SANTA CRUZ BIOTECHNOLOGY, INC.

Cox-2 siRNA (m): sc-29278

BACKGROUND

Prostaglandins are a diverse group of autocrine and paracrine hormones that mediate many cellular and physiologic processes. Prostaglandin H2 (PGH2) is an intermediate molecule in formation of the prostaglandins. Cyclooxygenase-1 (Cox-1) and cyclooxygenase-2 (Cox-2) are prostaglandin synthases that catalyze the formation of PGH2 from arachidonic acid (AA). Cox-1 and Cox-2 are isozymes of prostaglandin-endoperoxidase synthase (PTGS). Cox-1 is constitutively expressed in most tissues and is thought to serve in general "housekeeping" functions. Cox-2 is efficiently induced in migratory cells responding to pro-inflammatory stimuli and is considered to be an important mediator of inflammation. Both enzymes are targets for the nonsteroidal therapeutic anti-inflammatory drugs, NSAIDs.

CHROMOSOMAL LOCATION

Genetic locus: Ptgs2 (mouse) mapping to 1 G1.

PRODUCT

Cox-2 siRNA (m) is a pool of 4 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 Cox-2 shRNA Plasmid (m): sc-29278-SH and Cox-2 shRNA (m) Lentiviral Particles: sc-29278-V as alternate gene silencing products.

For independent verification of Cox-2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-29278A, sc-29278B, sc-29278C and sc-29278D.

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

Cox-2 siRNA (m) is recommended for the inhibition of Cox-2 expression in mouse 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

Cox-2 (H-3): sc-376861 is recommended as a control antibody for monitoring of Cox-2 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 Cox-2 gene expression knockdown using RT-PCR Primer: Cox-2 (m)-PR: sc-29278-PR (20 µl, 499 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pavlovic, S., et al. 2006. Targeting prostaglandin E2 receptors as an alternative strategy to block cyclooxygenase-2-dependent extracellular matrix-induced matrix metalloproteinase-9 expression by macrophages. J. Biol. Chem. 281: 3321-3328.
2. Basu, S., et al. 2007. Mycobacterium avium-induced matrix metalloproteinase-9 expression occurs in a cyclooxygenase-2-dependent manner and involves phosphorylation- and acetylation-dependent chromatin modification. Cell. Microbiol. 9: 2804-2816.
3. Taketa, K., et al. 2008. Oxidized low density lipoprotein activates peroxisome proliferator-activated receptor-α (PPARα) and PPARγ through MAPK-dependent Cox-2 expression in macrophages. J. Biol. Chem. 283: 9852-9862.
4. Zhang, F., et al. 2010. Interleukin-17A induces cathepsin K and MMP-9 expression in osteoclasts via celecoxib-blocked prostaglandin E2 in osteoblasts. Biochimie 93: 296-305.
5. Ho, M.Y., et al. 2014. Recombinant viral capsid protein VP1 suppresses lung cancer metastasis by inhibiting Cox-2/PGE2 and MIG-7. Oncotarget 5: 3931-3943.
6. Alam, S., et al. 2014. EGFR-mediated Akt and MAPKs signal pathways play a crucial role in patulin-induced cell proliferation in primary murine keratinocytes via modulation of cyclin D1 and Cox-2 expression. Mol. Carcinog. 53: 988-998.
7. Su, W., et al. 2015. Culture medium from TNF-α-stimulated mesenchymal stem cells attenuates allergic conjunctivitis through multiple antiallergic mechanisms. J. Allergy Clin. Immunol. 136: 423-432.
8. Kim, K.M., et al. 2016. Timosaponin AIII inhibits melanoma cell migration by suppressing Cox-2 and *in vivo* tumor metastasis. Cancer Sci. 107: 181-188.
9. Alfajaro, M.M., et al. 2018. Feline calicivirus- and murine norovirus-induced Cox-2/PGE2 signaling pathway has proviral effects. PLoS ONE 13: e0200726.
10. Jamal, F., et al. 2023. Potential of siRNA-bearing subtilosomes in the treatment of diethylnitrosamine-induced hepatocellular carcinoma. Molecules 28: 2191.

RESEARCH USE

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