



BoNT/B (KBB18): sc-51776

BACKGROUND

Botulism is a rare but serious paralytic illness caused by a nerve toxin, which is produced by the bacterium *Clostridium botulinum*. This neuromuscular disorder occurs through an exquisite series of molecular events, ultimately ending with the arrest of acetylcholine release, resulting in flaccid paralysis. BoNT/B (*Botulinum* neurotoxin type B), also known as Bontoxilysin B or botB, is a highly toxic 1,291 amino acid secreted protein that exists as a disulfide-linked heterodimer of a heavy chain (H) and a light chain (L). Using zinc as a cofactor, BoNT/B functions as an endopeptidase that cleaves various neuronal proteins, such as VAMP-2, thereby preventing neurotransmitter release. BoNT/B binds to neuronal synapses and is internalized and transported to the spinal cord, where it inserts itself between presynaptic and postsynaptic neurons, inhibiting neurotransmitter release and causing paralysis.

REFERENCES

- Whelan, S.M., Elmore, M.J., Bodsworth, N.J., Brehm, J.K., Atkinson, T. and Minton, N.P. 1992. Molecular cloning of the *Clostridium botulinum* structural gene encoding the type B neurotoxin and determination of its entire nucleotide sequence. *Appl. Environ. Microbiol.* 58: 2345-2354.
- Eswaramoorthy, S., Kumaran, D. and Swaminathan, S. 2001. Crystallographic evidence for doxorubicin binding to the receptor-binding site in *Clostridium botulinum* neurotoxin B. *Acta Crystallogr. D Biol. Crystallogr.* 57 (Pt. 11): 1743-1746.
- Keller, J.E., Nowakowski, J.L., Filbert, M.G. and Adler, M. 2000. Rapid microplate assay for monitoring botulinum neurotoxin B catalytic activity. *J. Appl. Toxicol.* 19 Suppl. 1: S13-77.
- Garcia, G.E., Moorad, D.R. and Gordon, R.K. 2000. Buforin I, a natural peptide, inhibits botulinum neurotoxin B activity *in vitro*. *J. Appl. Toxicol.* 19 Suppl. 1: S19-22.
- Torii, Y., Tokumaru, Y., Kawaguchi, S., Izumi, N., Maruyama, S., Mukamoto, M., Kozaki, S. and Takahashi, M. 2002. Production and immunogenic efficacy of *botulinum* tetravalent (A, B, E, F) toxoid. *Vaccine* 20: 2556-2561.
- Dong, M., Richards, D.A., Goodnough, M.C., Tepp, W.H., Johnson, E.A. and Chapman, E.R. 2003. Synaptotagmins I and II mediate entry of *botulinum* neurotoxin B into cells. *J. Cell Biol.* 162: 1293-303.
- Blommaert, A., Turcaud, S., Anne, C. and Roques, BP. 2004. Small tripeptide surrogates with low nanomolar affinity as potent inhibitors of the *botulinum* neurotoxin B metallo-proteolytic activity. *Bioorg. Med. Chem.* 12: 3055-3062.
- Boles, J., West, M., Montgomery, V., Tammariello, R., Pitt, M.L., Gibbs, P., Smith, L. and LeClaire, R.D. 2006. Recombinant C fragment of *botulinum* neurotoxin B se response and protection in the rhesus monkey. *Toxicon* 47: 877-884.
- Sikorra, S., Henke, T., Swaminathan, S., Galli, T. and Binz, T. 2006. Identification of the amino acid residues rendering TI-VAMP insensitive toward *botulinum* neurotoxin B. *J. Mol. Biol.* 357: 574-582.

RESEARCH USE

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

SOURCE

BoNT/B (KBB18) is a mouse monoclonal antibody raised against full length BoNT/B of *Clostridium botulinum* origin.

PRODUCT

Each vial contains 100 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

BoNT/B (KBB18) is recommended for detection of BoNT/B of *Clostridium botulinum* origin by solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of BoNT/B: 151 kDa.

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 or our catalog for detailed protocols and support products.