

PC2 siRNA (h): sc-40884

BACKGROUND

The subtilisin-like prohormone convertase (PC) family mediates the cleavage of latent precursor proteins into their biologically active forms. This is a tightly regulated process that leads to the generation of various active peptides and proteins, including neuropeptides, polypeptide hormones, protein tyrosine phosphatases, growth factors and their receptors, and enzymes such as matrix metalloproteinases (MMPs). These processing reactions occur at pairs of basic amino acids. The members of the PC family include furin, PC1/3, PC2, PC4, PACE4, PC5/6, and PC7/8 (also designated lymphoma proprotein convertase or LPC), all of which share homology to the bacterial subtilisin and yeast kexin families of endoproteases. PC1/3, also designated neuroendocrine 1 (NEC1), and PC2, also designated neuroendocrine 2 (NEC2), are widely expressed in neuroendocrine tissues, and are principally involved in the processing of hormonal and neural peptides. The human PC2 gene maps to chromosome 20p12.1, and is expressed in pancreatic islets, pituitary, and brain as a precursor protein and a mature form. Cleavage of proPC2 is dependent upon its interaction with 7B2, a cofactor that acts as both an activator and inhibitor of PC2 function. Proteins processed by PC2 include proglucagon, prosomatostatin, proinsulin, and pro-islet amyloid polypeptide.

REFERENCES

1. Seidah, N.G., et al. 1991. Chromosomal assignments of the genes for neuroendocrine convertase PC1 (NEC1) to human 5q15-21, neuroendocrine convertase PC2 (NEC2) to human 20p11.1-11.2, and Furin (mouse 7 D1-E2 region). *Genomics* 11: 103-107.
2. Ohagi, S., et al. 1994. Analysis of the gene encoding human PC2, a prohormone processing enzyme. *Nippon Rinsho* 52: 2544-2549.
3. Galanopoulou, A.S., et al. 1995. Heterologous processing of rat prosomatostatin to Somatostatin 14 by PC2: requirement for secretory cell but not the secretion granule. *Biochem. J.* 311: 111-118.
4. Bassi, D.E., et al. 2000. The proprotein convertases Furin and PACE4 play a significant role in tumor progression. *Mol. Carcinog.* 28: 63-69.
5. Berman, Y., et al. 2000. Defective prodynorphin processing in mice lacking prohormone convertase PC2. *J. Neurochem.* 75: 1763-1770.

CHROMOSOMAL LOCATION

Genetic locus: PCSK2 (human) mapping to 20p12.1.

PRODUCT

PC2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PC2 shRNA Plasmid (h): sc-40884-SH and PC2 shRNA (h) Lentiviral Particles: sc-40884-V as alternate gene silencing products.

For independent verification of PC2 (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-40884A, sc-40884B and sc-40884C.

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

PC2 siRNA (h) is recommended for the inhibition of PC2 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 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

PC2 (E-8): sc-374140 is recommended as a control antibody for monitoring of PC2 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 PC2 gene expression knockdown using RT-PCR Primer: PC2 (h)-PR: sc-40884-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.