SANTA CRUZ BIOTECHNOLOGY, INC.

PLAC4 siRNA (h): sc-76166

BACKGROUND

PLAC4 (placenta-specific 4), also known as D21S418E, is a 150 amino acid protein that is expressed in maternal plasma by placental syncytiotrophoblast and choriocarcinoma cells. PLAC4 is fetal derived, therefore it is specifically expressed during pregnancy and clears from maternal plasma within 24 hours after delivery. The PLAC4 gene is located on chromosome 21 and has four single nucleotide polymorphisms (SNPs) in its transcribed regions. This allows for PLAC4 to be a target gene in the noninvasive prenatal detection of trisomy 21 by allelic ratio analysis of placental expressed mRNA transcripts in maternal plasma. In a heterozygous fetus, both alleles of an SNP should be represented equally. An imbalance in allele frequency, giving a 2:1 ratio, suggests an additional copy of chromosome 21 and thus detection of trisomy 21. In addition, PLAC4 may be a useful target in the prenatal detection of Down syndrome.

REFERENCES

1. Kido, S., et al. 1993. D21S418E identifies a cAMP-regulated gene located on chromosome 21q22.3 that is expressed in placental syncytiotrophoblast and choriocarcinoma cells. Genomics 17: 256-259.
2. Lo, Y.M., et al. 2007. Plasma placental RNA allelic ratio permits noninvasive prenatal chromosomal aneuploidy detection. Nat. Med. 13: 218-223.
3. Lo, Y.M., et al. 2007. Digital PCR for the molecular detection of fetal chromosomal aneuploidy. Proc. Natl. Acad. Sci. USA 104: 13116-13121.
4. Benachi, A. and Costa, J.M. 2007. Non-invasive prenatal diagnosis of fetal aneuploidies. Lancet 369: 440-442.
5. Piriyapongsa, J., et al. 2007. Exonization of the LTR transposable elements in human genome. BMC Genomics 8: 291.
6. Jorgez, C.J., et al. 2007. Elevated levels of total (maternal and fetal) β-globin DNA in maternal blood from first trimester pregnancies with trisomy 21. Hum. Reprod. 22: 2267-2272.
7. Hahn, S., et al. 2008. Recent progress in non-invasive prenatal diagnosis. Semin. Fetal Neonatal Med. 13: 57-62.

CHROMOSOMAL LOCATION

Genetic locus: PLAC4 (human) mapping to 21q22.2.

PRODUCT

PLAC4 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 PLAC4 shRNA Plasmid (h): sc-76166-SH and PLAC4 shRNA (h) Lentiviral Particles: sc-76166-V as alternate gene silencing products.

For independent verification of PLAC4 (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-76166A, sc-76166B and sc-76166C.

PROTOCOLS

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

PLAC4 siRNA (h) is recommended for the inhibition of PLAC4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PLAC4 gene expression knockdown using RT-PCR Primer: PLAC4 (h)-PR: sc-76166-PR (20 µl). 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.