

HPV16 E6 siRNA (hvp): sc-156008

BACKGROUND

Human papilloma viruses (HPVs) can be classified as either high risk or low risk according to their association with cancer. HPV16 and HPV18 are the most common of the high risk group while HPV6 and HPV11 are among the low risk types. Approximately 90% of cervical cancers contain HPV DNA of the high risk types. Mutational analysis have shown that the E6 and E7 genes of the high risk HPVs are necessary and sufficient for HPV transforming function. The specific interactions of the E6 and E7 proteins with p53 and pRB, respectively, correlate with HPV high and low risk classifications. The high risk HPV E7 proteins bind to pRB with a higher affinity than do the low risk HPV proteins, and only the high risk HPV E6 proteins form detectable complexes with p53 *in vitro*.

REFERENCES

1. Reich, N.C., et al. 1983. Two distinct mechanisms regulate the levels of a cellular tumor antigen, p53. *Mol. Cell. Biol.* 3: 2143-2150.
2. zur Hausen, H. and Schneider, A. 1987. The role of papilloma-viruses in human angongenital cancer. In Howley, P.M. and Salzman, N.P., eds., *The Papovaviridae, 2 Papillomaviruses*. New York: Plenum, 245-263.
3. Munger, K., et al. 1989. Complex formation of human papillomavirus E7 proteins with the retinoblastoma tumor suppressor gene product. *EMBO J.* 8: 4099-4105.
4. Hawley-Nelson, P., et al. 1989. HPV16 E6 and E7 proteins cooperate to immortalize human foreskin keratinocytes. *EMBO J.* 13: 3905-3910.
5. Munger, K., et al. 1989. The E6 and E7 genes of the human papillomavirus type 16 together are necessary and sufficient for transformation of primary human keratinocytes. *J. Virol.* 63: 4417-4421.

PRODUCT

HPV16 E6 siRNA (hvp) is a target-specific 19-25 nt siRNA 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 HPV16 E6 shRNA Plasmid (hvp): sc-156008-SH and HPV16 E6 shRNA (hvp) Lentiviral Particles: sc-156008-V as alternate gene silencing 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

HPV16 E6 siRNA (hvp) is recommended for the inhibition of HPV16 E6 expression in hvp 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HPV16 E6 gene expression knockdown using RT-PCR Primer: HPV16 E6 (hvp)-PR: sc-156008-PR (20 μ l, 399 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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2. Hu, Z., et al. 2015. Human papillomavirus 16 oncoprotein regulates the translocation of β -catenin via the activation of epidermal growth factor receptor. *Cancer* 121: 214-225.
3. Qian, G., et al. 2016. Human papillomavirus oncoprotein E6 upregulates c-Met through p53 downregulation. *Eur. J. Cancer* 65: 21-32.
4. Brand, T.M., et al. 2017. Human papillomavirus regulates HER3 expression in head and neck cancer: implications for targeted HER3 therapy in HPV+ patients. *Clin. Cancer Res.* 23: 3072-3083.
5. Shao, J.S., et al. 2017. HPV16 E6/E7 upregulates HIF-2 α and VEGF by inhibiting LKB1 in lung cancer cells. *Tumour Biol.* 39: 1010428317717137.
6. Brand, T.M., et al. 2018. Cross-talk signaling between HER3 and HPV16 E6 and E7 mediates resistance to PI3K inhibitors in head and neck cancer. *Cancer Res.* 78: 2383-2395.
7. Eldakhakhny, S., et al. 2018. Human papillomavirus E7 induces p63 expression to modulate DNA damage response. *Cell Death Dis.* 9: 127.
8. Wechsler, E.I., et al. 2018. E5 can be expressed in anal cancer and leads to epidermal growth factor receptor-induced invasion in a human papillomavirus 16-transformed anal epithelial cell line. *J. Gen. Virol.* 99: 631-644.
9. Morgan, E.L. and Macdonald, A. 2019. Autocrine Stat3 activation in HPV positive cervical cancer through a virus-driven Rac 1-NF κ B-IL-6 signalling axis. *PLoS Pathog.* 15: e1007835.
10. Kok-Ting Wan, P., et al. 2020. HPV-induced Nurr1 promotes cancer aggressiveness, self-renewal, and radioresistance via ERK and AKT signaling in cervical cancer. *Cancer Lett.* E-published.

RESEARCH USE

For research use only, not for use in diagnostic procedures.