Anti-PA anthrax [W2] Standard Size Ab02353-2.0

This full-length, chimeric mouse antibody was made using the variable domain sequences of the original scFv format, for improved compatibility with existing reagents, assays and techniques.

Isotype and Format: Mouse IgG2a, Kappa
Clone Number: W2
Alternative Name(s) of Target: protective antigen; PA; Anthrax toxins translocating protein; PA-83; PA83; anthrax toxin
UniProt Accession Number of Target Protein: P13423
Published Application(s): neutralizing, WB, ELISA
Published Species Reactivity: Bacillus anthracis
Immunogen: The original scFv version of this antibody was isolated from a phage display library generated from immunized chimpanzees.
Specificity: This antibody recognizes protective antigen (PA) of anthrax toxin. W2 antibody targets a conformational epitope formed by C-terminal amino acids 614–735 of PA (Chen et al., 2006; pmid: 16453257). W2 is thought to recognize the same neutralizing epitope as another anti-PA antibody W1 as they both competed with each other in binding to PA and have the same CDRs (Chen et al., 2006; pmid: 16453257). PA is a component of the anthrax toxin and binds to a receptor (ATR) in sensitive eukaryotic cells, thereby facilitating the translocation of the enzymatic toxin components, edema factor and lethal factor, across the target cell membrane.
Application Notes: The original scFv version of this antibody was confirmed to strongly bind anthrax protective antigen (PA) by ELISA (Chen et al., 2006; pmid: 16453257). This format was further shown to inhibit the effects of anthrax toxin. To perform subsequent tests, W2 clone was turned into an IgG1 version. This format of W2 exhibited very potent neutralizing activity against PA in the the RAW264.7 cell-based in vitro assay (its neutralizing capabilities were 5-fold higher than of the popular murine anti-PA clone 14B7 (Chen et al., 2006; pmid: 16453257). Furthermore, W2 had one of the highest affinities against anthrax PA ever recorder (Kd = 5e-11 mol/L) (Chen et al., 2006; pmid: 16453257). What is more, Western blot analysis showed that W2 neutralizes the toxin by blocking binding of PA to the cellular receptor (Chen et al., 2006; pmid: 16453257). Finally, IgG1 version of this antibody fully protected rats from anthrax toxin challenge even when the antibody had been injected 1 week before the toxin challenge, demonstrating its slow dissociation rate crucial in potential clinical use (Chen et al., 2006; pmid: 16453257). This confirms that W2 antibody can be further researched as a potential therapeutic agent as PA entry inhibitor for use in the

emergency prophylaxis against and treatment of anthrax as well as a post-exposure therapy (Manish et al., 2020; pmid: 32729741).This clone can be also potentially used in the development of protective therapies against bioterrorism and biological warfare where anthrax toxins have been used (Bouzianas, 2009; pmid: 19781945).

Antibody First Published in: Chen et al. Efficient Neutralization of Anthrax Toxin by Chimpanzee Monoclonal Antibodies against Protective Antigen J Infect Dis. 2006 Mar 1; 193(5): 625–633. PMID:16453257

Note on publication: Describes the generation and characterization of anti-PA and anti-LF anthrax antibodies.

Product Form

Size: 200 µg Purified antibody.

Purification: Protein A affinity purified

Supplied In: PBS with 0.02% Proclin 300.

Storage Recommendation: Store at 4^{0}C for up to 3 months. For longer storage, aliquot and store at -20^{0}C.

Concentration: 1 mg/ml.

Important note – This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals.