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32-4119: Recombinant Listeriolysin-O PEST-free

Alternative Name : Listeriolysin-O,LLO,hlyA.

Description

Source : Escherichia Coli. Recombinant Listeriolysin O lacking both the signal secretion sequence and the PEST- like sequence. LLO-PEST minus is composed of 471 amino acids, starting from amino acid 60 to amino acid 529, with the addition of a methionine in its NH2-terminus. Listeriolysin O (aka LLO) is a hemolysin produced by Listeria monocytogenes bacteria, the pathogen responsible for causing listeriosis. The toxin may be regarded as a virulence factor, since it is crucial for the virulence of L. monocytogenes. LLO is a single polypeptide protein encoded by the hlyA gene and composed of 529 residues. LLO is a thiol-activated cholesterol-dependent pore forming toxin protein; therefore, it is activated by reducing agents and inhibited by oxidizing agents. Still, LLO differs from other thiol-activated toxins, as its cytolytic activity is maximized at a pH of 5.5. Inside the acidic phagosomes (average pH ~ 5.9) of cells that have phagocytosed L. monocytogenes, LLO is selectively activated by maximizing activity at a pH of 5.5. Following the phagosome lysis by LLO, the bacterium breaks out into the cytosol, where it is able to grow intracellularly, and the toxin has reduced activity in the more basic cytosol. Thus, LLO permits L. monocytogenes to break out from the phagosomes into the cytosol without harming the plasma membrane of the infected cell, which allows the bacteria to live intracellularly, where they are sheltered from extracellular immune system factors such as the complement system and antibodies. LLO also brings about dephosphorylation of histone H3 and deacetylation of histone H4 in the early phases of infection, before entry of L. monocytogenes into the host cell. The pore-forming activity is not implicated in causing the histone modifications. The modifications of the histones affect the down regulation of genes encoding proteins involved in the inflammatory response. Therefore, LLO may be significant in subverting the host immune response to L. monocytogenes. At its NH2-terminus it possesses a 25 residues long typical signal sequence excited during the secretion process. Moreover, in its NH2-terminus there is also a 19 amino acids PEST- like sequence that may target this toxin for degradation. The PEST-like sequence found in LLO and is considered crucial for virulence, given that mutants lacking the sequence lysed the host cell. Nevertheless, contrary to PEST's supposed role in protein degradation, evidence implies that the PEST-like sequence may control LLO production in the cytosol rather than increase degradation of LLO.

Product Info

Amount :	50 µg
Purification :	Greater than 90.0% as determined by SDS-PAGE.
Content :	The protein contains 50mM NaH2PO4, 1mM EDTA, 2.7mM KCl, 1mM DTT, 5% glycerol and 0.5M NaCl.
Storage condition :	LLO although stable at 4°C for 1 week, should be stored desiccated below -18°C. Please prevent freeze-thaw cycles.

Application Note

7x104 HU/mg. 2mM DTT could be use to reactivate the toxin.

For Research Use Only. Not for use in diagnostic/therapeutics procedures.