

Certificate of Analysis

DSPE-PEG2K-triGALNAc (II)

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

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Molecular Weight 4278.13 (average MW due to polydispersity of PEG)

Chemical Formula C₁₉₅H₃₇₆N₁₃O₈₄P (representative formula due to polydispersity of PEG)

Physical State Powder Storage -20°C

Expiration Date One year from date of receipt

M Lot Number 7312PHA010

Avanti Lot Number 880260P-5MG-A-010

ANALYSIS	SPECIFICATION	RESULTS
Physical examination	Powder: White solid which contains no foreign matter	Pass
TLC (65:35:8 Chloroform: Methanol: Ammonium Hydroxide)	>99% Purity Ninhydrin: negative Iodine: one major spot Phosphorus: negative Charring: negative to faint positive Water dip: one major spot	>99% Purity Ninhydrin: negative Iodine: one major spot Phosphorus: negative Charring: negative Water dip: one major spot
Proton NMR	NMR spectrum consistent with structure	Consistent with structure
HPLC-ELSD	NLT 99% (AUC)	99.6 % (AUC)
Molecular Weight (Mw) by LC-TOF-MS	Run and Report	4310.817
Polydispersity Index (PDI) by LC-TOF-MS	Run and Report	1.002

Approved By: