

# PAAF1 siRNA (h): sc-96876

## BACKGROUND

WD-repeats are motifs that are found in a variety of proteins and are characterized by a conserved core of 40-60 amino acids that commonly form a tertiary propeller structure. While proteins that contain WD-repeats participate in a wide range of cellular functions, they are generally involved in regulatory mechanisms concerning chromatin assembly, cell cycle control, signal transduction, RNA processing, apoptosis and vesicular trafficking. PAAF1 (proteasomal ATPase-associated factor 1), also known as Rpn14 or WDR71, is a 392 amino acid protein that contains five WD repeats. Expressed ubiquitously with highest expression in testis, brain and kidney, PAAF1 interacts with PSMC proteins and functions to inhibit 26S proteasome assembly and proteolytic activity by preventing the association of the 20S core with the 19S regulatory complex. Multiple isoforms of PAAF1 exist due to alternative splicing events.

## REFERENCES

1. van der Voorn, L. and Ploegh, H.L. 1992. The WD-40 repeat. *FEBS Lett.* 307: 131-134.
2. Neer, E.J., Schmidt, C.J., Nambudripad, R. and Smith, T.F. 1994. The ancient regulatory-protein family of WD-repeat proteins. *Nature* 371: 297-300.
3. Garcia-Higuera, I., Fenoglio, J., Li, Y., Lewis, C., Panchenko, M.P., Reiner, O., Smith, T.F. and Neer, E.J. 1996. Folding of proteins with WD-repeats: comparison of six members of the WD-repeat superfamily to the G protein  $\beta$  subunit. *Biochemistry* 35: 13985-13994.
4. Garcia-Higuera, I., Gaitatzes, C., Smith, T.F. and Neer, E.J. 1998. Folding a WD repeat propeller. Role of highly conserved aspartic acid residues in the G protein  $\beta$  subunit and Sec13. *J. Biol. Chem.* 273: 9041-9049.
5. Smith, T.F., Gaitatzes, C., Saxena, K. and Neer, E.J. 1999. The WD repeat: a common architecture for diverse functions. *Trends Biochem. Sci.* 24: 181-185.
6. Li, D. and Roberts, R. 2001. WD-repeat proteins: structure characteristics, biological function, and their involvement in human diseases. *Cell. Mol. Life Sci.* 58: 2085-2097.
7. Park, Y., Hwang, Y.P., Lee, J.S., Seo, S.H., Yoon, S.K. and Yoon, J.B. 2005. Proteasomal ATPase-associated factor 1 negatively regulates proteasome activity by interacting with proteasomal ATPases. *Mol. Cell. Biol.* 25: 3842-3853.
8. Ponnappan, S., Ovaa, H. and Ponnappan, U. 2007. Lower expression of catalytic and structural subunits of the proteasome contributes to decreased proteolysis in peripheral blood T lymphocytes during aging. *Int. J. Biochem. Cell Biol.* 39: 799-809.
9. Lassot, I., Latreille, D., Rousset, E., Sourisseau, M., Linares, L.K., Chable-Bessia, C., Coux, O., Benkirane, M. and Kiernan, R.E. 2007. The proteasome regulates HIV-1 transcription by both proteolytic and nonproteolytic mechanisms. *Mol. Cell* 25: 369-383.

## CHROMOSOMAL LOCATION

Genetic locus: PAAF1 (human) mapping to 11q13.4.

## PRODUCT

PAAF1 siRNA (h) is a pool of 2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PAAF1 shRNA Plasmid (h): sc-96876-SH and PAAF1 shRNA (h) Lentiviral Particles: sc-96876-V as alternate gene silencing products.

For independent verification of PAAF1 (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-96876A and sc-96876B.

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

## APPLICATIONS

PAAF1 siRNA (h) is recommended for the inhibition of PAAF1 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  $\mu$ M in 66  $\mu$ 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 PAAF1 gene expression knockdown using RT-PCR Primer: PAAF1 (h)-PR: sc-96876-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.