SANTA CRUZ BIOTECHNOLOGY, INC.

NKG2-C siRNA (h): sc-72387

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The Power to Question

BACKGROUND

The activity of natural killer (NK) cells is regulated by members of multiple receptor families that recognize class I MHC molecules, such as the killer cell inhibitory receptor/leukocyte immunoglobulin-like receptor (KIR/LIR) family and the C-type lectin superfamily. CD94, NKG2 and Ly-49 are members of the C-type lectin superfamily of type II membrane glycoproteins. NKG2-C, also known as killer cell lectin-like receptor subfamily C member 2 (KLRC2), belongs to the NKG2 family of genes. It forms a heterodimer with CD94 and through this interaction is then transported to the surface of NK cells. At the surface, the CD94/NKG2-C non-covalently associates with DAP12 for efficient expression. Upon binding of the receptor ligand HLA-E to the CD94/NKG2-C heterodimeric receptor, NK cell cytolytic activity is activated.

REFERENCES

1. Houchins, J.P., Lanier, L.L., Niemi, E.C., Phillips, J.H. and Ryan, J.C. 1997. Natural killer cell cytolytic activity is inhibited by NKG2-A and activated by NKG2-C. J. Immunol. 158: 3603-3609.
2. Lanier, L.L., Corliss, B., Wu, J. and Phillips, J.H. 1998. Association of DAP12 with activating CD94/NKG2C NK cell receptors. Immunity 8: 693-701.
3. Braud, V.M., Allan, D.S., O'Callaghan, C.A., Söderström, K., D'Andrea, A., Ogg, G.S., Lazetic, S., Young, N.T., Bell, J.I., Phillips, J.H., Lanier, L.L. and McMichael, A.J. 1998. HLA-E binds to natural killer cell receptors CD94/NKG2A, B and C. Nature 391: 795-799.
4. Plougastel, B. and Trowsdale, J. 1998. Sequence analysis of a 62-kb region overlapping the human KLRC cluster of genes. Genomics 49: 193-199.
5. Glienke, J., Sobanov, Y., Brostjan, C., Steffens, C., Nguyen, C., Lehrach, H., Hofer, E. and Francis, F. 1998. The genomic organization of NKG2C, E, F, and D receptor genes in the human natural killer gene complex. Immunogenetics 48: 163-173.
6. Shum, B.P., Flodin, L.R., Muir, D.G., Rajalingam, R., Khakoo, S.I., Cleland, S., Guethlein, L.A., Uhrberg, M. and Parham, P. 2001. Conservation and variation in human and common chimpanzee CD94 and NKG2 genes. J. Immunol. 168: 240-252.
7. Hikami, K., Tsuchiya, N., Yabe, T. and Tokunaga, K. 2003. Variations of human killer cell lectin-like receptors: common occurrence of NKG2-C deletion in the general population. Genes Immun. 4: 160-167.
8. Ortega, C., Romero, P., Palma, A., Orta, T., Peña, J., García-Vinuesa, A., Molina, I.J. and Santamaría, M. 2004. Role for NKG2-A and NKG2-C surface receptors in chronic $CD4^+$ T-cell responses. Immunol. Cell Biol. 82: 587-595.
9. Gumá, M., Busch, L.K., Salazar-Fontana, L.I., Bellosillo, B., Morte, C., García, P. and López-Botet, M. 2005. The CD94/NKG2C killer lectin-like receptor constitutes an alternative activation pathway for a subset of $CD8^+$ T cells. Eur. J. Immunol. 35: 2071-2080.

CHROMOSOMAL LOCATION

Genetic locus: KLRC2 (human) mapping to 12p13.2.

RESEARCH USE

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

PRODUCT

NKG2-C siRNA (h) is a target-specific 19-25 nt siRNA 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 NKG2-C shRNA Plasmid (h): sc-72387-SH and NKG2-C shRNA (h) Lentiviral Particles: sc-72387-V as alternate gene silencing products.

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

NKG2-C siRNA (h) is recommended for the inhibition of NKG2-C 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

NKG2-C (L45): sc-80237 is recommended as a control antibody for monitoring of NKG2-C 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 NKG2-C gene expression knockdown using RT-PCR Primer: NKG2-C (h)-PR: sc-72387-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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