SANTA CRUZ BIOTECHNOLOGY, INC.

Spartan siRNA (h): sc-88266

BACKGROUND

Spartan, also known as SPRTN (SprT-like N-terminal domain), DVC1 (DNA damage protein targeting VCP), PRO4323 or C1orf124, is a 489 amino acid protein that contains one SprT-like domain and a UBZ-type zinc finger. Localizing to the nucleus, Spartan is predominately expressed during the S and G_2 phase of mitosis. Spartan acts as a regulator of UV-induced DNA damage, congregating to the site of UV damage via the PIP-box. The PIP-box mediates the interaction between Spartan and PCNA, leading to PCNA ubiquitination. Spartan facilitates chromatin association of RAD18 and functions as a regulator of translesion DNA synthesis via the recruitment of VCP/p97 to the site of DNA damage. Existing as two alternatively spliced isoforms, Spartan is encoded by a gene mapping to human chromosome 1q42.2 and mouse chromosome 8 E2.

REFERENCES

1. Clark, H.F., et al. 2003. The secreted protein discovery initiative (SPDI), a large-scale effort to identify novel human secreted and transmembrane proteins: a bioinformatics assessment. Genome Res. 13: 2265-2270.
2. Machida, Y., et al. 2012. Spartan/C1orf124 is important to prevent UV-induced mutagenesis. Cell Cycle 11: 3395-3402.
3. Ghosal, G., et al. 2012. Proliferating cell nuclear antigen (PCNA)-binding protein C1orf124 is a regulator of translesion synthesis. J. Biol. Chem. 287: 34225-34233.
4. Centore, R.C., et al. 2012. Spartan/C1orf124, a reader of PCNA ubiquitylation and a regulator of UV-induced DNA damage response. Mol. Cell 46: 625-635.
5. Mosbech, A., et al. 2012. DVC1 (C1orf124) is a DNA damage-targeting p97 adaptor that promotes ubiquitin-dependent responses to replication blocks. Nat. Struct. Mol. Biol. 19: 1084-1092.
6. Davis, E.J., et al. 2012. DVC1 (C1orf124) recruits the p97 protein segregase to sites of DNA damage. Nat. Struct. Mol. Biol. 19: 1093-1100.
7. Juhasz, S., et al. 2012. Characterization of human Spartan/C1orf124, an ubiquitin-PCNA interacting regulator of DNA damage tolerance. Nucleic Acids Res. 40: 10795-10808.

CHROMOSOMAL LOCATION

Genetic locus: SPRTN (human) mapping to 1q42.2.

PRODUCT

Spartan 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 Spartan shRNA Plasmid (h): sc-88266-SH and Spartan shRNA (h) Lentiviral Particles: sc-88266-V as alternate gene silencing products.

For independent verification of Spartan (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-88266A, sc-88266B and sc-88266C.

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

Spartan siRNA (h) is recommended for the inhibition of Spartan 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 Spartan gene expression knockdown using RT-PCR Primer: Spartan (h)-PR: sc-88266-PR (20 µl). 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 for detailed protocols and support products.