

CD38 siRNA (r): sc-270394

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 novel murine B cell activation marker. 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.
4. Howard, M., et al. 1993. Formation and hydrolysis of cyclic ADP-ribose catalyzed by lymphocyte antigen CD38. *Science* 262: 1056-1059.
5. Lund, F., et al. 1995. Murine CD38: an immunoregulatory ectoenzyme. *Immunol. Today* 16: 469-473.
6. Kirkham, P.A., et al. 1995. Murine B-cell activation via CD38 and protein tyrosine phosphorylation. *Immunology* 83: 513-516.
7. Bean, A.G., et al. 1995. CD38 expression on mouse T cells: CD38 defines functionally distinct subsets of $\alpha\beta$ TCR⁺CD4⁺CD8⁻ thymocytes. *Int. Immunol.* 7: 213-221.
8. Kumagai, M., et al. 1995. Ligation of CD38 suppresses human B lymphopoiesis. *J. Exp. Med.* 181: 1101-1110.

CHROMOSOMAL LOCATION

Genetic locus: Cd38 (rat) mapping to 14q21.

PRODUCT

CD38 siRNA (r) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CD38 shRNA Plasmid (r): sc-270394-SH and CD38 shRNA (r) Lentiviral Particles: sc-270394-V as alternate gene silencing products.

For independent verification of CD38 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270394A, sc-270394B and sc-270394C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CD38 siRNA (r) is recommended for the inhibition of CD38 expression in rat 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 μ M in 66 μ l. 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 CD38 gene expression knockdown using RT-PCR Primer: CD38 (r)-PR: sc-270394-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hayakawa, K., et al. 2016. Transfer of mitochondria from astrocytes to neurons after stroke. *Nature* 535: 551-555.

RESEARCH USE

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