

Alpi siRNA (r): sc-270302

BACKGROUND

In most mammals, there are four different alkaline phosphatase isozymes: placental, placental-like, intestinal and tissue non-specific. The intestinal alkaline phosphatase gene encodes a digestive brush-border enzyme, which is upregulated during small intestine epithelial cell differentiation. Alpi, also known as IAP-1 (intestinal-type alkaline phosphatase 1), is a 528 amino acid membrane protein that belongs to the alkaline phosphatase family. Existing as a homodimer, Alpi binds two zinc ions and one magnesium ion. The gene that encodes Alpi consists of nearly 4,000 bases and maps to human chromosome 2q37.1. Chromosome 2, which consists of around 237 million bases, encodes over 1,400 genes and makes up approximately 8% of the human genome. A number of genetic diseases are linked to genes on chromosome 2 including Harlequin ichthyosis, sitosterolemia and Alström syndrome.

REFERENCES

- Hua, J.C., et al. 1986. Partial sequencing of human adult, human fetal, and bovine intestinal alkaline phosphatases: comparison with the human placental and liver isozymes. *Proc. Natl. Acad. Sci. USA* 83: 2368-2372.
- Berger, J., et al. 1987. Cloning and sequencing of human intestinal alkaline phosphatase cDNA. *Proc. Natl. Acad. Sci. USA* 84: 695-698.
- Henthorn, P.S., et al. 1987. Nucleotide and amino acid sequences of human intestinal alkaline phosphatase: close homology to placental alkaline phosphatase. *Proc. Natl. Acad. Sci. USA* 84: 1234-1238.
- Henthorn, P.S., et al. 1988. Sequence and characterization of the human intestinal alkaline phosphatase gene. *J. Biol. Chem.* 263: 12011-12019.
- Nishihara, Y., et al. 1992. Chemical nature of intestinal-type alkaline phosphatase in human kidney. *Clin. Chem.* 38: 2539-2542.
- Olsen, L., et al. 2005. Differentiation-dependent activation of the human intestinal alkaline phosphatase promoter by HNF-4 in intestinal cells. *Am. J. Physiol. Gastrointest. Liver Physiol.* 289: G220-G226.
- Nakano, T., et al. 2009. Role of lysophosphatidylcholine in brush-border intestinal alkaline phosphatase release and restoration. *Am. J. Physiol. Gastrointest. Liver Physiol.* 297: G207-G214.
- Chen, K.T., et al. 2010. Identification of specific targets for the gut mucosal defense factor intestinal alkaline phosphatase. *Am. J. Physiol. Gastrointest. Liver Physiol.* 299: G467-G475.

CHROMOSOMAL LOCATION

Genetic locus: Alpi (rat) mapping to 9q35.

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.

PRODUCT

Alpi siRNA (r) is a pool of 2 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 Alpi shRNA Plasmid (r): sc-270302-SH and Alpi shRNA (r) Lentiviral Particles: sc-270302-V as alternate gene silencing products.

For independent verification of Alpi (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-270302A and sc-270302B.

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

Alpi siRNA (r) is recommended for the inhibition of Alpi 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Alpi gene expression knockdown using RT-PCR Primer: Alpi (r)-PR: sc-270302-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.