SANTA CRUZ BIOTECHNOLOGY, INC.

RB1CC1 siRNA (h): sc-38211

BACKGROUND

The protein RB1CC1 (retinoblastoma 1 (RB1)-inducible coiled-coil 1) is a key regulator of the tumor-suppressor gene RB1. RB1CC1 is abundantly expressed in human musculoskeletal and cultured osteosarcoma cells in amounts closely correlated to RB1 expression. Both the RB1CC1 and RB1 genes are preferentially co-expressed and contribute to the maturation of human embryonic musculoskeletal cells. RB1CC1 is localized in the nucleus and may be a transcription factor indicated by the presence of its nuclear localization signal, leucine zipper motif and coiled-coil structure (a ubiquitous protein folding and assembly motif made of α-helices wrapped around each other to form a supercoil). The RB1CC1 gene has been identified in a screen for genes involved in multidrug resistance to anticancer agents and is frequently mutated in breast cancer, showing characteristics of a tumor-suppressor gene. In mouse, Rb1cc1 protein is highly expressed in heart and testis, with lower levels detected in lung and spleen.

REFERENCES

1. Chano, T., et al. 2002. Truncating mutations of RB1CC1 in human breast cancer. Nat. Genet. 31: 285-288.
2. Chano, T., et al. 2002. Identification of RB1CC1, a novel human gene that can induce RB1 in various human cells. Oncogene 21: 1295-1298.
3. Chano, T., et al. 2002. Preferential expression of RB1-inducible coiled-coil 1 in terminal differentiated musculoskeletal cells. Am. J. Pathol. 161: 359-364.
4. Yu, Y. 2002. Coiled-coils: stability, specificity, and drug delivery potential. Adv. Drug Deliv. Rev. 54: 1113-1129.

CHROMOSOMAL LOCATION

Genetic locus: RB1CC1 (human) mapping to 8q11.23.

PRODUCT

RB1CC1 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 RB1CC1 shRNA Plasmid (h): sc-38211-SH and RB1CC1 shRNA (h) Lentiviral Particles: sc-38211-V as alternate gene silencing products.

For independent verification of RB1CC1 (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-38211A, sc-38211B and sc-38211C.

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

RB1CC1 siRNA (h) is recommended for the inhibition of RB1CC1 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 RB1CC1 gene expression knockdown using RT-PCR Primer: RB1CC1 (h)-PR: sc-38211-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. Bakula, D., et al. 2017. WIPI3 and WIPI4 β-propellers are scaffolds for LKB1-AMPK-TSC signalling circuits in the control of autophagy. Nat. Commun. 8: 15637.
2. Rosenthal, C.K. 2017. EGFR probes matrix stiffness. Nat. Cell Biol. 19: 600.
3. Turan, A., et al. 2019. Autophagic degradation of lamins facilitates the nuclear egress of herpes simplex virus type 1. J. Cell Biol. 218: 508-523.
4. Mohamud, Y., et al. 2020. Coxsackievirus infection induces a non-canonical autophagy independent of the ULK and PI3K complexes. Sci. Rep. 10: 19068.
5. Hao, M., et al. 2021. Autophagy blockade limits HER2+ breast cancer tumorigenesis by perturbing HER2 trafficking and promoting release via small extracellular vesicles. Dev. Cell 56: 341-355.e5.
6. Chen, Y., et al. 2022. Autophagy inhibition by TSSC4 (tumor suppressing subtransferable candidate 4) contributes to sustainable cancer cell growth. Autophagy 18: 1274-1296.
7. Holm, T.M., et al. 2022. Inhibition of autophagy mitigates cell migration and invasion in thyroid cancer. Surgery 171: 235-244.

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.