SANTA CRUZ BIOTECHNOLOGY, INC.

USP49 siRNA (h): sc-76867

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The Power to Question

BACKGROUND

The ubiquitin (Ub) pathway involves three sequential enzymatic steps that facilitate the conjugation of Ub and Ub-like molecules to specific protein substrates. Through the use of a wide range of enzymes that can add or remove ubiquitin, the Ub pathway controls many intracellular processes such as signal transduction, transcriptional activation and cell cycle progression. USP49 (ubiquitin specific peptidase 49), also known as ubiquitin thioesterase 49 or deubiquitinating enzyme 49, is a 688 amino acid protein belonging to the peptidase C19 family. USP49 functions to catalyze the conversion of a ubiquitin C-terminal thioester to a free ubiquitin and a thiol. The gene encoding USP49 maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome. Two isoforms of USP49 are produced by alternative splicing events.

REFERENCES

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2. Southan, C. 2001. A genomic perspective on human proteases. FEBS Lett. 498: 214-218.
3. Puente, X.S., Sánchez, L.M., Overall, C.M. and López-Otín, C. 2003. Human and mouse proteases: a comparative genomic approach. Nat. Rev. Genet. 4: 544-558.
4. Quesada, V., Díaz-Perales, A., Gutiérrez-Fernández, A., Garabaya, C., Cal, S. and López-Otín, C. 2004. Cloning and enzymatic analysis of 22 novel human ubiquitin-specific proteases. Biochem. Biophys. Res. Commun. 314: 54-62.
5. Azzato, E.M., Driver, K.E., Lesueur, F., Shah, M., Greenberg, D., Easton, D.F., Teschendorff, A.E., Caldas, C., Caporaso, N.E. and Pharoah, P.D. 2008. Effects of common germline genetic variation in cell cycle control genes on breast cancer survival: results from a population-based cohort. Breast Cancer Res. 10: R47.
6. Hochstrasser, M. 2009. Origin and function of ubiquitin-like proteins. Nature 458: 422-429.

CHROMOSOMAL LOCATION

Genetic locus: USP49 (human) mapping to 6p21.1.

PRODUCT

USP49 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 USP49 shRNA Plasmid (h): sc-76867-SH and USP49 shRNA (h) Lentiviral Particles: sc-76867-V as alternate gene silencing products.

For independent verification of USP49 (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-76867A, sc-76867B and sc-76867C.

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

USP49 siRNA (h) is recommended for the inhibition of USP49 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 USP49 gene expression knockdown using RT-PCR Primer: USP49 (h)-PR: sc-76867-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. Shen, W.M., Yin, J.N., Xu, R.J., Xu, D.F. and Zheng, S.Y. 2019. Ubiquitin specific peptidase 49 inhibits non-small cell lung cancer cell growth by suppressing PI3K/Akt signaling. Kaohsiung J. Med. Sci. 35: 401-407.

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.