SANTA CRUZ BIOTECHNOLOGY, INC.

HPV16 L1 (289-16981): sc-57834

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The Power to Question

BACKGROUND

Human papillomaviruses, particularly type 16 (designated HPV16), infect the genital tract and may lead to cervical cancer. Protection against HPV16 is thought to be provided by neutralizing antibodies directed to the major caspid protein L1 of HPV16. HPV16 L1 forms the pentameric assembly unit of the viral shell, and the binding of HPV16 L1 to the cell surface without the involvement of minor capsid protein L2 is believed to be the first step of HPV16 infection. The L1-binding domain located near the C-terminus of L2 binds L1 prior to completion of capsid assembly and is required for efficient encapsidation of the viral genome. In addition, the C-terminus of L1 is necessary for both DNA binding and DNA packaging. Expression of the late gene L1 is restricted to the upper layers of the infected epithelium. HPV16 L1 is able to package unrelated plasmid DNA *in vitro* and deliver the foreign DNA to eukaryotic cells with the subsequent expression of the encoded gene. L1 shows a diffuse nuclear distribution whereas L2 is localized to punctate nuclear regions identified as promonocytic leukemia protein oncogenic domains (PODs). Coexpression of L1 and L2 induces a relocalization of L1 into the PODs.

REFERENCES

1. Day, P.M., et al. 1998. The papillomavirus minor capsid protein, L2, induces localization of the major capsid protein, L1, and the viral transcription/replication protein, E2, to PML oncogenic domains. J. Virol. 72: 142-150.
2. White, W.I., et al. 1998. *In vitro* infection and type-restricted antibody-mediated neutralization of authentic human papillomavirus type 16. J. Virol. 72: 959-964.
3. Dupuy, C., et al. 1999. Nasal immunization of mice with human papillomavirus type 16 (HPV16) virus-like particles or with the HPV16 L1 gene elicits specific cytotoxic T lymphocytes in vaginal draining lymph nodes. J. Virol. 73: 9063-9071.
4. Chen, X.S., et al. 2000. Structure of small virus-like particles assembled from the L1 protein of human papillomavirus 16. Mol. Cell 5: 557-567.
5. Touze, A., et al. 2000. The nine C-terminal amino acids of the major caspid protein of the human papillomavirus type 16 are essential for DNA binding and gene transfer capacity. FEMS Microbiol. Lett. 189: 121-127.
6. Koffa, M.D., et al. 2000. The human papillomavirus type 16 negative regulatory RNA element interacts with three proteins that act at different posttranscriptional levels. Proc. Natl. Acad. Sci. USA 97: 4677-4682.
7. Revaz, V., et al. 2001. Mucosal vaccinations with a recombinant *Salmonella typhimurium* expressing human papillomavirus type 16 (HPV16) L1 virus-like particles (VLPs) or HPV16 VLPs purified from insect cells inhibits the growth of HPV16-expressing tumor cells in mice. Virology 279: 354-360.

SOURCE

HPV16 L1 (289-16981) is a mouse monoclonal antibody raised against HPV16 L1 fusion protein.

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.

APPLICATIONS

HPV16 L1 (289-16981) is recommended for detection of HPV16 L1 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of HPV16 L1: 55 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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

SELECT PRODUCT CITATIONS

1. Bhattarakosol, P., et al. 2018. Immunogold-agglutination assay for direct detection of HPV-16 E6 and L1 proteins from clinical specimens. J. Virol. Methods 255: 60-65.
2. Palomino-Vizcaino, G., et al. 2018. Effect of HPV16 L1 virus-like particles on the aggregation of non-functionalized gold nanoparticles. Biosens. Bioelectron. 100: 176-183.
3. Valencia-Reséndiz, D.G., et al. 2018. Inhibition of human papillomavirus type 16 infection using an RNA aptamer. Nucleic Acid Ther. 28: 97-105.
4. Roos, N., et al. 2020. Optimized production strategy of the major capsid protein HPV 16L1 non-assembly variant in *E. coli*. Protein Expr. Purif. 175: 105690.

STORAGE

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

RESEARCH USE

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