

Certificate of Analysis

DSPE-PEG2K-triGalNAc

1,2-distearoyl-sn-glycero-3-phosphoethanolamine-N-[carboxy(polyethylene glycol)-2000]-N-tri(N-acetylgalactosamine), ammonium salt

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Molecular Weight 4022.82 (average MW due to polydispersity of PEG)

Chemical Formula C₁₈₃H₃₅₅N₁₀O₈₁P (representative due to polydispersity of PEG)

Physical State Powder Storage -20°C

Expiration Date One year from date of receipt

M Lot Number 7107PGB012

Avanti Lot Number 880157P-1MG-B-012

| ANALYSIS | SPECIFICATION | RESULTS |
|--|--|--|
| Physical Examination | Powder: White solid which contains no foreign matter | Pass |
| TLC (65:35:8 Chloroform: Methanol: Water) | Ninhydrin: negative lodine: one major spot Phosphorus: positive Charring: negative to faint positive Water dip: one major spot | Ninhydrin: negative lodine: one major spot Phosphorus: positive Charring: negative Water dip: one major spot |
| Proton NMR | NMR spectrum consistent with structure | Consistent with structure |
| Phosphorus NMR | NMR spectrum consistent with structure | Consistent with structure |
| HPLC-ELSD | NLT 97% (AUC) | 99.8% (AUC) |
| Average Molecular Weight (Mw) by LC-TOF-MS | Run and Report | 4037.577 |
| Polydispersity Index (PDI) by LC-TOF-MS | Run and Report | 1.002 |

Approved By: