SANTA CRUZ BIOTECHNOLOGY, INC.

Epb4.2 siRNA (m): sc-144903

BACKGROUND

Protein 4.2, also known as erythrocyte membrane protein band 4.2, is a 691 amino acid transmembrane protein, which possibly regulates mechanical and morphological properties of erythrocytes. Protein 4.2 functions to strongly influence CD47 levels and also regulate the association between Ankyrin and protein 3. Appearing on erythroblasts at a very late stage of red blood cell development, protein 4.2 is predominantly found in liver and is also expressed in spleen, stomach, testis and eye. One of several members of the transglutaminase family, protein 4.2 is subject to a loss of function caused by an amino acid substitution from Cys to Ala in the active site. Complete or partial protein 4.2 absence leads to a weaker than usual association of ankyrin to the membrane skeleton. Defects in the gene encoding protein 4.2 are the cause of hereditary spherocytosis, a hematologic disorder characterized by abnormally shaped erythrocytes and chronic hemolytic anemia. A short and long isoform of protein 4.2 exist as a result of an alternative splicing events. The short isoform is characterized as the major protein 4.2 species in human erythrocyte membranes.

REFERENCES

1. Sung, L.A., et al. 1992. Human erythrocyte protein 4.2: isoform expression, differential splicing, and chromosomal assignment. Blood 79: 2763-2770.
2. Zhu, L., et al. 1998. Developmental expression of mouse erythrocyte protein 4.2 mRNA: evidence for specific expression in erythroid cells. Blood 91: 695-705.
3. Mouro-Chanteloup, I., et al. 2003. Evidence that the red cell skeleton protein 4.2 interacts with the Rh membrane complex member CD47. Blood 101: 338-344.
4. Dahl, K.N., et al. 2004. Protein 4.2 is critical to CD47-membrane skeleton attachment in human red cells. Blood 103: 1131-1136.
5. Toye, A.M., et al. 2005. Protein-4.2 association with band 3 (AE1, SLCA4) in *Xenopus* oocytes: effects of three natural protein-4.2 mutations associated with hemolytic anemia. Blood 105: 4088-4095.
6. Remus, R., et al. 2005. Relationships between DNA methylation and expression in erythrocyte membrane protein (band 3, protein 4.2, and β-spectrin) genes during human erythroid development and differentiation. Int. J. Hematol. 82: 422-429.

CHROMOSOMAL LOCATION

Genetic locus: Epb4.2 (mouse) mapping to 2 E5.

PRODUCT

Epb4.2 siRNA (m) 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 Epb4.2 shRNA Plasmid (m): sc-144903-SH and Epb4.2 shRNA (m) Lentiviral Particles: sc-144903-V as alternate gene silencing products.

For independent verification of Epb4.2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-144903A, sc-144903B and sc-144903C.

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

Epb4.2 siRNA (m) is recommended for the inhibition of Epb4.2 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 Epb4.2 gene expression knockdown using RT-PCR Primer: Epb4.2 (m)-PR: sc-144903-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.

PROTOCOLS

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