

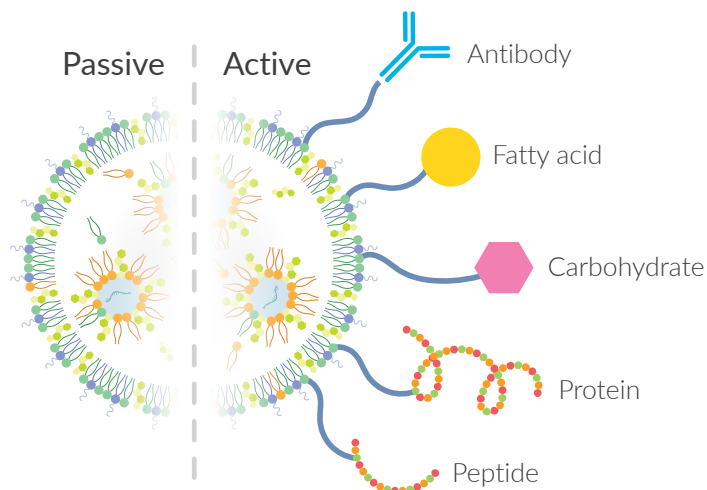
# Lipids for LNP Targeting: Passive & Active Approaches



Cayman offers a comprehensive portfolio of lipids and conjugation-ready components to support both passive and active targeting strategies in lipid nanoparticle (LNP) formulation and design.

## Explore Our Tools & Services for LNP Targeting

- Ionizable cationic lipids
- Functionalized and targeting PEG lipids
- Unconjugated targeting peptides and proteins
- Custom lipid synthesis and conjugation services
- Bulk quantities and scale-up support



### Hundreds of Ionizable Lipids for LNP Discovery & Production

Cayman offers one of the most extensive collections of ionizable cationic lipids, supporting a wide range of targeting strategies and cargo types.

#### Targets

- Liver, lung, spleen
- Lymph nodes
- CAR-T cells
- Tumors
- Immune cells

#### Payloads

- mRNA
- siRNA
- CRISPR-Cas9
- pDNA
- saRNA, circRNA

View all at [www.caymanchem.com/ionizable-cationic-lipids](http://www.caymanchem.com/ionizable-cationic-lipids)

### LNP Conjugation Tools for Active Targeting

Cayman offers conjugation-ready LNP components for attaching peptides, antibodies, and other targeting ligands, including functionalized PEG lipids with amine, NHS, maleimide, azide, DBCO, and TCO handles, as well as a variety of lipid-conjugated targeting moieties.

- Functionalized PEG Lipids
- Unconjugated Targeting Proteins
- Conjugated PEG Lipids
- New DBCO Labeling Kit for proteins

View all at [www.caymanchem.com/lnp-conjugates](http://www.caymanchem.com/lnp-conjugates)

### PEG-Free Shielding Lipids for LNPs

Through our partnership with Curapath, Cayman provides PEG-free polysarcosine (pSar) and polyaminoacid shielding lipids, non-immunogenic, biodegradable alternatives to PEGylated lipids that support next-generation LNP formulation and targeting strategies.



Browse Curapath products from Cayman at [www.caymanchem.com/curapath](http://www.caymanchem.com/curapath)

# Which Lipids are Best for My Application?

## Passive LNP Targeting

LNPs containing ionizable lipids may display different native target tissue tropisms depending on LNP biophysical properties and the route of administration, a property known as passive tropism.

## Selective ORgan Targeting (SORT)

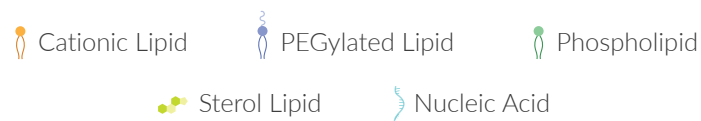
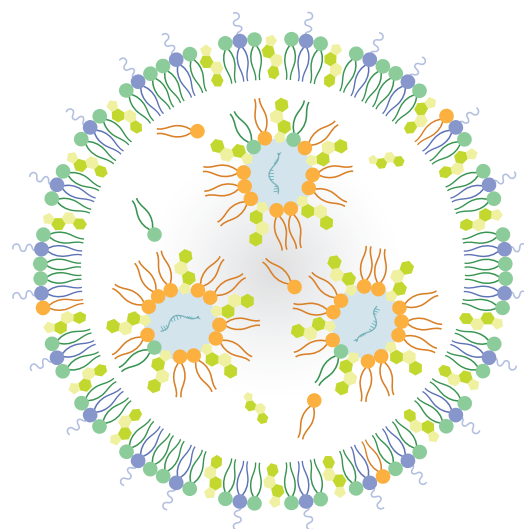
This approach adds a fifth lipid, a lipid SORT molecule, to the traditional four-component LNP mixture to further tune and direct LNP delivery.

### Featured Product

#### LipidLaunch™ SORT LNP Exploration Kit

Item No. 40099

A complete kit for preparing SORT-containing LNPs.



## Organ- and Cell-Specific Lipid Collections

### Lung Targeting Ionizable Lipids

The lungs are difficult to target with LNPs because physiological factors favor organs like the liver and spleen. Our curated lipid set features ionizable lipids that promote LNP distribution to the lungs.

### Featured Product

#### LipidLaunch™ Ionizable Lipid LNP Lung Screening Set

Item No. 43435

A collection of 9 ionizable cationic and cationic lipids for LNP formulations targeting lung delivery.

### T Cell-Targeting Ionizable Lipids

T cells are hard to transfect due to their resistance to foreign genetic material. LNPs improve delivery with lower cytotoxicity. Our curated lipid set features ionizable cationic lipids that support nucleic acid delivery to activated T cells.

### Featured Product

#### LipidLaunch™ T Cell LNP Screening Set

Item No. 43932

A collection of 10 ionizable cationic lipids for LNP formulations targeting T cell delivery.

## Additional Features of Cayman's LipidLaunch™ Screening Sets:

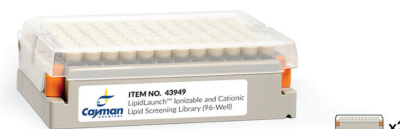
- ✓ Compatible with LipidLaunch™ Helper Lipid Set (Item No. 42831) for LNP formulation
- ✓ Compatible with LipidLaunch™ Cholesterol Analog LNP Screening Set (Item No. 43889) for LNP formulation
- ✓ Use Cayman's Bulk & Custom form to customize your set from our catalog of ionizable lipids

### Featured Product

#### LipidLaunch™ Ionizable and Cationic Lipid Screening Library (96-Well)

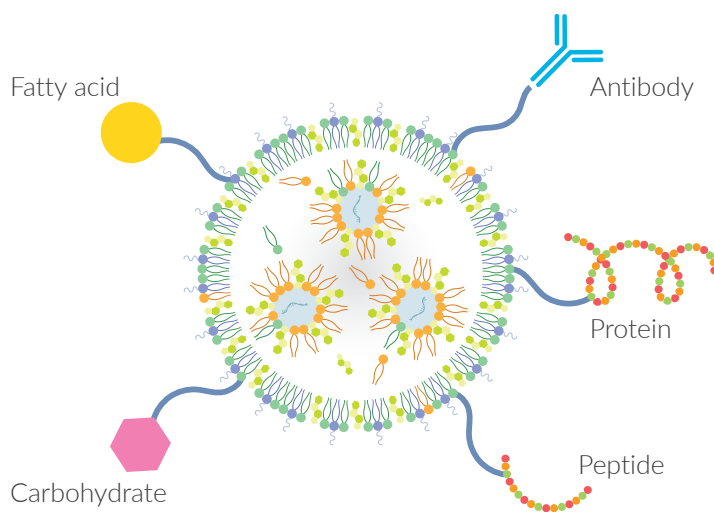
Item No. 43949

A screening library containing 126 cationic and ionizable cationic lipids for use in LNP formulations.



## Active LNP Targeting

Targeted delivery is achieved by incorporating peptides, antibodies, or other ligands onto the LNP surface. These ligands are covalently attached to functionalized lipids, such as amine, NHS, maleimide, azide, DBCO, or TCO handles, to enable receptor specific uptake. Cayman offers functionalized lipids for direct conjugation, ready-to-use targeting PEG lipids, and custom support for building tailored targeting molecules and LNPs.



## Functionalized PEG Lipids

### Traditional Conjugation

Item No.	Product Name
43957	DSPE-PEG(2000) Maleimide
26000	DSPE-PEG(2000)-amine (sodium salt)
42164	DSPE-PEG(2000)-COOH
37275	DSPE-PEG(2000)-NHS ester

### Click Conjugation

Item No.	Product Name
43268	DSPE-PEG(2000)-Azide
44696	DSPE-PEG(2000)-DBCO
43626	DSPE-PEG(2000)-TCO

### Unconjugated Targeting Proteins

Item No.	Product Name
40263	M2 Peptide
42319	iRGD Peptide

### Ready-to-Use Targeting PEG Lipids (Pre-Conjugated)

Item No.	Product Name	Receptor Target
44433	DSPE-PEG(2000)-T7	TfR
42584	DSPE-PEG(2000)-DT7	TfR
43421	DSPE-PEG(2000)-Pep2	CD36
41941	DSPE-PEG(2000)-Cyclo(RGDyK)	$\alpha$ v $\beta$ 3 integrin
44722	DSPE-PEG(2000)-Mannose	CD206
43956	DSPE-PEG(2000)-MACTIDE	CD206
41868	DSPE-PEG(2000)-UNO Peptide	CD206
44551	DSPE-PEG(2000)-tri-GalNAc	ASGPR

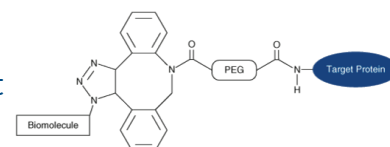
### Other Functionalized PEG Lipids

Item No.	Product Name
41955	C16 Ceramide-mPEG(2000)
41954	C8 Ceramide-mPEG(2000)
39036	Cholesterol-PEG(2000)-Biotin
41914	DSPE-PEG(2000)-Biotin
37797	DSPE-PEG(2000) Cyanur (ammonium salt)
41918	DSPE-PEG(2000)-FITC
43642	Stearic Acid-d <sub>35</sub> -mPEG(2000)

New

### DBCO Labeling Kit

Item No. 702850



A quick and easy-to-use conjugation kit for labeling target proteins.

# Your Partner for LNP Development Services

## LNP Formulation & Characterization

Flexible services to design and develop LNPs for nucleic acid cargoes

### Our Capabilities



- 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 & stability

## LNP Analysis & Screening

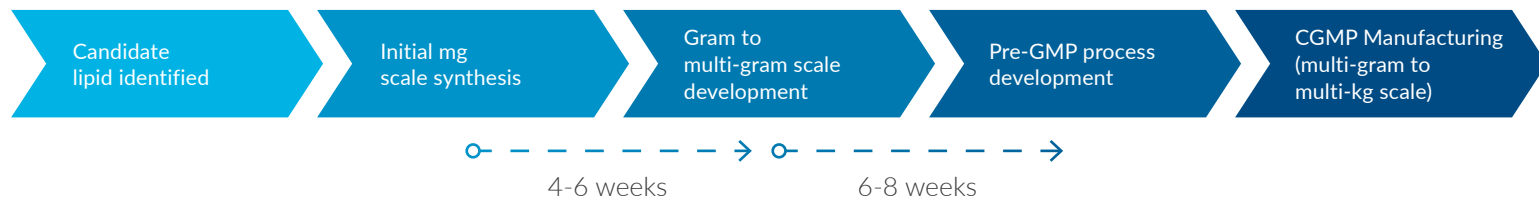
Customizable solutions for the evaluation & optimization of LNPs

### 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

Get more information or request a quote at [www.caymanchem.com/lnp-services](http://www.caymanchem.com/lnp-services)

## Lipid Synthesis & CGMP Manufacturing



### Custom Lipid Synthesis

Partner with Cayman to design and synthesize custom ionizable cationic lipids to accelerate your path to market while maintaining a competitive edge through proprietary intellectual property.

### Scale Up & Bulk Quantities

Bulk quantities of custom lipids or ionizable cationic lipids in our catalog are also available to support your LNP R&D efforts.

For Custom Lipid Synthesis, email [sales@caymanchem.com](mailto:sales@caymanchem.com)  
For CGMP Manufacturing, email [GMP-API@caymanchem.com](mailto:GMP-API@caymanchem.com)