Avanti Research
A CRODA BRAND
NovoArc

Ultra-stable archaea-derived tetraether lipids that span the membrane to form monolayer-like vesicles for LNPs and liposomes

Why archaeal tetraether lipids?

Extreme stability

- Ether bonds + tetraether monolayers provide exceptional thermal, oxidative, and pH stability compared to conventional phospholipids.

Oral, parenteral, and beyond

- Demonstrated benefits in oral CBD and vancomycin delivery and in mRNA studies, with boosted bioavailability and GI (Gastrointestinal) stability.

Non-PEG stealth option

- GDGT-containing IV liposomes showed stealth behavior comparable to PEGylated formulations without PEG itself.

Platform-ready

- Applicable to small molecules, proteins, and nucleic acids; scalable manufacture under QbD principles in continuous culture.

Now available:

Product Name	Catalog Number	Type/Role	Key Features
GDGT (Glycerol dialkyl glycerol tetraether)	A80588	Native tetraether helper/stealth lipid for liposomes and LNPs	Extreme thermal/pH stability; boosts oral bioavailability and GI stability in case studies; non-PEG stealth behavior in IV liposomes
OHPIPD-GDGT (4-hydroxy-piperidine-Glycerol dialkyl glycerol tetraether)	A89965	Ionizable tetraether lipid for LNP-style nucleic acid delivery	Combines GDGT backbone stability with an ionizable headgroup for complexing mRNA/saRNA/CRISPR cargos

Use-cases

GDGT-based formulations significantly enhanced drug delivery performance, increasing oral vancomycin bioavailability by approximately ninefold without added toxicity, improving oral and parenteral mRNA bioavailability with sustained protein expression (including an ~11-fold increase for oral mRNA in rats), and providing PEG-free stealth properties that performed comparably to PEGylated liposomes in intravenous models.

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Figure 1.

GDGT when introduced to standard LNP (Lipid Nanoparticle) formulation: Increases bioavailability of mRNA-based API (active pharmaceutical ingredient)

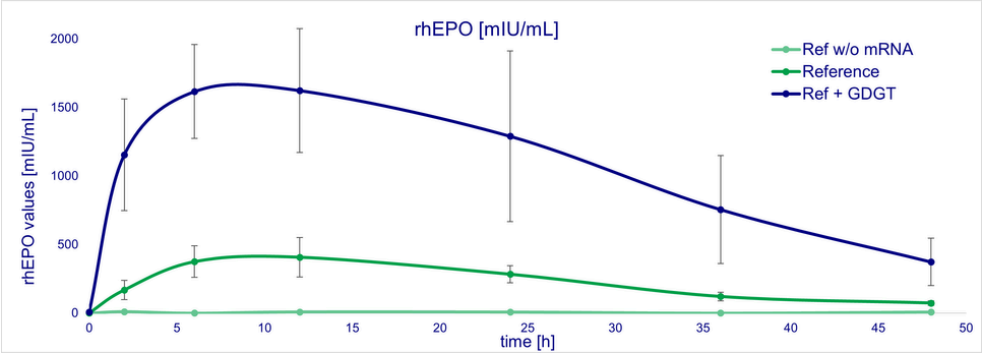

Figure 2.

Unmatched Storage Stability: Lyophilized archaeosomes maintain >95% integrity after 6 months of storage, eliminating the need for ultra-cold chain logistics.

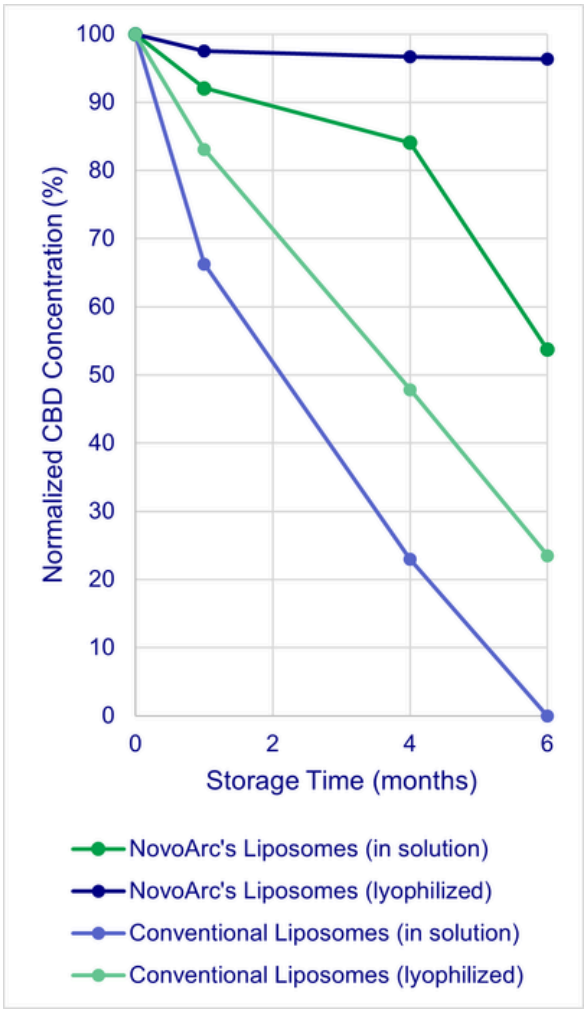

Figure 3.

Superior Gastrointestinal Stability: Archaeal lipid formulations retain significantly more cargo payload after exposure to simulated gastric and intestinal fluids compared to conventional liposomes.

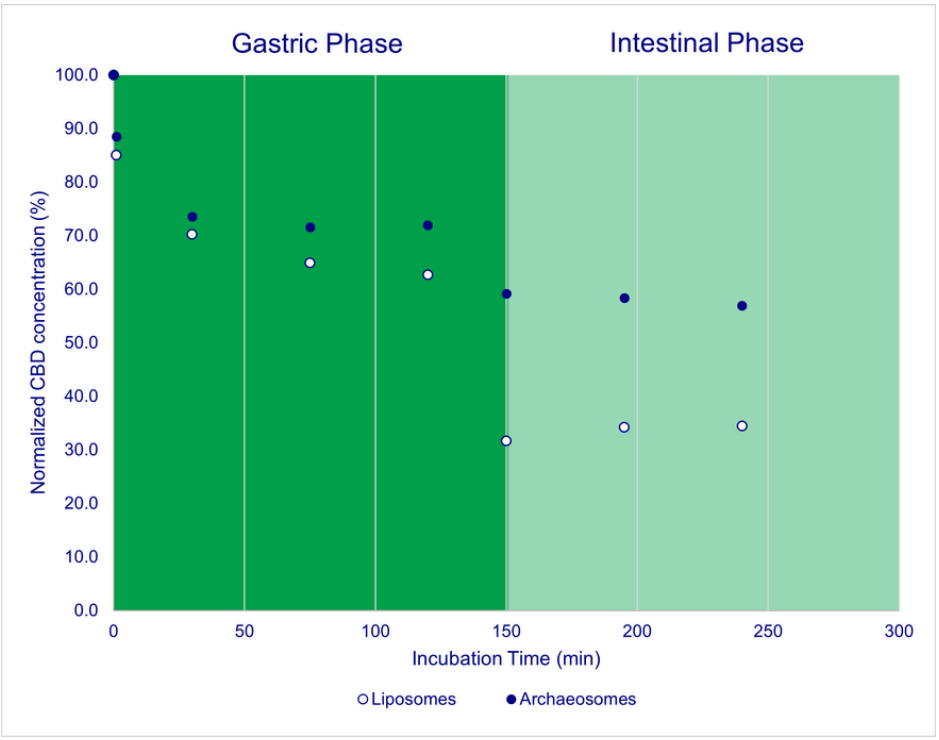

Figure 4.

Enhanced Cellular Uptake: Archaeal lipid formulations demonstrated a 37% increase in cellular uptake compared to standard phospholipid formulations.

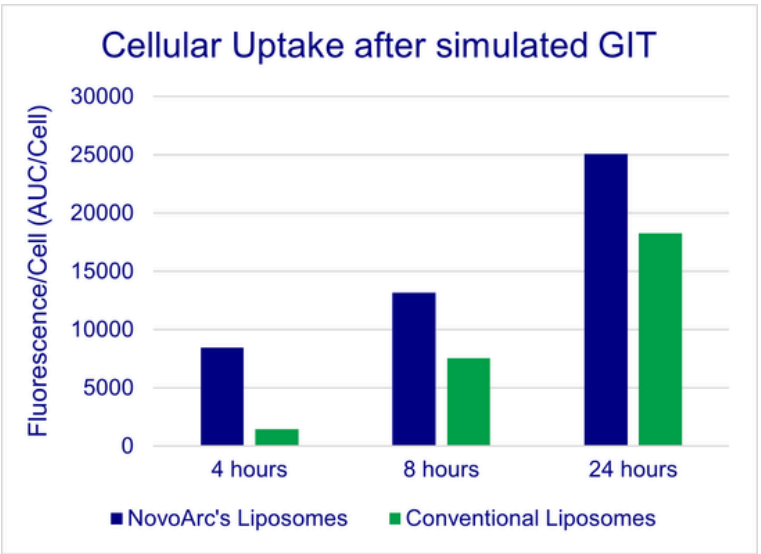

Figure 5.

Chemical Robustness: Native GDGT lipids exhibit no degradation at Room Temperature over extended periods.