SANTA CRUZ BIOTECHNOLOGY, INC.

CD38 siRNA (m): sc-37246

BACKGROUND

CD38 is a type II integral membrane glycoprotein which is present on early B and T cell lineages and activated B and T cells but is absent from most mature resting peripheral lymphocytes. CD38 is also found on thymocytes, pre-B cells, germinal center B cells, mitogen-activated T cells, monocytes and Ig-secreting plasma cells. CD38 acts as a NAD glycohydrolase in T lymphocytes. On hematopoietic cells CD38 induces activation, proliferation, and differentiation of mature T and B cells and mediates apoptosis of myeloid and lymphoid progenitor cells. In addition to acting as a signaling receptor, CD38 is also an enzyme capable of producing several calcium-mobilizing metabolites, including cyclic adenosine diphosphate ribose (cADPR). CD38 also plays a role in maintaining survival of an invariant NK T (iNKT) cell subset that preferentially contributes to the maintenance of immunological tolerance.

REFERENCES

1. Alessio, M., et al. 1990. CD38 molecule: structural and biochemical analysis on human T lymphocytes, thymocytes, and plasma cells. J. Immunol. 145: 878-884.
2. Harada, N., et al. 1993. Expression cloning of a cDNA encoding a no homology to human CD38. J. Immunol. 151: 3111-3118.
3. Santos-Argumedo, L., et al. 1993. A B lymphocyte surface molecule mediating activation and protection from apoptosis via calcium channels. J. Immunol. 151: 3119-3130.

CHROMOSOMAL LOCATION

Genetic locus: Cd38 (mouse) mapping to 5 B3.

PRODUCT

CD38 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 CD38 shRNA Plasmid (m): sc-37246-SH and CD38 shRNA (m) Lentiviral Particles: sc-37246-V as alternate gene silencing products.

For independent verification of CD38 (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-37246A, sc-37246B and sc-37246C.

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.

RESEARCH USE

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

APPLICATIONS

CD38 siRNA (m) is recommended for the inhibition of CD38 expression in 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

CD38 (H-11): sc-374650 is recommended as a control antibody for monitoring of CD38 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 CD38 gene expression knockdown using RT-PCR Primer: CD38 (m)-PR: sc-37246-PR (20 µl, 502 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Song, E.K., et al. 2008. Extracellular NAD is a regulator for FcγR-mediated phagocytosis in murine macrophages. Biochem. Biophys. Res. Commun. 367: 156-161.
2. Song, E.K., et al. 2011. Connexin-43 hemichannels mediate cyclic ADP-ribose generation and its Ca^{2+}-mobilizing activity by NAD^{+}/cyclic ADP-ribose transport. J. Biol. Chem. 286: 44480-44490.
3. Hayakawa, K., et al. 2016. Transfer of mitochondria from astrocytes to neurons after stroke. Nature 535: 551-555.
4. Li, J.P., et al. 2020. Regulation of NLRP3 inflammasome by CD38 through cADPR-mediated Ca^{2+} release in vascular smooth muscle cells in diabetic mice. Life Sci. 255: 117758.
5. Wang, Y., et al. 2020. Activation of astrocytic σ-1 receptor exerts antidepressant-like effect via facilitating CD38-driven mitochondria transfer. Glia 68: 2415-2426.
6. Park, J.H., et al. 2023. O-GlcNAcylation is essential for therapeutic mitochondrial transplantation. Commun. Med. 3: 169.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.