SANTA CRUZ BIOTECHNOLOGY, INC.

Annexin II siRNA (h2): sc-270151

BACKGROUND

The annexin family of calcium-binding proteins is composed of at least ten mammalian genes and is characterized by a conserved core domain which binds phospholipids in a Ca^{2+}-dependent manner, and a unique amino-terminal region which may confer binding specificity. The interaction between these proteins and biological membranes have led to the hypothesis that they are involved in cellular trafficking processes such as endocytosis, exocytosis and cellular adhesion. Annexin I, alternatively referred to as lipocortin, has been implicated as a mediator of the anti-inflammatory response produced by glucocorticoids and as an inhibitor of $cPLA_2$, a potent mediator of inflammation. Annexin II, also called p36, has been shown to exist as a monomer or a heterotetramer, complexed with the S-100-related protein p11. This complex is termed calpactin I. In the tetrameric form, Annexin II is an efficient substrate of the PKC family and Src pp60.

REFERENCES

1. Smith, P.D. and Moss, S.E. 1994. Structural evolution of the annexin supergene family. Trends Genet. 10: 241-246.
2. Waisman, D.M. 1995. Annexin II tetramer: structure and function. Mol. Cell. Biochem. 149-150: 301-332.
3. McLeod, J.D. and Bolton, C. 1995. Dexamethasone induces an increase in intracellular and membrane-associated lipocortin 1 (Annexin I) in rat astrocyte primary cultures. Cell. Mol. Neurobiol. 15: 193-205.
4. Hubaishy, I., et al. 1995. Modulation of Annexin II tetramer by tyrosine phosphorylation. Biochemistry 34: 14527-14534.

CHROMOSOMAL LOCATION

Genetic locus: ANXA2 (human) mapping to 15q22.2.

PRODUCT

Annexin II siRNA (h2) 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 Annexin II shRNA Plasmid (h2): sc-270151-SH and Annexin II shRNA (h2) Lentiviral Particles: sc-270151-V as alternate gene silencing products.

For independent verification of Annexin II (h2) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270151A, sc-270151B and sc-270151C.

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

Annexin II siRNA (h2) is recommended for the inhibition of Annexin II 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

Annexin II (C-10): sc-28385 is recommended as a control antibody for monitoring of Annexin II 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Annexin II gene expression knockdown using RT-PCR Primer: Annexin II (h2)-PR: sc-270151-PR (20 µl, 598 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Cui, L., et al. 2017. Role of Annexin A2 in the EGF-induced epithelial-mesenchymal transition in human CaSki cells. Oncol. Lett. 13: 377-383.
2. Shah, N., et al. 2018. Extracellular vesicle-mediated long-range communication in stressed retinal pigment epithelial cell monolayers. Biochim. Biophys. Acta Mol. Basis Dis. 1864: 2610-2622.
3. Wang, K., et al. 2018. Identification of ANXA2 (Annexin A2) as a specific bleomycin target to induce pulmonary fibrosis by impeding TFEB-mediated autophagic flux. Autophagy 14: 269-282.
4. Li, W., et al. 2019. Annexin A2 is a Robo4 ligand that modulates ARF6 activation-associated cerebral *trans*-endothelial permeability. J. Cereb. Blood Flow Metab. 39: 2048-2060.
5. Mukhopadhyay, S., et al. 2020. Identification of Annexin A2 as a key mTOR target to induce autophagy to autophagy dependent cell death in stress. Biochim. Biophys. Acta Mol. Basis Dis. 1866: 165952.
6. Király, N., et al. 2021. Dephosphorylation of annexin A2 by protein phosphatase 1 regulates endothelial cell barrier. IUBMB Life 73: 1257-1268.

RESEARCH USE

For research use only, not for use in diagnostic procedures.