

HPV16 E7 (ED17): sc-6981



The Power to Question

BACKGROUND

The HPV E7 proteins are small zinc-binding phosphoproteins that are localized in the nucleus. They are structurally and functionally similar to the E1A protein of subgenus C adenoviruses. The CR2 homology region contains the LXCXE motif (residues 22-26) involved in binding to the tumor suppressor protein pRb. This sequence is also present in SV40 and polyoma large T antigens. The high risk HPV E7 proteins (e.g. HPV16 E7 and HPV18 E7) have an approximately ten-fold higher affinity for pRb protein than the low risk HPV E7 proteins (e.g. HPV6 E7). Association of the E7 protein with pRb promotes cell proliferation by the same mechanism as the E1A proteins of adenoviruses and SV40 large T antigen. Research has shown that E7 promotes degradation of Rb family proteins rather than simply inhibiting their function by complex formation. The CR2 region also contains the casein kinase II phosphorylation site (residues 31 and 32). HPV16 and 18 are strongly associated with cervical, vaginal and vulvar malignancies.

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. Hawley-Nelson, P., et al. 1989. HPV16 E6 and E7 proteins cooperate to immortalize human foreskin keratinocytes. *EMBO J.* 13: 3905-3910.

SOURCE

HPV16 E7 (ED17) is a mouse monoclonal antibody raised against amino acids 1-98 representing full length E7 of HPV16 origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HPV16 E7 (ED17) is available conjugated to agarose (sc-6981 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-6981 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-6981 PE), fluorescein (sc-6981 FITC), Alexa Fluor® 488 (sc-6981 AF488), Alexa Fluor® 546 (sc-6981 AF546), Alexa Fluor® 594 (sc-6981 AF594) or Alexa Fluor® 647 (sc-6981 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-6981 AF680) or Alexa Fluor® 790 (sc-6981 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

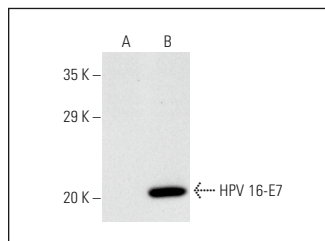
HPV16 E7 (ED17) is recommended for detection of E7 of HPV16 origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of HPV16 E7: 21 kDa.

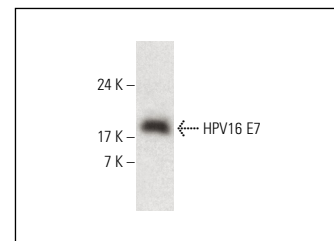
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



HPV 16-E7 (ED17): sc-6981. Western blot analysis of untransfected (A) and transfected (B) RKO cells with an HPV 16-E7 expression vector.



HPV16 E7 (ED17): sc-6981. Western blot analysis of HPV16 E7 expression in Ca Ski whole cell lysate.

SELECT PRODUCT CITATIONS

1. Jones, D.L., et al. 1997. Analysis of the p53-mediated G₁ growth arrest pathway in cells expressing the human papillomavirus type 16 E7 oncoprotein. *J. Virol.* 71: 2905-2912.
2. Hoskins, E.E., et al. 2012. The fanconi anemia pathway limits human papillomavirus replication. *J. Virol.* 86: 8131-8138.
3. Kim, K.J., et al. 2013. Rb suppresses collective invasion, circulation and metastasis of breast cancer cells in CD44-dependent manner. *PLoS ONE* 8: e80590.
4. Dichamp, I., et al. 2014. Human papillomavirus 16 oncoprotein E7 stimulates UBF1-mediated rDNA gene transcription, inhibiting a p53-independent activity of p14^{ARF}. *PLoS ONE* 9: e96136.
5. Zhang, C., et al. 2015. Effects of methylation status of CpG sites within the HPV16 long control region on HPV16-positive head and neck cancer cells. *PLoS ONE* 10: e0141245.
6. Fan, X., et al. 2016. Role of Cdc6 in re-replication in cells expressing human papillomavirus E7 oncogene. *Carcinogenesis* 37: 799-809.
7. Islam, S., et al. 2017. Study of association and molecular analysis of human papillomavirus in breast cancer of Indian patients: clinical and prognostic implication. *PLoS ONE* 12: e0172760.
8. Bienkowska-Haba, M., et al. 2018. A new cell culture model to genetically dissect the complete human papillomavirus life cycle. *PLoS Pathog.* 14: e1006846.
9. Aedo-Aguilera, V., et al. 2019. Curcumin decreases epithelial-mesenchymal transition by a pirin-dependent mechanism in cervical cancer cells. *Oncol. Rep.* 42: 2139-2148.
10. Kitamura, K., et al. 2020. Evaluation of HPV16 E7 expression in head and neck carcinoma cell lines and clinical specimens. *Sci. Rep.* 10: 22138.

RESEARCH USE

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