Product Data Sheet

anti-botulinum neurotoxin type B (BoNT/B) monoclonal antibody

Product information

Catalog Number:	GM-0701
Clone:	GR-3G7
Description:	purified monoclonal mouse antibody
Specificity:	anti-BoNT/B (*Clostridium botulinum*, serotype B, light chain)
Isotype:	IgG1
Purification:	Protein G
Storage:	short term: 2°C - 8°C; long term: -20°C (avoid repeated freezing and thawing)
Buffer :	phosphate buffered saline, pH 7.2
Immunogen:	genetic immunisation with cDNA encoding BoNT/B
Selection:	based on recognition of the complete **native protein** expressed on transfected mammalian cells

Working dilutions

Flow cytometry: 1.2 µg/10^6 cells
CELISA: 1:200 - 1:400
For each application a titration should be performed to determine the optimal concentration.

Specificity testing by flow cytometry

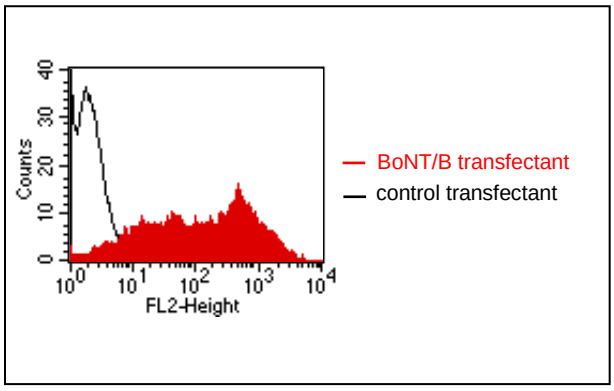

Fig.1: FACS analysis of BOSC23 cells using GR-3G7 Cat.# GM-0701. BOSC23 cells were transiently transfected with an expression vector encoding either BoNT/B (red curve) or an irrelevant protein (control transfectant). Binding of GR-3G7 was detected with a PE-conjugated secondary antibody. A positive signal was obtained only with BoNT/B transfected cells.

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Antibody cross-reactivity with members of the botulinum toxin family

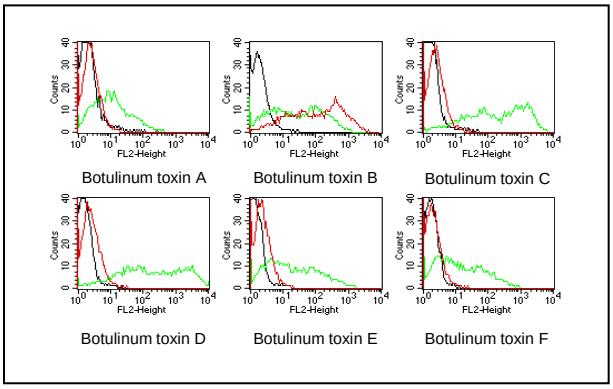

Fig.2: BOSC23 cells were transiently transfected with expression vectors containing the cDNA of the light chain of botulinum toxin A-F. Expression of the constructs was tested with an anti-myc antibody (green curves). An irrelevant monoclonal antibody served as a negative control (black curves). For specificity testing, protein G-purified GR-3G7 was tested on all botulinum toxin transfectants. A positive signal was obtained only with BoNT/B transfected cells (red curves).

SDS-PAGE analysis of GR-3G7

The antibody was purified by protein G affinity chromatography from cell culture supernatants and verified by SDS-Page (Fig.3).

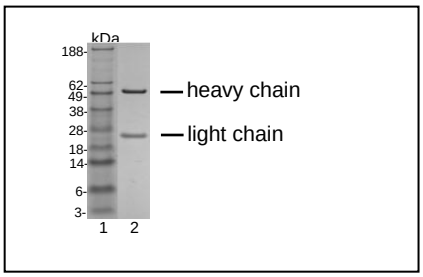

Fig.3: SDS-PAGE analysis of purified GR-3G7 monoclonal antibody. Lane 1: molecular weight marker, Lane 2: 2 µg of purified GR-3G7 antibody. Proteins were separated by SDS-PAGE and stained with RAPID *Stain*™ Reagent.

Background

Botulinum neurotoxin type B (BoNT/B) is produced by *Clostridium botulinum*, a genetically diverse class of anaerobic, spore-forming, gram-positive bacilli. Seven different botulinum toxin groups have been identified serologically and are called botulinum toxin type A,B,C1,D,E,F, and G (1). BoNT/B is a two-chain polypeptide with a 100-kDa heavy chain, which is responsible for neurospecific binding joined by a disulphide bond to a 50-kDa light chain, a zinc-endopeptidase which blocks neurotransmitter release (2,3). BoNT/B is one of the most poisonous naturally occurring substances. It inhibits acetylcholine release from neuromuscular junctions while it is used as an important therapeutic mainstay in the treatment of spasticity disorders and as a cosmetic treatment (4).

References

1. **DasGupta BR** (1990). Structure and biological activity of botulinum neurotoxin. *J Physiol (Paris)* 84(3):220-8

2. **Schiavo G, Benfenati F, Poulain B, Rossetto O, Polverino de Laureto P, DasGupta BR and Montecucco C** (1992). Tetanus and botulinum-B neurotoxins block neurotransmitter release by proteolytic cleavage of synaptobrevin. *Nature* 29; 359(6398):832-5

3. **Tonello F, Morante S, Rossetto O, Schiavo G and Montecucco C** (1996). Tetanus and botulinum toxins: a novel group of zinc-endopeptidases. *Adv Exp Med Biol* 389:251-60

4. **Papapetropoulos S and Singer C** (2007). Botulinum toxin in movement disorders. *Semin Neurol* 27(2):183-94

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