

γ 2 Tubulin siRNA (h): sc-105004

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. γ 2 Tubulin, also known as TUBG2, is a 451 amino acid member of the Tubulin family and, like other Tubulin proteins, plays a role in the minus-end nucleation of microtubule assembly. The gene encoding γ 2 Tubulin maps to human chromosome 17, which comprises over 2.5% of the human genome and encodes over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, though specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

REFERENCES

1. Burns, R.G. 1995. Analysis of the γ Tubulin sequences: implications for the functional properties of γ Tubulin. *J. Cell Sci.* 108: 2123-2130.
2. Tassin, A.M., Celati, C., Moudjou, M. and Bornens, M. 1998. Characterization of the human homologue of the yeast spc98p and its association with γ Tubulin. *J. Cell Biol.* 141: 689-701.
3. Wise, D.O., Krahe, R. and Oakley, B.R. 2000. The γ Tubulin gene family in humans. *Genomics* 67: 164-170.
4. Herreros, L., Rodríguez-Fernandez, J.L., Brown, M.C., Alonso-Lebrero, J.L., Cabañas, C., Sánchez-Madrid, F., Longo, N., Turner, C.E. and Sánchez-Mateos, P. 2000. Paxillin localizes to the lymphocyte microtubule organizing center and associates with the microtubule cytoskeleton. *J. Biol. Chem.* 275: 26436-26440.

CHROMOSOMAL LOCATION

Genetic locus: TUBG2 (human) mapping to 17q21.2.

PRODUCT

γ 2 Tubulin 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see γ 2 Tubulin shRNA Plasmid (h): sc-105004-SH and γ 2 Tubulin shRNA (h) Lentiviral Particles: sc-105004-V as alternate gene silencing products.

For independent verification of γ 2 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-105004A, sc-105004B and sc-105004C.

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 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

γ 2 Tubulin siRNA (h) is recommended for the inhibition of γ 2 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

γ 2 Tubulin (SP-30): sc-134228 is recommended as a control antibody for monitoring of γ 2 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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor γ 2 Tubulin gene expression knockdown using RT-PCR Primer: γ 2 Tubulin (h)-PR: sc-105004-PR (20 μ l). 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.