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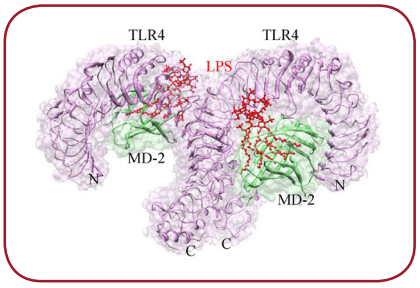

PRODUCT DATA SHEET

MPLA from E. coli R515 (Re) TLRpure™ Sterile Solution

Cat. No.: IAX-100-003 **Lot. No.:**

Source	Monophosphoryl Lipid A [MPLA] derived from E. coli R515 (Re) LPS
Concentration	1mg/ml (0.5mg/ml for 250µg size) stabilised in sterile, double-distilled water (ddWater), without any additives
TLRpure™	No detectable TLR4 *independent* activity: standardised potent TLR4-specific agonist
Purity	≥99.9%. No detectable DNA, RNA and protein traces.
Purification Method	R-type (mutant/rough) LPS was isolated by a phenol-chloroform-petroleum-ether method. Semi-purified LPS was subjected to further re-extraction cycles and ultracentrifugation steps, extensively electrodialysed before converted to its uniform sodium salt form to yield LPS, from which MPLA was generated by acid hydrolysis.
Sterility	Filter method: according to Ph. Eur. 9. Passed according to specification: • No growth in Thioglycolate medium at 30-35°C after 14 days. • No growth in Soybean Casein Digest Broth (TSB) at 20-25°C after 14 days.
Appearance	Colourless, clear to opaque aqueous solution
Handling	Keep sterile. Prepare diluted MPLA working solutions in water just prior to use. Do not pre-dilute in buffer (e.g. PBS) as this will lead to precipitation of MPLA. To yield a 100µg/ml (1,000-100x) stock solution add 100µl of MPLA to 900µl endotoxin-free sterile water (not PBS) and mix well. Ready-made solution is cell culture-grade.
Activity	Optimal concentration is dependent upon cell type, species, desired activation and analysis: 0.1-1.0µg/ml. Does not activate any TLR other than TLR4 as tested up to 50µg/ml in relevant cellular systems (macrophages).
Shipping	Ambient
Storage	2-8°C. Do not freeze.
Stability	2 years after receipt (unopened and as supplied)
MSDS	Available on request

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General Information

- Activation of cells by LPS is mediated by the Toll-like receptor 4 (TLR4), a member of the highly conserved protein family of TLRs, which are specialised in the recognition of microbial components. In mice, defects in TLR4 result in LPS unresponsiveness.
- For optimal interaction with LPS, TLR4 requires association with myeloid differentiation protein 2 (MD-2). According to current consensus activation of TLR4 is preceded by the transfer of LPS to membrane-bound (m) or soluble (s) CD14 by LPS-binding protein (LBP). This mechanism is believed to be generally true for LPS signaling. Re-form LPS and lipid A, but not S-form LPS, are capable of inducing TNF-α responses also in the absence of CD14.
- LPS, synthesized by most wild-type (WT) Gram-negative bacteria (S-form LPS), consists of three regions, the O-polysaccharide chain, which is made up of repeating oligosaccharide units, the core oligosaccharide and the lipid A, which harbors the endotoxic activity of the entire molecule. R-form LPS synthesized by the so-called rough (R) mutants of Gram-negative bacteria lacks the O-specific chain. Furthermore, the core-oligosaccharide may be present in different degrees of completion, depending on the class (Ra to Re) to which the mutant belongs. Monophosphoryl Lipid A (MPLA) represents a detoxified derivative of Lipid A and constitutes an important adjuvant in prophylactic and therapeutic vaccines.

References

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