

Native Diphtheria Toxoid (Frozen)

Product Information

Cat#

COR-127

Product Name

Native Diphtheria Toxoid (Frozen)

Description

Diphtheria toxoid (frozen) is a formaldehyde-inactivated toxin purified from *Corynebacterium diphtheriae*. Toxoid is presented frozen in Tris-EDTA disodium salt buffer.

Type

Native

Gene

Diphtheria Toxoid

Species

Corynebacterium diphtheriae

Molecular Weight

58 kDa

Synonyms

Diphtheria Toxoid

Formulation

0.01 M Tris pH 7.5 and 0.001 M Na₂EDTA

Notes

This product is intended for research and manufacturing uses only. It is not a diagnostic device. The user assumes all responsibility for care, custody and control of the material, including its disposal, in accordance with all regulations.

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Background

Diphtheria is an acute upper respiratory illness caused by the Gram-positive bacterium, *Corynebacterium diphtheriae*, and occasionally by toxigenic *C. ulcerans* and *C. pseudotuberculosis* strains (Sharma et al., 2019). It infects epithelial cells of the upper respiratory tract and produces diphtheria toxin, an exotoxin which inhibits protein synthesis in mammalian cells (MacGregor, 2010). Diphtheria toxin is proteolytically cleaved forming a two-part toxin, held together by a disulfide bridge. The amino terminal carries the toxin's enzymatic activity, capable of ADPriboseylation and inactivation of translation elongation factor 2 (EF-2). The carboxy-terminal domain binds to specific host receptors, the heparin-binding EGF-like growth factor (HB-EGF) on human epithelial cells and translocates the catalytic domain into the cell.

Diphtheria usually affects the nose and throat, but sometimes it can affect the skin. It characteristically forms a pseudomembrane in the throat, but cutaneous infections are also possible (Sharma et al., 2019). People can be carriers and pass it on to others without showing any symptoms themselves. It is spread through direct contact with infected respiratory secretions and cutaneous lesions (MacGregor, 2010). People who have diphtheria are infectious for up to 4 weeks or sometimes even longer. Diphtheria is now well controlled by immunisation with a vaccine produced by chemical inactivation of the purified diphtheria toxin (to produce toxoid). Diphtheria vaccines are based on diphtheria toxoid, a modified bacterial toxin that induces protective antitoxin antibodies of the IgG type. Toxin-producing *C. diphtheriae* is grown in liquid media and the toxin converted to the inactive toxoid by treatment with formalin (WHO, 2015).
