et al. 2000. Role of adenine nucleotide translocator 1 in mtDNA maintenance. Science 289: 782-785.

CHROMOSOMAL LOCATION

Genetic locus: Slc25a4 (mouse) mapping to 8 B1.1.

PRODUCT

ANT1 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 ANT1 shRNA Plasmid (m): sc-42354-SH and ANT1 shRNA (m) Lentiviral Particles: sc-42354-V as alternate gene silencing products.

For independent verification of ANT1 (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-42354A, sc-42354B and sc-42354C.

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

ANT1 siRNA (m) is recommended for the inhibition of ANT1 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 ANT1 gene expression knockdown using RT-PCR Primer: ANT1 (m)-PR: sc-42354-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gunesch, S., et al. 2020. Development and application of a chemical probe based on a neuroprotective flavonoid hybrid for target identification using activity-based protein profiling. ACS Chem. Neurosci. 11: 3823-3837.

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.