SANTA CRUZ BIOTECHNOLOGY, INC.

Bordetella pertussis toxin subunit S1 (63.1G9): sc-57639

BACKGROUND

Bordetella pertussis is a Gram-negative, non-motile coccobacilli of the genus *Bordetella,* and it is the causative agent of whooping cough, also called pertussis acute, a highly communicable respiratory disease characterized in its typical form by paroxysms of coughing followed by a long-drawn inspiration. *Bordetella pertussis* are aerobic, encapsulated microbes that favor the lining of the human respiratory tract. In addition to the attachment to and growth on ciliated cells, *Bordetella pertussis* produces several exotoxins that contribute to its symptoms. *Bordetella pertussis* causes the covalent addition of ADP-ribose to the GTP binding G_i protein, thereby preventing the deactivation of adenylate cyclase. This results in the accumulation of large amounts of cAMP which causes increased mucus secretion and interferes with various cellular functions. Pertussis toxin, a protein composed of five different subunits (S1, S2, S3, S4, and S5), is the major virulence factor of *Bordetella pertussis.*

REFERENCES

1. Nicosia, A., et al. 1986. Cloning and sequencing of the pertussis toxin genes: operon structure and gene duplication. Proc. Natl. Acad. Sci. USA 83: 4631-4635.
2. Brabet, P., et al. 1988. Multiple species and isoforms of *Bordetella pertussis* toxin substrates. Biochem. Biophys. Res. Commun. 152: 1185-1192.
3. Poolman, J.T., et al. 1990. Description of a hybridoma bank towards *Bordetella pertussis* toxin and surface antigens. Microb. Pathog. 8: 377-382.
4. Kourova, N., et al. 2003. Comparison of the *Bordetella pertussis* and *Bordetella parapertussis* isolates circulating in Saint Petersburg between 1998 and 2000 with Russian vaccine strains. J. Clin. Microbiol. 41: 3706-3711.
5. Pishko, E.J., et al. 2003. *Bordetella pertussis* acquires resistance to complement-mediated killing *in vivo*. Infect. Immun. 71: 4936-4942.
6. Rodriguez, M.E., et al. 2003. Humoral immunity against *Bordetella pertussis:* antibodies or B cells? Infect. Immun. 71: 6686.
7. Medeiros, M.A., et al. 2005. Induction of humoral immunity in response to immunization with recombinant *Mycobacterium bovis* BCG expressing the S1 subunit of *Bordetella pertussis* toxin. Can. J. Microbiol. 51: 1015-1020.
8. Florax, A., et al. 2006. *Bordetella pertussis* respiratory infection following hematopoietic stem cell transplantation: time for universal vaccination? Bone Marrow Transplant. 38: 639-640.
9. Storm, M., et al. 2006. Comparison of real-time PCR and pyrosequencing for typing *Bordetella pertussis* toxin subunit 1 variants. J. Microbiol. Methods 65: 153-158.

SOURCE

Bordetella pertussis toxin subunit S1 (63.1G9) is a mouse monoclonal antibody raised against *Bordetella pertussis* toxin.

RESEARCH USE

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

PRODUCT

Each vial contains 50 µg IgG_1 in 500 µl of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Bordetella pertussis toxin subunit S1 (63.1G9) is recommended for detection of the S1 subunit and the intact toxin of *Bordetella pertussis* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Molecular Weight of Bordetella pertussis toxin subunit S1: 105/27 kDa.

SELECT PRODUCT CITATIONS

1. Sugisaki, K., et al. 2013. Role of (p)ppGpp in biofilm formation and expression of filamentous structures in *Bordetella pertussis.* Microbiology 159: 1379-1389.
2. Klimova, N., et al. 2022. Pertussis toxin suppresses dendritic cell-mediated delivery of *B. pertussis* into lung-draining lymph nodes. PLoS Pathog. 18: e1010577.
3. Lin, J., et al. 2023. $G_{\beta\gamma}$ subunit signalling underlies neuropeptide Y-stimulated vasoconstriction in rat mesenteric and coronary arteries. Br. J. Pharmacol. 180: 3045-3058.
4. Jia, J., et al. 2023. Domperidone inhibits *Clostridium botulinum* C2 toxin and *Bordetella pertussis* toxin. Toxins 15: 412.
5. Jia, J., et al. 2024. The chaperonin TRiC/CCT inhibitor HSF1A protects cells from intoxication with pertussis toxin. Toxins 16: 36.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.