

Lipopolysaccharide from a Non-Toxicogenic Mutant of *Escherichia coli*, Strain 86-24 (Serotype O157:H7)

Catalog No. NR-44090

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Contributor and Manufacturer:

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Product Description:

Escherichia coli (*E. coli*), strain 86-24, serotype O157:H7, is a toxigenic isolate that was discovered in 1986 during an outbreak in Walla Walla, Washington, USA.¹ It is an enterohemorrhagic *E. coli* (EHEC) strain, known to produce shiga-like toxin 2. Lipopolysaccharide (LPS) was isolated from a non-toxicogenic mutant of strain 86-24 using phenol/chloroform extraction. The extract was dialyzed against water, to remove the phenol, and dehydrated.²

LPS consists of three basic components: lipid A, a conserved glycolipid that serves as the hydrophobic anchor in the outer membrane; core polysaccharide, which contains two well conserved 3-deoxy-d-mannoctulosonic acid (KDO) residues and a variable oligosaccharide region; and O-antigen, which is structurally diverse. N-acetylglucosamine (GlcNAc) is a unique feature of the inner core polysaccharide of *E. coli* O157:H7, but the remaining inner core structures and lipid A are virtually identical in *E. coli* K-12, which has a distinctly different outer core structure and no O-antigen.³

Material Provided:

Each vial of NR-44090 contains approximately 1 µg of dehydrated LPS extracted from a non-toxicogenic mutant of *E. coli*, strain 86-24. It is recommended that the material be rehydrated with 1 mL of distilled water.

Packaging/Storage:

NR-44090 was packaged aseptically in screw-capped plastic cryovials. The product is shipped on refrigerated ice bricks and should be stored at 4°C or colder immediately upon arrival. The reconstituted material should be stored at 4°C.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Lipopolysaccharide from a Non-Toxicogenic Mutant of *Escherichia coli*, Strain 86-24 (Serotype O157:H7), NR-44090."

Biosafety Level: 1

Appropriate safety procedures should always be used with

this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm.

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References:

1. Mohawk, K. L., et al. "Neutralizing Antibodies to Shiga Toxin Type 2 (Stx2) Reduce Colonization of Mice by Stx2-Expressing *Escherichia coli* O157:H7." Vaccine 2010 (28): 4777-4785. PubMed: 20472033.
2. Sinclair, J. F., Personal Communication.
3. Kim, S. H., et al. "Phosphoethanolamine Substitution in the Lipid A of *Escherichia coli* O157:H7 and Its Association with PmrC." Microbiol. 152 (2006): 657-666. PubMed: 16514146.

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