



ATAD5 siRNA (m): sc-62348

BACKGROUND

The AAA ATPase family of molecular chaperones is characterized by a highly conserved AAA motif. Composed of 200-250 residues, the AAA domain contains Walker homology sequences and imparts ATPase activity. Members of the AAA ATPase family act as DNA helicases or transcription factors and are thought to be involved in several cellular functions, such as cell-cycle regulation, protein proteolysis, organelle biogenesis and vesicle-mediated protein transport. ATAD5 (ATPase family, AAA domain containing 5), also known as chromosome fragility-associated gene 1 protein, FRAG1 or ELG1, is a 1,844 amino acid nuclear protein that is involved in the DNA damage response and belongs to the AAA ATPase family. Existing as two alternatively spliced isoforms, ATAD5 interacts with Rad9 in growing cells where it assists in interactions between Rad9 and Bcl-2.

REFERENCES

- Patel, S., et al. 1998. The AAA team: related ATPases with diverse functions. *Trends Cell Biol.* 8: 65-71.
- Neuwald, A.F., et al. 1999. AAA+: A class of chaperone-like ATPases associated with the assembly, operation, and disassembly of protein complexes. *Genome Res.* 9: 27-43.
- Jenne, D.E., et al. 2001. Molecular characterization and gene content of breakpoint boundaries in patients with neurofibromatosis type 1 with 17q11.2 microdeletions. *Am. J. Hum. Genet.* 69: 516-527.
- Iyer, L.M., et al. 2004. Evolutionary history and higher order classification of AAA+ ATPases. *J. Struct. Biol.* 146: 11-31.
- Tuite, N.L., et al. 2005. Homocysteine toxicity in *Escherichia coli* is caused by a perturbation of branched-chain amino acid biosynthesis. *J. Bacteriol.* 187: 4362-4371.
- Ishii, H., et al. 2005. Frag1, a homolog of alternative replication factor C subunits, links replication stress surveillance with apoptosis. *Proc. Natl. Acad. Sci. USA* 102: 9655-9660.
- Sikdar, N., et al. 2009. DNA damage responses by human ELG1 in S phase are important to maintain genomic integrity. *Cell Cycle* 8: 3199-3207.
- Online Mendelian Inheritance in Man, OMIM™. 2009. Johns Hopkins University, Baltimore, MD. MIM Number: 609534. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: Atad5 (mouse) mapping to 11 B5.

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.

PRODUCT

ATAD5 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ATAD5 shRNA Plasmid (m): sc-62348-SH and ATAD5 shRNA (m) Lentiviral Particles: sc-62348-V as alternate gene silencing products.

For independent verification of ATAD5 (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-62348A, sc-62348B and sc-62348C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ATAD5 siRNA (m) is recommended for the inhibition of ATAD5 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 μ M in 66 μ l. 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 ATAD5 gene expression knockdown using RT-PCR Primer: ATAD5 (m)-PR: sc-62348-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.