

## Certificate of Analysis

MPLA (PHAD®)

Monophosphoryl Lipid A (Synthetic) (PHAD®)

699800P-1mg Page 1 of 1

Physical State Powder Storage -20 °C

**Expiration Date** One year from date of receipt

M Lot Number 5086PGA029

Avanti Lot Number 699800P-1MG-A-029

ANALYSIS	SPECIFICATION	RESULTS
Physical examination	<b>Powder</b> : White solid which contains no foreign matter.	Pass
TLC (75:25:3 Chloroform:Methanol:Water)	>99% Purity Ninhydrin: negative Iodine: one major spot Phosphorus: positive Charring: positive Water dip: one major spot	All Pass
HPLC-ELSD	NLT 99% (AUC)	100% (AUC)
Proton NMR	NMR spectrum consistent with structure	Pass
Phosphorus NMR	NMR spectrum consistent with structure	Pass
Mass Spectroscopy	[M-NH <sub>4</sub> ] <sup>-</sup> = 1745.469 ± 1 amu	[M-NH <sub>4</sub> ] <sup>-</sup> = 1745.7 amu

Approved by: