SANTA CRUZ BIOTECHNOLOGY, INC.

Calumenin siRNA (h): sc-60320

BACKGROUND

Caluminin is a 315 amino acid Ca^{2+}-binding member of the CREC, EF-hand protein family. Calumenin is a secreted protein that contains six Ca^{2+}-binding (EF-hand) motifs and is expressed in the lumen of the endoplasmic reticulum (ER) and Golgi apparatus. In the presence of Ca^{2+}, Calumenin interacts with serum amyloid P component (SAP) and, together, they may play a role in the immunological defense system and participate in amyloidosis, the pathological formation of amyloid deposits in different types of tissues. Calumenin has an inhibitory effect on the vitamin K-dependent γ-carboxylation system which converts vitamin K-dependent proteins to Gla-containing proteins. Calumenin may also be involved in the pathophysiology of thrombosis and/or wound healing by acting in an autocrine or paracrine manner.

REFERENCES

1. Yabe, D., et al. 1997. Calumenin, a Ca^{2+}-binding protein retained in the endoplasmic reticulum with a novel carboxyl-terminal sequence, HDEF. J. Biol. Chem. 272: 18232-18239.
2. Vorum, H., et al. 1999. Human Calumenin localizes to the secretory pathway and is secreted to the medium. Exp. Cell Res. 248: 473-481.
3. Vorum, H., et al. 2000. Calumenin interacts with serum amyloid P component. FEBS Lett. 465: 129-134.
4. Jung, D.H., et al. 2004. Characterization of isoforms and genomic organization of mouse Calumenin. Gene 327: 185-194.
5. Wajih, N., et al. 2004. The inhibitory effect of Calumenin on the vitamin K-dependent γ-carboxylation system. Characterization of the system in normal and warfarin-resistant rats. J. Biol. Chem. 279: 25276-25283.

CHROMOSOMAL LOCATION

Genetic locus: CALU (human) mapping to 7q32.1.

PRODUCT

Calumenin 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 Calumenin shRNA Plasmid (h): sc-60320-SH and Calumenin shRNA (h) Lentiviral Particles: sc-60320-V as alternate gene silencing products.

For independent verification of Calumenin (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-60320A, sc-60320B and sc-60320C.

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

Calumenin siRNA (h) is recommended for the inhibition of Calumenin 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.

GENE EXPRESSION MONITORING

Calumenin (F-8): sc-271357 is recommended as a control antibody for monitoring of Calumenin 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 Calumenin gene expression knockdown using RT-PCR Primer: Calumenin (h)-PR: sc-60320-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. Philippe, R., et al. 2017. Calumenin contributes to ER-Ca^{2+} homeostasis in bronchial epithelial cells expressing WT and F508del mutated CFTR and to F508del-CFTR retention. Cell Calcium 62: 47-59.
2. Philippe, R., et al. 2019. Measuring Calumenin impact on ER-calcium depletion using transient Calumenin overexpression and silencing. Methods Mol. Biol. 1929: 539-550.

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.