SANTA CRUZ BIOTECHNOLOGY, INC.

CARD 12 siRNA (m): sc-60329

BACKGROUND

Membrane-associated guanylate kinase (MAGUK) family members localize to the plasma membrane and function as molecular scaffolds for the assembly of multi-protein complexes. The MAGUK family includes several mammalian proteins related to the *Drosophila* tumor suppressor discs-large (dlg) gene product such as postsynaptic proteins, GKAPs, the tight junction associated proteins (ZO-1–3), and the caspase-associated recruitment domain (CARD) proteins: CARD 6, CARD 8-12 and CARD 14. CARD 12 is expressed at high levels in bone marrow, and expressed at lower levels in lymph node, placenta, spleen, and brain tissues. CARD12 regulates the activation of caspase-1, a caspase that plays a role in both apoptotic signaling and cytokine processing. The nucleotide-binding site domain of CARD 12 is specific for ATP/dATP. CARD 12 associates with itself and with ASC, an associated speck-like protein containing a CARD, recently identified as a proapoptotic protein. Together, they induce apoptosis and inflammatory signaling pathways.

REFERENCES

1. Geddes, B.J., et al. 2001. Human CARD 12 is a novel CED4/Apaf-1 family member that induces apoptosis. Biochem. Biophys. Res. Commun. 284: 77-82.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606831. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Damiano, J.S., et al. 2004. Multiple roles of CLAN (caspase-associated recruitment domain, leucine-rich repeat, and NAIP CIIA HET-E, and TP1-containing protein) in the mammalian innate immune response. J. Immunol. 173: 6338-6345.
4. Gutierrez, O., et al. 2004. Ipaf is upregulated by tumor necrosis factor-α in human leukemia cells. FEBS Lett. 568: 79-82.
5. Wang, Y., et al. 2004. PYNOD, a novel Apaf-1/CED4-like protein is an inhibitor of ASC and caspase-1. Int. Immunol. 16: 777-786.
6. Hasegawa, M., et al. 2005. ASC-mediated NFκB activation leading to interleukin-8 production requires caspase-8 and is inhibited by CLARP. J. Biol. Chem. 280: 15122-15130.

CHROMOSOMAL LOCATION

Genetic locus: Nlrc4 (mouse) mapping to 17 E2.

PRODUCT

CARD 12 siRNA (m) 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 CARD 12 shRNA Plasmid (m): sc-60329-SH and CARD 12 shRNA (m) Lentiviral Particles: sc-60329-V as alternate gene silencing products.

For independent verification of CARD 12 (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-60329A, sc-60329B and sc-60329C.

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

CARD 12 siRNA (m) is recommended for the inhibition of CARD 12 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CARD 12 gene expression knockdown using RT-PCR Primer: CARD 12 (m)-PR: sc-60329-PR (20 µl, 543 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. McClellan, S.A., et al. 2017. NLRC4 regulates caspase-1 and IL-1β production in a $CD11b^{low}Ly6G^{low}$ population of cells required for resistance to *Pseudomonas aeruginosa* keratitis. PLoS ONE 12: e0185718.
2. Poh, L., et al. 2019. Evidence that NLRC4 inflammasome mediates apoptotic and pyroptotic microglial death following ischemic stroke. Brain Behav. Immun. 75: 34-47.
3. Baik, J.S., et al. 2022. Involvement of the p38 MAPK-NLRC4-caspase-1 pathway in ionizing radiation-enhanced macrophage IL-1β production. Int. J. Mol. Sci. 23: 13757.
4. Lin, T., et al. 2022. NET-triggered NLRP3 activation and IL-18 release drive oxaliplatin-induced peripheral neuropathy. Cancer Immunol. Res. E-published.

RESEARCH USE

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