

DC Chemicals · AO16 Instructions for Use

Catalog DCL0001 · Antioxidant lipid AO16

Literature formulation

AO16:SM-102:DSPC:cholesterol:DMG-PEG2000 = 2.50:50.00:10.00:38.50:1.50 reported molar ratio. The sum is 102.50; normalized total-lipid percentages are 2.44:48.78:9.76:37.56:1.46. Total lipid:mRNA = 20:1 by mass; N/P was not reported.

Component	Reported ratio	Normalized mol%
AO16	2.50	2.44
SM-102	50.00	48.78
DSPC	10.00	9.76
Cholesterol	38.50	37.56
DMG-PEG2000	1.50	1.46

Preparation conditions

Citrate buffer pH 4.0 and ethanol phase at 3:1 aqueous:ethanol; vortex 5 min, incubate 10 min, then dialyze against PBS for at least 12 h. These are literature conditions and should be independently optimized.

AO16 screening evidence

At 0.05 mM reactive-species challenge, the reported antioxidant score was 67% for AO16 LNPs versus 57% for the commercial control LNP. At 0.50 mM, the score was 32% versus 37% for control. The 0.05 mM component values were O₂⁻ 87, ·OH 42, H₂O₂ 72, ClO⁻ 69 and ONOO⁻ 64.

Evidence boundary

The source supports AO16 as an in vitro screening candidate. AO12 was selected as the lead for later regeneration, biodistribution and gene-editing experiments; those AO12-specific animal results are not assigned to AO16.

Product information

Formula: C₅₃H₉₅NO₈ · Average molecular weight: 874.34 g/mol · SMILES: CCCCCCCCCCCCOC(=O)CCCCCN(CCCCCCCC(=O)OC(CCCCCCCC)CCCCCCCC)CCOC(=O)CCc1cc(O)c(O)cc1

Research use only. Confirm current pack size, price, lot-specific purity, solubility and storage instructions with DC Chemicals before use. Source: Li B, Zhao M, Yang B, et al. Nature Communications 2026;17:7166. DOI 10.1038/s41467-026-73512-3.