

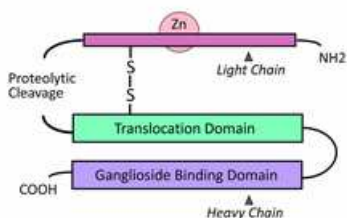
Product Specification Sheet

**Recombinant Tetanus Toxoid Light Chain Protein**

□ **Cat#** TTOX17-R-10 Recombinant purified -C. tetani toxin light chain protein

**Size:** □ 10 ug

Tetanus, also known as lockjaw, is a disease caused by the bacteria *Clostridium tetani* which enters the body through open wounds and releases a poison called tetanospasmin. This is a potentially deadly disease because the poison attacks the nervous system blocking nerve signals from the spinal cord to and from the muscles. However this disease is preventable through injecting multiples doses of vaccines and administering the recommended booster shot every ten years. Tetanus vaccine is a vaccine composed of inactivated **tetanus toxin**. This vaccine is immunogenic not pathogenic and is used to prevent an individual from contracting tetanus.



Tetanus toxin is an extremely potent neurotoxin produced by the vegetative cell of *Clostridium tetani* in anaerobic conditions, causing tetanus. It has no known function for clostridia in the soil environment where they are normally

encountered. It is also called spasmogenic toxin, tetanospasmin or abbreviated to **TeTx** or **TeNT**. The tetanus toxin protein has a molecular weight of 150kDa. It is translated from the TetX gene as one protein which is subsequently cleaved into two parts: a 100kDa H-chain or heavy chain or B-chain and a 50kDa amino terminal light or A-chain (C-fragment). The light chain contains the enzymatic portion of the toxin and is responsible for its toxic effects. The light chain activity is abolished by a mutation at His233 to either Cys or Val or Glu234 to Gln. H-chain further cleavage into Hn (amino terminal) and Hc (carboxy terminal) fragments. The chains are connected by a disulfide bond. The B-chain binds to disialogangliosides (GD2 and GD1b) on the neuronal membrane and contains a translocation domain which aids the movement of the protein across that membrane and into the neuron. The A-chain, a zinc endopeptidase, attacks the vesicle-associated membrane protein (VAMP).

**Tetanus toxin Hc-fragment** has been tested as a subunit vaccine candidate and shown to elicit protective immunity. Similarly, **Tetanus light chain** fragments have been shown to elicit protective immunity and the individuals vaccinated with the whole toxoid contain light chain antibodies. **Toxoid** refers to the inactivated version of the active toxin. It is typically produced by formaldehyde inactivation of the active protein.

**Source of Antigen and Antibodies**

C. tetani light chain fragment 2-438 aa (protein accession #P04958) was expressed in *E. coli* as his-tag protein and purified (>95%, ~50-52 Kda). It is supplied in a buffer containing 1% trehalose (or see lot sp. conc on the vial). Reconstitute protein in water at >10 ug/100 ul or higher. It is recommended to reconstitute the protein in a buffer containing 100 ug/ml BSA as a carrier protein. Store powder at -20oC and reconstituted proteins solution in small aliquots at -20oC. Do not freeze and thaw.

The protein is stable at -20oC for at least 6 months.

**Stability:** 6-12 months at -20oC or below.

**Recommended Usage**

ELISA: Coat at 1-10 ug/ml and detect with appropriate antibodies.  
Western: Load 100-200 ng protein well and detect using appropriate antibodies. Tetanus light chain ~50-52 Kda under reducing condition.

Recombinant C. tetani light chain fragment tested positive with a light chain specific mouse antibody positive control (#TTOX16-PC) and also reacted with rabbit polyclonal antibodies (#TTOX12-A) and goat polyclonal antibodies (#TTOX13-A).

The protein and antibody controls can be used for ELISA or Western to substantiate the tetanus light chain vaccines.

**General References:** Farrar JJ (2000) J. Neurol. Neurosurg. Psych. 69, 292-301; Eisel U (1986) EMBO J. 5, 2495-2502; Shciavo G (1992) Nature 359, 832-835; Lin CS (1985) Infect. Immunity 49, 111-115; Figueiredo D (1995) Infect. Immunity 63, 3218-3221.

This product is for in vitro research use only.

**Related material available from ADI**

Catalog#	ProdDescription
930-100-TTH	Human Anti-Tetanus Toxin/Toxoid IgG ELISA kit, 96
930-110-TTM	Mouse Anti-Tetanus Toxin/Toxoid Ig's (G+A+M) ELISA kit, 2x96 tests, Quantitative
930-120-TMA	Mouse Anti-Tetanus Toxin/Toxoid IgA ELISA kit, 2x96
930-120-TTR	cc# change to 930-200-TTR; Rabbit Anti-Tetanus Toxin/Toxoid Ig's (G+A+M) ELISA kit
930-130-TMG	Mouse Anti-Tetanus Toxin/Toxoid IgG ELISA kit, 2x96
930-140-TMM	Mouse Anti-Tetanus Toxin/Toxoid IgM ELISA kit, 2x96
930-200-TTR	Rabbit Anti-Tetanus Toxin/Toxoid Ig's (G+A+M) ELISA kit, 2x96 tests, Quantitative
930-210-TRG	Rabbit Anti-Tetanus Toxin/Toxoid IgG ELISA kit, 2x96
930-220-TRM	Rabbit Anti-Tetanus Toxin/Toxoid IgM ELISA kit, 2x96 tests, Quantitative
930-310-TGG	G. pig Anti-Tetanus Toxin/Toxoid IgG ELISA kit, 2x96
930-320-TGM	G. pig Anti-Tetanus Toxin/Toxoid IgM ELISA kit, 2x96 tests, Quantitative
930-410-TKG	Monkey Anti-Tetanus Toxin/Toxoid IgG ELISA kit,
TTOX12-A	Anti-C. tetani purified toxin IgG (tetanus shock toxin)
TTOX13-A	Anti-C. tetani purified toxin IgG (tetanus shock toxin)
TTOX14-M	Monoclonal Anti-C. tetani purified toxin IgG (tetanus shock toxin)
TTOX15-S	Anti-C. tetani purified toxin IgG (tetanus shock toxin)

VAC-TTX-300 VacciGel Direct ELISA for the measurement of Tetanus Toxoid in Vaccines formulated in Alum, 96 tests

VAC-TTX-310 Tetanus Toxoid/Toxin (TTX) ELISA for the measurement TTX in biological buffer

TTOX17-R-10

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