

## 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** C<sub>183</sub>H<sub>355</sub>N<sub>10</sub>O<sub>81</sub>P (representative due to polydispersity of PEG)

Physical State Powder Storage -20°C

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

M Lot Number 7107PIA012

Avanti Lot Number 880157P-10MG-A-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:

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