Lipid Nanoparticle Development



Lipid nanoparticles (LNPs) represent an extremely promising technology for delivery of gene products for a host of potential health applications, from immunization against emerging pathogens to personalized neoantigen cancer therapy and gene therapy for many diseases. Combining our industry-leading expertise in lipid chemistry, synthesis, and analysis with proficiencies in bioanalysis and cell biology, Cayman offers comprehensive services to support LNP development, characterization, and screening.

Our Services



Custom Lipid Synthesis

Custom synthesis of high-purity lipids from smaller batch sizes to larger scale GMP quantities



LNP Formulation & Characterization

Microfluidic LNP preparation and comprehensive particle characterization and stability testing



LNP Analysis & Screening

Bioanalytical services for assessment of payload delivery and downstream biological effects

Our Assets

- Industry-leading portfolio of lipid reagents for LNPs
- 45 years of experience in lipid synthesis and analysis
- Expertise across multiple therapeutic and research areas
- Multiple in-house facilities and state-of-the-art analytical capabilities

Custom Lipid Synthesis

Custom synthesis of high-quality LNP components

Our Capabilities

- Fixed & ionizable cationic lipids
- Helper lipids
- · Sterol lipids

- PEGylated lipids
- Custom & proprietary lipids
- CGMP manufacturing

 Functionalized & bioconjugated lipids for cell/tissue targeting

LNP Formulation & Characterization

Flexible services to design and develop LNPs for nucleic acid cargoes

Our Capabilities



Formulation



Characterization



- Lipid component
 & cargo selection
- LNP targeting strategies
- Experimental design

- Tunable microfluidic mixing parameters
- Variable flow rate & lipid ratios
- Screening or bulk preparations
- Scalable volumes (up to 200 ml)
- Particle size & concentration
- Polydispersity index
- Apparent pK_a
- Aggregation
- Encapsulation efficiency
- Stability

LNP Analysis & Screening

Customizable solutions for the evaluation & optimization of LNPs

Our Capabilities

- BSL2+ cell culture for immortalized or primary cells
- Multiple assay formats to measure payload delivery and expression, cell viability, and downstream biological effects
- Choose from ready-made or custom assays, with high-throughput options available

Learn more about our LNP Development Services and request a quote at www.caymanchem.com/Inp-services