SANTA CRUZ BIOTECHNOLOGY, INC.

GP2 siRNA (m): sc-145676

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GP2 (glycoprotein 2), also known as ZAP75, is a 537 amino acid secreted protein that is expressed in pancreatic secretory (zymogen) granules, and is cleaved then released into the pancreatic duct along with exocrine secretions. GP2 interacts with syncollin and to type 1 fimbria of bacteria, a bacterial adhesin that is commonly expressed by members of the Enterobacteriacae family. Containing an EGF-like domain and a ZP domain, GP2 is also expressed on the apical plasma membrane of specialized microfold (M) cells among enterocytes and serves as a transcytotic receptor for mucosal antigens. M cells are considered a promising target for oral vaccination against various infectious diseases, and the GP2-dependent transcytotic pathway may provide a new target for the development of M-cell-targeted mucosal vaccines. GP2 exists as four alternatively spliced isoforms that are desginated isoform 1, isoform β, isoform α and isoform 2.

REFERENCES

1. Fukuoka, S., et al. 1991. A single gene encodes membrane-bound and free forms of GP2, the major glycoprotein in pancreatic secretory (zymogen) granule membranes. Proc. Natl. Acad. Sci. USA 88: 2898-2902.
2. Fukuoka, S., et al. 1992. GP-2/THP gene family encodes self-binding glycosylphosphatidylinositol-anchored proteins in apical secretory compartments of pancreas and kidney. Proc. Natl. Acad. Sci. USA 89: 1189-1193.
3. Wong, S.M. and Lowe, A.W. 1996. Sequence of the cDNA encoding human GP2, the major membrane protein in the secretory granule of the exocrine pancreas. Gene 171: 311-312.
4. Fukuoka, S.I., et al. 1997. Assignment of pancreatic zymogen granule membrane protein GP2 (GP2) to human chromosome band 9q21.11 to q21.2 by *in situ* hybridization. Cytogenet. Cell Genet. 79: 231-232.
5. Chen, H. and Schifferli, D.M. 2000. Mucosal and systemic immune responses to chimeric fimbriae expressed by *Salmonella enterica* serovar typhimurium vaccine strains. Infect. Immun. 68: 3129-3139.
6. Yang, H., et al. 2004. Identification and characterization of D8C, a novel domain present in liver-specific LZP, uromodulin and glycoprotein 2, mutated in familial juvenile hyperuricaemic nephropathy. FEBS Lett. 578: 236-238.
7. Man, A.L., et al. 2004. Improving M cell mediated transport across mucosal barriers: do certain bacteria hold the keys? Immunology 113: 15-22.
8. Yu, S. and Lowe, A.W. 2009. The pancreatic zymogen granule membrane protein, GP2, binds *Escherichia coli* type 1 fimbriae. BMC Gastroenterol. 9: 58.
9. Hase, K., et al. 2009. Uptake through glycoprotein 2 of FimH$^+$ bacteria by M cells initiates mucosal immune response. Nature 462: 226-230.

CHROMOSOMAL LOCATION

Genetic locus: Gp2 (mouse) mapping to 7 F2.

RESEARCH USE

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

PRODUCT

GP2 siRNA (m) 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 GP2 shRNA Plasmid (m): sc-145676-SH and GP2 shRNA (m) Lentiviral Particles: sc-145676-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

GP2 siRNA (m) is recommended for the inhibition of GP2 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 GP2 gene expression knockdown using RT-PCR Primer: GP2 (m)-PR: sc-145676-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.