SANTA CRUZ BIOTECHNOLOGY, INC.

HSV-1/2 gD (2C10): sc-56988

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Membrane fusion is crucial for the entry, spread and formation of enveloped viruses, such as herpes simplex virus, and is mediated by envelope glycoproteins. Two serotypes of the herpes simplex virus, HSV-1 (also known as type 1 or oral) and HSV-2 (type 2 or genital), have been shown to encode at least ten glycoproteins, four of which are necessary and sufficient to facilitate fusion. These four glycoproteins include glycoprotein B (gB), glycoprotein D (gD), glycoprotein H (gH) and glycoprotein L (gL). The fusion event is dependent upon the expression of a gD receptor on target cell membranes and does not require the presence of cell-surface glycosaminoglycans. HSV-1/2 gD (glycoprotein D) specifically allows a stabile connection to cellular receptors. Late adsorption to host cell membranes is correlated to a conformation change of gD occurring after receptor binding, followed by interaction of gD with the gH/gL heterodimer.

REFERENCES

1. Cai, W.H., et al. 1988. Role of glycoprotein B of herpes simplex virus type 1 in viral entry and cell fusion. J. Virol. 62: 2596-2604.
2. Bystricka, M., et al. 1991. Type-common and type-specific monoclonal antibodies to herpes simplex virus types 1 and 2. Acta Virol. 35: 152-164.
3. Slomka, M.J. 1996. Seroepidemiology and control of genital herpes: the value of type-specific antibodies to herpes simplex virus. Commun. Dis. Rep. CDR Rev. 6: R41-R45.
4. Bystricka, M., et al. 1997. Monoclonal antibodies to the distinct antigenic sites on glycoproteins C and B and their protective abilities in herpes simplex virus infection. Acta Virol. 41: 5-12.
5. Turner, A., et al. 1998. Glycoproteins gB, gD, and gHgL of herpes simplex virus type 1 are necessary and sufficient to mediate membrane fusion in a COS cell transfection system. J. Virol. 72: 873-875.
6. Bystricka, M., et al. 1999. Monoclonal antibodies suitable for type-specific identification of herpes simplex viruses by a rapid culture assay. Acta Virol. 43: 399-402.
7. Muggeridge, M.I. 2000. Characterization of cell-cell fusion mediated by herpes simplex virus 2 glycoproteins gB, gD, gH and gL in transfected cells. J. Gen. Virol. 81: 2017-2027.
8. Rodger, G., et al. 2001. Assembly and organization of glycoproteins B, C, D, and H in herpes simplex virus type 1 particles lacking individual glycoproteins: no evidence for the formation of a complex of these molecules. J. Virol. 75: 710-716.
9. Browne, H., et al. 2001. Plasma membrane requirements for cell fusion induced by herpes simplex virus type 1 glycoproteins gB, gD, gH and gL. J. Gen. Virol. 82: 1419-1422.

SOURCE

HSV-1/2 gD (2C10) is a mouse monoclonal antibody raised against Herpes virus.

RESEARCH USE

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

PRODUCT

Each vial contains 100 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

HSV-1/2 gD (2C10) is recommended for detection of HSV-1 and HSV-2 gD of herpes simplex virus 1 and 2 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).

Molecular Weight of HSV-1/2 gD: 59 kDa.

SELECT PRODUCT CITATIONS

1. Kask, A.S., et al. 2010. DNA vaccine delivery by densely-packed and short microprojection arrays to skin protects against vaginal HSV-2 challenge. Vaccine 28: 7483-7491.
2. Shlapobersky, M., et al. 2012. Vaxfectin-adjuvanted plasmid DNA vaccine improves protection and immunogenicity in a murine model of genital herpes infection. J. Gen. Virol. 93: 1305-1315.
3. Cheshenko, N., et al. 2013. HSV activates Akt to trigger calcium release and promote viral entry: novel candidate target for treatment and suppression. FASEB J. 27: 2584-2599.
4. Cheshenko, N., et al. 2014. Herpes simplex virus type 2 glycoprotein H interacts with integrin $\alpha_v\beta_3$ to facilitate viral entry and calcium signaling in human genital tract epithelial cells. J. Virol. 88: 10026-10038.
5. Marshak, J.O., et al. 2014. The murine intravaginal HSV-2 challenge model for investigation of DNA vaccines. Methods Mol. Biol. 1144: 305-327.
6. Mues, M.B., et al. 2015. Dynasore disrupts trafficking of herpes simplex virus proteins. J. Virol. 89: 6673-6684.
7. Cheshenko, N., et al. 2018. Herpes simplex viruses activate phospholipid scramblase to redistribute phosphatidylserines and Akt to the outer leaflet of the plasma membrane and promote viral entry. PLoS Pathog. 14: e1006766.
8. Lv, X., et al. 2018. Herpes simplex virus type 2 infection triggers AP-1 transcription activity through TLR4 signaling in genital epithelial cells. Virol. J. 15: 173.
9. Vannini, A., et al. 2020. Rescue, purification, and characterization of a recombinant HSV expressing a transgenic protein. Methods Mol. Biol. 2060: 153-168.

STORAGE

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

CONJUGATES

See **HSV-1 gD (DL6): sc-21719** for HSV-1 gD antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.