SANTA CRUZ BIOTECHNOLOGY, INC.

SOSTDC1 siRNA (r): sc-270426

BACKGROUND

SOSTDC1 (sclerostin domain-containing protein 1), also known as USAG1, CDA019 or ECTODIN, is a 206 amino acid secreted protein that is highly expressed in kidney and weakly in lung. Belonging to the sclerostin family, SOSTDC1 may be involved in the onset of endometrial receptivity for implantation and sensitization for the decidual cell reaction. SOSTDC1 enhances Wnt signaling and inhibits TGFβ signaling. It is suggested that SOSTDC1 functions as a bone morphogenetic protein (BMP) antagonist. SOSTDC1 directly associates with BMPs, prohibiting them from binding their receptors, thereby regulating BMP signaling during cellular proliferation, differentiation and programmed cell death. SOSTDC1 contains one CTCK (C-terminal cystine knot-like) domain.

REFERENCES

1. Löwik, C.W. and van Bezooijen, R.L. 2006. Wnt signaling is involved in the inhibitory action of sclerostin on BMP-stimulated bone formation. J. Musculoskelet. Neuronal Interact. 6: 357.
2. Yanagita, M. 2006. Modulator of bone morphogenetic protein activity in the progression of kidney diseases. Kidney Int. 70: 989-993.
3. Murashima-Suginami, A., Takahashi, K., Kawabata, T., Sakata, T., Tsukamoto, H., Sugai, M., Yanagita, M., Shimizu, A., Sakurai, T., Slavkin, H.C. and Bessho, K. 2007. Rudiment incisors survive and erupt as supernumerary teeth as a result of USAG-1 abrogation. Biochem. Biophys. Res. Commun. 359: 549-555.
4. Maeda, K., Lee, D.S., Yanagimoto Ueta, Y. and Suzuki, H. 2007. Expression of uterine sensitization-associated gene-1 (USAG-1) in the mouse uterus during the peri-implantation period. J. Reprod. Dev. 53: 931-936.
5. Murashima-Suginami, A., Takahashi, K., Sakata, T., Tsukamoto, H., Sugai, M., Yanagita, M., Shimizu, A., Sakurai, T., Slavkin, H.C. and Bessho, K. 2008. Enhanced BMP signaling results in supernumerary tooth formation in USAG-1 deficient mouse. Biochem. Biophys. Res. Commun. 369: 1012-1016.
6. Tanaka, M., Endo, S., Okuda, T., Economides, A.N., Valenzuela, D.M., Murphy, A.J., Robertson, E., Sakurai, T., Fukatsu, A., Yancopoulos, G.D., Kita, T. and Yanagita, M. 2008. Expression of BMP-7 and USAG-1 (a BMP antagonist) in kidney development and injury. Kidney Int. 73: 181-191.
7. Munne, P.M., Tummers, M., Järvinen, E., Thesleff, I. and Jernvall, J. 2009. Tinkering with the inductive mesenchyme: SOSTDC1 uncovers the role of dental mesenchyme in limiting tooth induction. Development 136: 393-402.
8. Lintern, K.B., Guidato, S., Rowe, A., Saldanha, J.W. and Itasaki, N. 2009. Characterization of wise protein and its molecular mechanism to interact with both WNT and BMP signals. J. Biol. Chem. 284: 23159-23168.
9. Turk, T., Leeuwis, J.W., Gray, J., Torti, S.V., Lyons, K.M., Nguyen, T.Q. and Goldschmeding, R. 2009. BMP signaling and podocyte markers are decreased in human diabetic nephropathy in association with CTGF overexpression. J. Histochem. Cytochem. 57: 623-631.

CHROMOSOMAL LOCATION

Genetic locus: Sostdc1 (rat) mapping to 6q16.

PRODUCT

SOSTDC1 siRNA (r) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SOSTDC1 shRNA Plasmid (r): sc-270426-SH and SOSTDC1 shRNA (r) Lentiviral Particles: sc-270426-V as alternate gene silencing products.

For independent verification of SOSTDC1 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270426A and sc-270426B.

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

SOSTDC1 siRNA (r) is recommended for the inhibition of SOSTDC1 expression in rat 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 SOSTDC1 gene expression knockdown using RT-PCR Primer: SOSTDC1 (r)-PR: sc-270426-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.