



β2B Tubulin siRNA (h): sc-105006

BACKGROUND

Tubulin exists as five distinct forms, designated α , β , γ , δ and ϵ , all of which function as critical components of the cytoskeleton, specifically forming heterodimers which multimerize to produce microtubule filaments. Multiple β Tubulin isoforms ($\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$, $\beta 6$ and $\beta 8$) have been characterized and are expressed in mammalian tissues. $\beta 1$ and $\beta 4$ are present throughout the cytosol, $\beta 2$ is present in the nuclei and nucleoplasm, and $\beta 3$ is a neuron-specific cytoskeletal protein. $\beta 2B$ Tubulin, also known as TUBB2B, is a 445 amino acid protein that exists as a heterodimer of α and β chains and plays an important role in the formation and maintenance of microtubules. Over expression of $\beta 2B$ Tubulin is associated with nonsmall cell lung carcinoma, suggesting a role for $\beta 2B$ Tubulin in carcinogenesis.

REFERENCES

1. Lee, M.G., et al. 1983. Evolutionary history of a multigene family: an expressed human β Tubulin gene and three processed pseudogenes. *Cell* 33: 477-487.
2. Burns, R.G. 1991. α , β , and γ Tubulins: sequence comparisons and structural constraints. *Cell Motil. Cytoskeleton* 20: 181-189.
3. Leask, A. and Stearns, T. 1998. Expression of amino- and carboxyl-terminal γ and β Tubulin mutants in cultured epithelial cells. *J. Biol. Chem.* 273: 2661-2668.
4. Luduena, R.F. 1998. Multiple forms of Tubulin: different gene products and covalent modifications. *Int. Rev. Cytol.* 178: 207-275.

CHROMOSOMAL LOCATION

Genetic locus: TUBB2B (human) mapping to 6p25.2.

PRODUCT

$\beta 2B$ Tubulin siRNA (h) 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 $\beta 2B$ Tubulin shRNA Plasmid (h): sc-105006-SH and $\beta 2B$ Tubulin shRNA (h) Lentiviral Particles: sc-105006-V as alternate gene silencing products.

For independent verification of $\beta 2B$ Tubulin (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-105006A and sc-105006B.

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

$\beta 2B$ Tubulin siRNA (h) is recommended for the inhibition of $\beta 2B$ Tubulin 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

$\beta 2B$ Tubulin (AT5B3): sc-517430 is recommended as a control antibody for monitoring of $\beta 2B$ Tubulin 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor $\beta 2B$ Tubulin gene expression knockdown using RT-PCR Primer: $\beta 2B$ Tubulin (h)-PR: sc-105006-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hirao-Suzuki, M., et al. 2023. 2-Methoxyestradiol as an antiproliferative agent for long-term estrogen-deprived breast cancer cells. *Curr. Issues Mol. Biol.* 45: 7336-7351.

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.