SANTA CRUZ BIOTECHNOLOGY, INC.

HPV16 E7 (NM2): sc-65711

SANTA CRUZ BIOTECHNOLOGY

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.

SOURCE

HPV16 E7 (NM2) is a mouse monoclonal antibody raised against amino acids 35-56 of E7 of HPV16 origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HPV16 E7 (NM2) is available conjugated to agarose (sc-65711 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-65711 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-65711 PE), fluorescein (sc-65711 FITC), Alexa Fluor® 488 (sc-65711 AF488), Alexa Fluor® 546 (sc-65711 AF546), Alexa Fluor® 594 (sc-65711 AF594) or Alexa Fluor® 647 (sc-65711 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-65711 AF680) or Alexa Fluor® 790 (sc-65711 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

HPV16 E7 (NM2) is recommended for detection of E7 GST 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of HPV16 E7: 21 kDa.

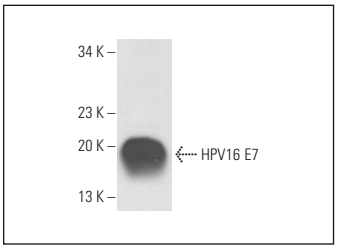
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

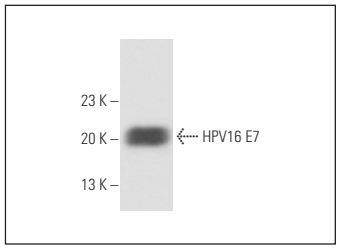
STORAGE

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

DATA



HPV16 E7 (NM2): sc-65711. Western blot analysis of HPV16 E7 expression in Ca Ski whole cell lysate.



HPV16 E7 (NM2): sc-65711. Western blot analysis of HPV16 E7 expression in Ca Ski whole cell lysate.

SELECT PRODUCT CITATIONS

1. Laurson, J. and Raj, K. 2011. Localisation of human papillomavirus 16 E7 oncoprotein changes with cell confluence. PLoS ONE 6: e21501.
2. Zhang, X., et al. 2016. Evolution of malignant plasmacytoma cell lines from K14E7 Fancd2$^{-/-}$ mouse long-term bone marrow cultures. Oncotarget 7: 68449-68472.
3. Stich, M., et al. 2017. 5-aza-2'-deoxycytidine (DAC) treatment downregulates the HPV E6 and E7 oncogene expression and blocks neoplastic growth of HPV-associated cancer cells. Oncotarget 8: 52104-52117.
4. Thomas, R.J., et al. 2017. HPV/E7 induces chemotherapy-mediated tumor suppression by ceramide-dependent mitophagy. EMBO Mol. Med. 9: 1030-1051.
5. Perez-Trujillo, J.J., et al. 2017. DNA vaccine encoding human papillomavirus antigens flanked by a signal peptide and a KDEL sequence induces a potent therapeutic antitumor effect. Oncol. Lett. 13: 1569-1574.
6. Eldakhakhny, S., et al. 2018. Human papillomavirus E7 induces p63 expression to modulate DNA damage response. Cell Death Dis. 9: 127.
7. Tan, Y.S., et al. 2018. Mitigating Sox2-potentiated immune escape of head and neck squamous cell carcinoma with a STING-inducing nanosatellite vaccine. Clin. Cancer Res. 24: 4242-4255.
8. Mercier-Letondal, P., et al. 2018. Isolation and characterization of an HLA-DRB1*04-restricted HPV16-E7 T cell receptor for cancer immunotherapy. Hum. Gene Ther. 29: 1202-1212.
9. Ludwig, S., et al. 2018. Molecular and functional profiles of exosomes from HPV^{+} and HPV^{-} head and neck cancer cell lines. Front. Oncol. 8: 445.
10. Garza-Morales, R., et al. 2019. A DNA vaccine encoding SA-4-1BBL fused to HPV-16 E7 antigen has prophylactic and therapeutic efficacy in a cervical cancer mouse model. Cancers 11: 96.

RESEARCH USE

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