SANTA CRUZ BIOTECHNOLOGY, INC.

Rotavirus capsid (2B4): sc-101363

BACKGROUND

Rotaviruses, a genus of the family Reoviridae, are double-stranded RNA viruses that are one of the leading causes of gastroenteritis in infants and young children. The virus exists as seven species, designated Rotavirus A, B, C, D, E, F and G, with Rotavirus A being the most common cause of infection. Rotavirus is transmitted via the fecal-oral route and, once in the body, infects cells of the small intestine, producing an enterotoxin that alters the permeability of the cell wall, causing severe diarrhea and dehydration. The entry of Rotavirus into cells occurs by either direct penetration of the cell membrane or endocytosis followed by membrane vesicle solubilization, both of which are facilitated by the Rotavirus capsid. The Rotavirus capsid is composed of three concentric protein layers, the outer two of which are called VP4 and VP7 and are sacrificed in a calcium-dependent manner during viral entry into the cell.

REFERENCES

1. Denisova, E., et al. 1999. Rotavirus capsid protein VP5* permeabilizes membranes. J. Virol. 73: 3147-3153.
2. Ludert, J.E., et al. 2002. Antibodies to Rotavirus outer capsid glycoprotein VP7 neutralize infectivity by inhibiting virion decapsidation. J. Virol. 76: 6643-6651.
3. Yu, J. and Langridge, W. 2003. Expression of Rotavirus capsid protein VP6 in transgenic potato and its oral immunogenicity in mice. Transgenic Res. 12: 163-169.
4. Benureau, Y., et al. 2005. Trypsin is associated with the Rotavirus capsid and is activated by solubilization of outer capsid proteins. J. Gen. Virol. 86: 3143-3151.
5. Corthesy, B., et al. 2006. Rotavirus anti-VP6 secretory immunoglobulin A contributes to protection via intracellular neutralization but not via immune exclusion. J. Virol. 80: 10692-10699.
6. Trask, S.D. and Dormitzer, P.R. 2006. Assembly of highly infectious Rotavirus particles recoated with recombinant outer capsid proteins. J. Virol. 80: 11293-11304.

SOURCE

Rotavirus capsid (2B4) is a mouse monoclonal antibody raised against recombinant Rotavirus capsid.

PRODUCT

Each vial contains 50 µg IgG_{2b} kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Rotavirus capsid (2B4) is recommended for detection of inner capsid protein VP6 of Rotavirus origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:2500), immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:50-1:2500) and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:100-1:5000).

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. 3) 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. Bhowmick, R., et al. 2015. Rotavirus disrupts cytoplasmic P bodies during infection. Virus Res. 210: 344-354.
2. Pineyro, P.E., et al. 2018. First retrospective studies with etiological confirmation of porcine transmissible gastroenteritis virus infection in Argentina. BMC Vet. Res. 14: 292.
3. Salgado, E.N., et al. 2018. Visualization of calcium Ion loss from rotavirus during cell entry. J. Virol. 92: e01327-18.
4. Mukhopadhyay, U., et al. 2019. Biphasic regulation of RNA interference during rotavirus infection by modulation of Argonaute2. Cell. Microbiol. 19: e13101.
5. Li, Z., et al. 2019. A milk-based self-assemble rotavirus VP6-ferritin nanoparticle vaccine elicited protection against the viral infection. J. Nanobiotechnology 17: 13.
6. Patra, U., et al. 2020. Progressive rotavirus infection downregulates redox-sensitive transcription factor Nrf2 and Nrf2-driven transcription units. Oxid. Med. Cell. Longev. 2020: 7289120.
7. Hou, G., et al. 2021. Rotavirus NSP1 contributes to intestinal viral replication, pathogenesis, and transmission. mBio 12: e0320821.
8. Afchangi, A., et al. 2022. Co-administration of rotavirus nanospheres VP6 and NSP4 proteins enhanced the anti-NSP4 humoral responses in immunized mice. Microb. Pathog. 163: 105405.
9. Banerjee, S., et al. 2022. Quercetin, a flavonoid, combats rotavirus infection by deactivating rotavirus-induced pro-survival NFκB pathway. Front. Microbiol. 13: 951716.
10. Doldan, P., et al. 2022. Type III and not Type I interferons efficiently prevent the spread of rotavirus in human intestinal epithelial cells. J. Virol. E-published.

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.