

**MPLA (PHAD<sup>®</sup>)**

 Monophosphoryl Lipid A (Synthetic) (PHAD<sup>®</sup>)

**699800P-5mg**
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|                          |                                                                   |
|--------------------------|-------------------------------------------------------------------|
| <b>Molecular Weight</b>  | 1763.469                                                          |
| <b>Chemical Formula</b>  | C <sub>96</sub> H <sub>184</sub> N <sub>3</sub> O <sub>22</sub> P |
| <b>Physical State</b>    | Powder                                                            |
| <b>Storage</b>           | -20°C                                                             |
| <b>Expiration Date</b>   | One year from date of receipt                                     |
| <b>M Lot Number</b>      | 5086PHA031                                                        |
| <b>Avanti Lot Number</b> | 699800P-5MG-A-031                                                 |

| ANALYSIS                                     | SPECIFICATION                                                                                                                           | RESULTS                                        |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Physical Examination                         | <b>Powder:</b> White solid which contains no foreign matter                                                                             | Pass                                           |
| TLC<br>(75:25:3 Chloroform: Methanol: Water) | >99% Purity<br>Ninhydrin: negative<br>Iodine: one major spot<br>Phosphorus: positive<br>Charring: positive<br>Water dip: one major spot | All Pass                                       |
| Proton NMR                                   | NMR spectrum consistent with structure                                                                                                  | Consistent with structure                      |
| Mass Spectroscopy                            | [M-NH <sub>4</sub> ] <sup>+</sup> = 1745.469 ± 1 amu                                                                                    | [M-NH <sub>4</sub> ] <sup>+</sup> = 1746.0 amu |
| HPLC-ELSD                                    | NLT 99% (AUC)                                                                                                                           | 100% (AUC)                                     |
| Phosphorus NMR                               | NMR spectrum consistent with structure                                                                                                  | Consistent with structure                      |

Approved By:



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