SANTA CRUZ BIOTECHNOLOGY, INC.

VCP siRNA (m): sc-37188

BACKGROUND

Valosin containing protein (VCP), also designated TERA (for transitional endoplasmic reticulum ATPase) or p97, is a member of the AAA family of ATPases, which are involved in a variety of cellular activities. VCP is the mammalian homolog of *Saccharomyces cerevisiae* Cdc48, a protein essential for the completion of mitiosis in yeast. VCP is thought to be involved in a variety of membrane functions and in the regulation of the cell cycle. It associates with ubiquitinated IκB-α as well as with the 26S Proteosome, indicating a potential role for VCP in the proteosome-mediated degradation of IκB-α.

REFERENCES

1. Egerton, M., et al. 1992. VCP, the mammalian homolog of Cdc48, is tyrosine phosphorylated in response to T cell antigen receptor activation. EMBO J. 11: 3533-3540.
2. Egerton, M. and Samelson, L.E. 1994. Biochemical characterization of valosin-containing protein, a protein tyrosine kinase substrate in hematopoietic cells. J. Biol. Chem. 269: 11435-11441.
3. Druck, T., et al. 1995. Chromosome localization of human genes for Clathrin adaptor polypeptides AP2β and AP50 and the Clathrin-binding protein, VCP. Genomics 30: 94-97.
4. Confalonieri, F. and Duguet, M. 1995. A 200 amino acid ATPase module in search of a basic function. Bioessays 17: 639-650.
5. Madeo, F., et al. 1998. Tyrosine phosphorylation regulates cell cycle-dependent nuclear localization of Cdc48p. Mol. Biol. Cell 9: 131-141.
6. Dai, R.M., et al. 1998. Involvement of valosin-containing protein, an ATPase co-purified with IκB-α and 26S Proteosome, in ubiquitin-proteosome-mediated degradation of IκB-α. J. Biol. Chem. 273: 3562-3573.
7. Zhang, S.H., et al. 1999. Identification of the cell cycle regulator VCP (p97/Cdc48) as a substrate of the band 4.1-related protein-tyrosine phosphatase PTPH1. J. Biol. Chem. 274: 17806-17812.
8. Ishigaki, S., et al. 2004. Physical and functional interaction between Dorfin and valosin-containing protein that are co-localized in ubiquitylated inclusions in neurodegenerative disorders. J. Biol. Chem. 279: 51376-51385.

CHROMOSOMAL LOCATION

Genetic locus: Vcp (mouse) mapping to 4 A5.

PRODUCT

VCP 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 VCP shRNA Plasmid (m): sc-37188-SH and VCP shRNA (m) Lentiviral Particles: sc-37188-V as alternate gene silencing products.

For independent verification of VCP (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-37188A, sc-37188B and sc-37188C.

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

VCP siRNA (m) is recommended for the inhibition of VCP 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.

GENE EXPRESSION MONITORING

VCP (D-9): sc-133212 is recommended as a control antibody for monitoring of VCP gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor VCP gene expression knockdown using RT-PCR Primer: VCP (m)-PR: sc-37188-PR (20 µl, 595 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Peng, H., et al. 2019. Valosin-containing protein is associated with maintenance of meiotic arrest in mouse oocytes†. Biol. Reprod. 100: 963-970.

RESEARCH USE

For research use only, not for use in diagnostic procedures.