SANTA CRUZ BIOTECHNOLOGY, INC.

HPV16 L1 (MD2H11): sc-65713

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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 pro-monocytic leukemia protein oncogenic domains (PODs). Coexpression of L1 and L2 induces a relocalization of L1 into the PODs.

REFERENCES

1. Dupuy, C., et al. 1999. Nasal immunization of mice with human papillomavirus type 16 (HPV-16) virus-like particles or with the HPV-16 L1 gene elicits specific cytotoxic T lymphocytes in vaginal draining lymph nodes. J. Virol. 73: 9063-9071.
2. 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.
3. 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.
4. 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.
5. 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.
6. Kowalczyk, D.W., et al. 2001. Vaccine regimen for prevention of sexually transmitted infections with human papillomavirus type 16. Vaccine 19: 3583-3590.
7. Kawana, Y., et al. 2001. Human papillomavirus type 16 minor capsid protein 12 N-terminal region containing a common neutralization epitope binds to the cell surface and enters the cytoplasm. J. Virol. 75: 2331-2336.
8. Okun, M.M., et al. 2001. L1 interaction domains of papillomavirus 12 necessary for viral genome encapsidation. J. Virol. 75: 4332-4342.

SOURCE

HPV16 L1 (MD2H11) is a mouse monoclonal antibody raised against HPV16 L1.

RESEARCH USE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HPV16 L1 (MD2H11) is available conjugated to agarose (sc-65713 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-65713 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-65713 PE), fluorescein (sc-65713 FITC), Alexa Fluor® 488 (sc-65713 AF488), Alexa Fluor® 546 (sc-65713 AF546), Alexa Fluor® 594 (sc-65713 AF594) or Alexa Fluor® 647 (sc-65713 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-65713 AF680) or Alexa Fluor® 790 (sc-65713 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

HPV16 L1 (MD2H11) is recommended for detection of HPV16 L1 of HPV-16 by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); may cross-react with HPV11 L1 and HPV18 L2.

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) 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.

SELECT PRODUCT CITATIONS

1. Baek, J.O., et al. 2011. Production and purification of human papillomavirus type 33 L1 virus-like particles from *Spodoptera frugiperda* 9 cells using two-step column chromatography. Protein Expr. Purif. 75: 211-217.
2. Baek, J.O., et al. 2012. Production of human papillomavirus type 33 L1 major capsid protein and virus-like particles from *Bacillus subtilis* to develop a prophylactic vaccine against cervical cancer. Enzyme Microb. Technol. 50: 173-180.
3. Yan, H., et al. 2019. Efficient inhibition of human papillomavirus infection by L2 minor capsid-derived lipopeptide. mBio 10: e01834-19.
4. Biondo, A. and Meneses, P.I. 2022. The process of filopodia induction during HPV infection. Viruses 14: 1150.
5. Cacciotto, C., et al. 2024. Ovine papillomavirus type 3 virus-like particle-based tools for diagnosis and detection of infection. Vaccine 42: 126033.

STORAGE

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