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## Lipopolysaccharides (LPS)

10 mg

**For Research Use Only. Not for Use in Diagnostic Procedures.**

### Background

Lipopolysaccharide (LPS), also known as endotoxin, is a major glycolipid constituent of the outer cell wall of gram-negative bacteria. LPS molecules typically consist of a strain-specific distal polysaccharide side chain known as the O-antigen, a hydrophilic core oligosaccharide, and a hydrophobic domain referred to as lipid A. Lipid A is covalently bound to the outer bacterial membrane and is responsible for the toxicity of LPS (1-3). LPS is a potent activator of the proinflammatory response in many mammalian cell types, including macrophages, monocytes, and endothelial cells. Investigators have demonstrated that LPS binds to the CD14/TLR4/MD2 receptor complex, which in turn induces inflammatory cytokines including TNF- $\alpha$ , Interleukin-1, and IFN- $\alpha$ , as well as numerous inflammatory proteins such as iNOS, NF- $\kappa$ B, RIG-1, and IRF-3 (4-6).

### Description

LPS is supplied as a lyophilized powder and is from *E. coli* serotype O111:B4. It is purified via phenol extraction.

### Solubility

Soluble in PBS and H<sub>2</sub>O at 5mg/ml and cell culture medium at 1mg/ml.

### Storage

Store lyophilized at 4°C. In lyophilized form, the product is stable for 24 months. Once in solution store at -80°C and use within 3 months to prevent loss of potency. *Aliquot to avoid multiple freeze/thaw cycles.*

### Directions for Use

For a 1 mg/ml stock, reconstitute the 10 mg in 10 ml sterile PBS. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used at 10-1000 ng/ml for 15 min-24 hours. Soluble in PBS and cell culture medium at 5 mg/ml and 1 mg/ml, respectively.

### Background References

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