SANTA CRUZ BIOTECHNOLOGY, INC.

granzyme K siRNA (h): sc-60759

BACKGROUND

The granzyme family of proteins belong to the larger peptidase S_1 family. granzyme A and granzyme B are serine proteases that facilitate apoptotic signaling in cytotoxic T lymphocytes (CTL) and natural killer (NK) cells. Within the granules of activated CTLs, granzyme A and granzyme B are processed and converted to their active forms by the lysosomal cysteine protease cathepsin C. Once cleaved, these active proteases target distinct substrates for proteolysis and, thereby, mediate apoptosis through two different pathways. granzyme H localizes to cytoplasmic granules of cytolytic T lymphocytes and is important for target cell lysis in cell-mediated immune responses. granzyme K (GMZK), also designated granzyme 3 or NK-Tryptase-2 (NK-TRYP-2), contains one peptidase S_1 domain. granzyme K is a serine protease localizing to the granules of natural killer cells and cytotoxic T lymphocytes. It is primarily expressed in thymus, lung, spleen and peripheral blood leukocytes.

REFERENCES

1. Hameed, A., et al. 1988. Characterization of three serine esterases isolated from human IL-2 activated killer cells. J. Immunol. 141: 3142-3147.
2. Shi, L., et al. 1993. Purification of three cytotoxic lymphocyte granule serine proteases that induce apoptosis through distinct substrate and target cell interactions. J. Exp. Med. 176: 1521-1529.
3. Przetak, M.M., et al. 1995. Cloning of cDNA for human granzyme 3. FEBS Lett. 364: 268-271.
4. Sayers, T.J., et al. 1996. Cloning and expression of a second human natural killer cell granule tryptase, HNK-Tryp-2/granzyme 3. J. Leukoc. Biol. 59: 763-768.
5. Wilharm, E., et al. 1999. Generation of catalytically active granzyme K from *Escherichia coli* inclusion bodies and identification of efficient granzyme K inhibitors in human plasma. J. Biol. Chem. 274: 27331-27337.
6. Hink-Schauer, C., et al. 2002. The 2.2-A crystal structure of human pro-granzyme K reveals a rigid zymogen with unusual features. J. Biol. Chem. 277: 50923-50933.

CHROMOSOMAL LOCATION

Genetic locus: GZMK (human) mapping to 5q11.2.

PRODUCT

granzyme K siRNA (h) 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 granzyme K shRNA Plasmid (h): sc-60759-SH and granzyme K shRNA (h) Lentiviral Particles: sc-60759-V as alternate gene silencing products.

For independent verification of granzyme K (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-60759A, sc-60759B and sc-60759C.

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

granzyme K siRNA (h) is recommended for the inhibition of granzyme K 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

granzyme K (GM6C3): sc-56125 is recommended as a control antibody for monitoring of granzyme K 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 granzyme K gene expression knockdown using RT-PCR Primer: granzyme K (h)-PR: sc-60759-PR (20 µl, 565 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jiang, W., et al. 2011. Unexpected role for granzyme K in CD56^{bright} NK cell-mediated immunoregulation of multiple sclerosis. J. Immunol. 187: 781-790.

RESEARCH USE

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

PROTOCOLS

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