

# spectrin $\beta$ II siRNA (h): sc-36551

## BACKGROUND

Spectrin is an actin binding protein that is a major component of the cytoskeletal superstructure of the erythrocyte plasma membrane. Spectrins function as membrane organizers and stabilizers by forming dimers, tetramers and higher polymers. Spectrin  $\alpha$  I and spectrin  $\beta$  I are present in erythrocytes, whereas spectrin  $\alpha$  II (also designated fodrin  $\alpha$ ) and spectrin  $\beta$  II (also designated fodrin  $\beta$ ) are present in other somatic cells. The spectrin tetramers in erythrocytes act as barriers to lateral diffusion, but spectrin dimers seem to lack this function. Spectrin  $\beta$  II, which is involved in secretion, interacts with calmodulin in a calcium-dependent manner and is thus a candidate for the calcium-dependent movement of the cytoskeleton at the membrane. The human SPTBN1 gene maps to chromosome 2p16.2 and encodes the nonerythroid form of  $\beta$ -spectrin.

## REFERENCES

1. Speicher, D.W. 1986. The present status of erythrocyte spectrin structure: the 106-residue repetitive structure is a basic feature of an entire class of proteins. *J. Cell. Biochem.* 30: 245-258.
2. Gardner, K., et al. 1987. Modulation of spectrin-Actin assembly by erythrocyte Adducin. *Nature* 328: 359-362.
3. Coelman, T.R., et al. 1989. Functional diversity among spectrin isoforms. *Cell Motil. Cytoskeleton* 12: 225-247.
4. Saxton, M.J. 1989. The spectrin network as a barrier to lateral diffusion in erythrocytes. A percolation analysis. *Biophys. J.* 55: 21-28.
5. Prchal, J.T., et al. 1990. Patterns of spectrin transcripts in erythroid and non-erythroid cells. *J. Cell. Physiol.* 144: 287-294.
6. Chang, J.G., et al. 1993. Cloning of a portion of the chromosomal gene and cDNA for human  $\beta$ -fodrin, the nonerythroid form of  $\beta$ -spectrin. *Genomics* 17: 287-293.
7. Ma, Y., et al. 1993. The complete amino acid sequence for brain  $\beta$  spectrin ( $\beta$  fodrin): relationship to globin sequences. *Brain Res. Mol. Brain Res.* 18: 87-99.
8. Kennedy, S.P., et al. 1994. A partial structural repeat forms the heterodimer self-association site of all  $\beta$ -spectrins. *J. Biol. Chem.* 269: 11400-11408.

## CHROMOSOMAL LOCATION

Genetic locus: SPTBN1 (human) mapping to 2p16.2.

## PRODUCT

spectrin  $\beta$  II 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see spectrin  $\beta$  II shRNA Plasmid (h): sc-36551-SH and spectrin  $\beta$  II shRNA (h) Lentiviral Particles: sc-36551-V as alternate gene silencing products.

For independent verification of spectrin  $\beta$  II (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-36551A, sc-36551B and sc-36551C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

spectrin  $\beta$  II siRNA (h) is recommended for the inhibition of spectrin  $\beta$  II 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  $\mu$ M in 66  $\mu$ 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

spectrin  $\beta$  II (F-7): sc-515592 is recommended as a control antibody for monitoring of spectrin  $\beta$  II 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor spectrin  $\beta$  II gene expression knockdown using RT-PCR Primer: spectrin  $\beta$  II (h)-PR: sc-36551-PR (20  $\mu$ l, 419 bp). 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](http://www.scbt.com) for detailed protocols and support products.