SANTA CRUZ BIOTECHNOLOGY, INC.

TMEM45A siRNA (h): sc-78532

BACKGROUND

Taxol, also known as Paclitaxel, is a mitotic inhibitor derived from the bark of the Pacific yew tree *(Taxus brevifolia)*. Taxol is widely used in cancer chemotherapy as an anticancer drug, treating patients with ovarian, lung, breast, prostate, head and neck cancer, as well as other neoplasms. TMEM45A (transmembrane protein 45A), also known as DERP7 (dermal papilla-derived protein 7) or DNAPTP4 (DNA polymerase-transactivated protein 4), is a 275 amino acid multi-pass membrane protein that may be associated with taxol resistance. Treatment of MDA-MB-231 human breast cancer cells and Hep G2 human hepatoma cells with taxol increased expression of TMEM45A, protecting cells from apoptosis and death by hypoxia. Highly expressed in epidermal keratinocytes, TMEM45A localizes to the Golgi apparatus and may be involved in epithelial functions.

REFERENCES

1. Sahenk, Z., et al. 1994. Taxol neuropathy. Electrodiagnostic and sural nerve biopsy findings. Arch. Neurol. 51: 726-729.
2. Snyder, J.P., et al. 2001. The binding conformation of Taxol in β-Tubulin: a model based on electron crystallographic density. Proc. Natl. Acad. Sci. USA 98: 5312-5316.
3. Ohishi, Y., et al. 2007. Expression of β-Tubulin isotypes in human primary ovarian carcinoma. Gynecol. Oncol. 105: 586-592.
4. Bane, S.L., et al. 2007. High-throughput screening of microtubule-interacting drugs. Methods Mol. Med. 137: 281-288.
5. Callizot, N., et al. 2008. Interleukin-6 protects against paclitaxel, cisplatin and vincristine-induced neuropathies without impairing chemotherapeutic activity. Cancer Chemother. Pharmacol. 62: 995-1007.
6. Flamant, L., et al. 2012. TMEM45A is essential for hypoxia-induced chemoresistance in breast and liver cancer cells. BMC Cancer 12 : 391.
7. Hayez, A., et al. 2014. High TMEM45A expression is correlated to epidermal keratinization. Exp. Dermatol. 23: 339-344.

CHROMOSOMAL LOCATION

Genetic locus: TMEM45A (human) mapping to 3q12.2.

PRODUCT

TMEM45A 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 TMEM45A shRNA Plasmid (h): sc-78532-SH and TMEM45A shRNA (h) Lentiviral Particles: sc-78532-V as alternate gene silencing products.

For independent verification of TMEM45A (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-78532A, sc-78532B and sc-78532C.

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

TMEM45A siRNA (h) is recommended for the inhibition of TMEM45A 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 TMEM45A gene expression knockdown using RT-PCR Primer: TMEM45A (h)-PR: sc-78532-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.