

Lipid Nanoparticle Research Tools

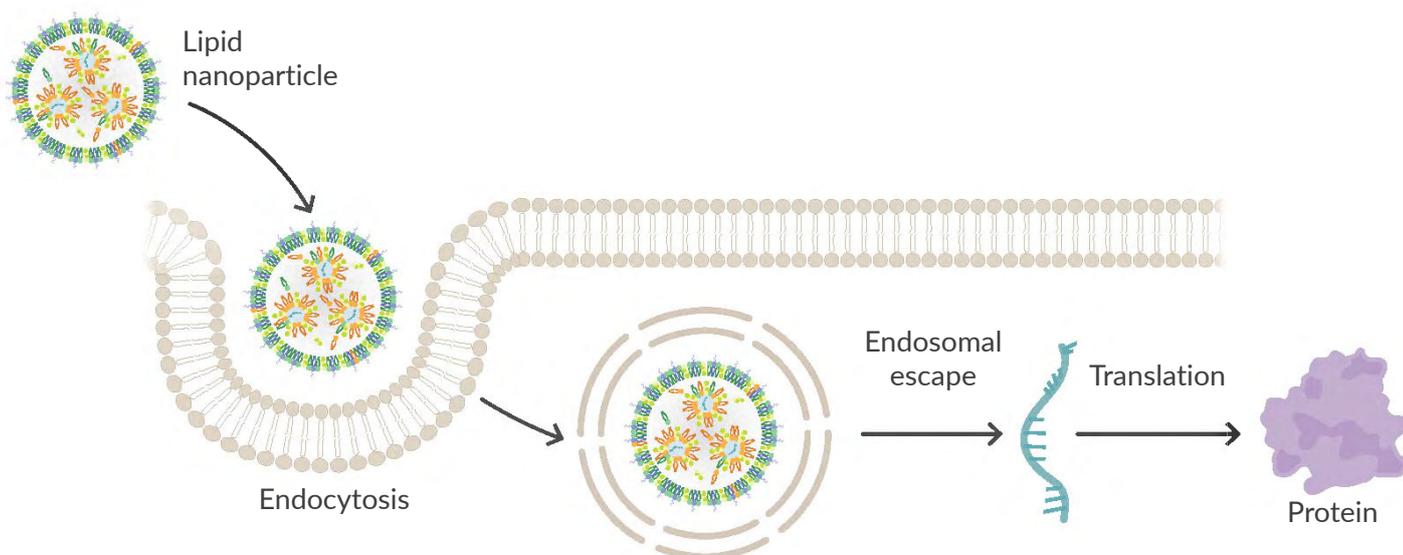


Lipid nanoparticles (LNPs) are a customizable lipid-based drug delivery (LBDD) platform that is ideal for the cellular delivery of nucleic acid therapeutics. Compared with traditional transfection reagents, LNPs offer improved transfection efficiency with reduced cytotoxicity. Because of their versatility, LNPs are a promising strategy for many therapeutic approaches.

With extensive expertise in lipid chemistry, synthesis, and purification, Cayman supports the research and development of LNP-based therapies from early discovery through clinical development with an industry-leading portfolio of research tools for LNPs.

Explore LNP Research Tools from Lipid Experts

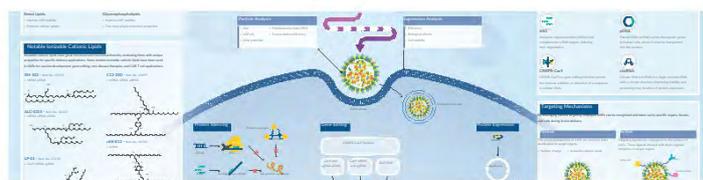
- LipidLaunch™ research-ready LNPs & reagent kits
- Reporter mRNA cargo
- High-purity lipids



LNPs are internalized by target cells via endocytosis. During endosomal escape, ionizable cationic lipids become positively charged in the acidic environment of the endosome, disrupting the endosomal membrane and releasing the nucleic acids into the cytosol, where translation occurs.

Chart Your Path to
LNP Discovery with our
LNP Lab Wall Poster

Download the poster at www.caymanchem.com/LNP-poster



High-Purity Lipids

Cationic & Ionizable Cationic Lipids

Cationic and ionizable cationic lipids are used in LNPs to encapsulate nucleic acid and promote endosomal escape.

Featured Products

SM-102 - Item No. 33474

ALC-0315 - Item No. 34337

DLin-MC3-DMA - Item No. 34364

LP-01 - Item No. 37278

Item No.	Product Name
36698	306O ₁₀
38155	4A3-SC8
36699	C12-200
38942	C14-4
36700	cKK-E12
40345	CL15F6
37279	CL4H6
36701	Dlin-DMA
34363	DLin-KC2-DMA
25726	1,2-Dioleoyl-3-dimethylammonium-propane (DODAP)
15110	1,2-Dioleoyl-3-trimethylammoniumpropane (DOTAP)
35051	L-319
35337	Lipid 29
34372	Lipid 5
37667	Lipid A9
38320	Lipid CL1
37652	OF-02

See all cationic & ionizable cationic lipids for LBDD at www.caymanchem.com

Discover how

different functional groups in ionizable cationic lipids tune LNPs

Visit www.caymanchem.com/tune-lipid-design

Neutral Phospholipids

Neutral phospholipids have a role in membrane fusion and can be used to modify the net surface charge of the LNP.

Phosphocholines (PCs)

Item No.	Product Name
15098	1,2-Dioleoyl- <i>sn</i> -glycero-3-PC (DOPC)
15100	1,2-Distearoyl- <i>sn</i> -glycero-3-PC (DSPC)
10172	1-Palmitoyl-2-hydroxy- <i>sn</i> -glycero-3-PC (16:0 Lyso PC)
15102	1-Palmitoyl-2-Oleoyl- <i>sn</i> -glycero-3-PC (1,2-POPC)
38152	1-Stearoyl-2-Oleoyl- <i>sn</i> -glycero-3-PC (1,2-SOPC)

Phosphoethanolamines (PEs)

Item No.	Product Name
15091	1,2-Dioleoyl- <i>sn</i> -glycero-3-PE (1,2-DOPE)
15095	1,2-Distearoyl- <i>sn</i> -glycero-3-PE (1,2-DSPE)
20067	1-Palmitoyl-2-Oleoyl- <i>sn</i> -glycero-3-PE (1,2-POPE)
38153	1-Steroyl-2-Oleoyl- <i>sn</i> -glycero-3-PE (1,2-SOPE)

See all neutral phospholipids for LBDD at www.caymanchem.com

Anionic Lipids

Anionic lipids prevent particle aggregation during storage.

Phosphoserines (PSs)

Item No.	Product Name
29983	1,2-Dioleoyl- <i>sn</i> -glycero-3-PS (1,2-DOPPS) (sodium salt)
15088	1,2-Dipalmitoyl- <i>sn</i> -glycero-3-PS (1,2-DPPS) (sodium salt)
25847	Phosphatidylserine (soy) (sodium salt)

Phosphoglycerols (PGs)

Item No.	Product Name
15084	1,2-Dilauroyl- <i>sn</i> -glycero-3-PG (1,2-DLPG) (sodium salt)
15085	1,2-Dimyristoyl- <i>sn</i> -glycero-3-PG (1,2-DMPG) (sodium salt)
20957	1,2-Dioleoyl- <i>sn</i> -glycero-3-PG (1,2-DOPG) (sodium salt)
15086	1,2-Dipalmitoyl- <i>sn</i> -glycero-3-PG (1,2-DPPG) (sodium salt)
25846	Phosphatidylglycerol (egg) (sodium salt)
15105	1-Palmitoyl-2-Oleoyl- <i>sn</i> -glycero-3-PG (1,2-POPG) (sodium salt)

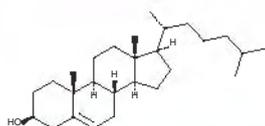
See all anionic lipids for LBDD at www.caymanchem.com

Sterol Lipids & Cholesterol Derivatives

Sterol lipids and cholesterol derivatives provide stability to LNPs and promote membrane fusion. Endosomal delivery of LNP cargo can also be improved by using modified sterol lipids and cholesterol derivatives.

Featured Product

Cholesterol - Item No. 9003100



A major sterol produced in mammalian cells. It is a major component of LNPs, where it has a role in membrane fusion and stability.

Item No.	Product Name
37386	24 α -ethyl Cholesterol
20098	7 α -hydroxy Cholesterol
17344	24-methyl Cholesterol
9004198	Cholesterol-Doxorubicin
38642	Cholesterol-Undecanoate-Glucose Conjugate
16943	DC-Chol (hydrochloride)
21858	Fucosterol
34371	GL67
39448	Cholesterol (plant)
26094	Sitostanol
18079	Stigmasterol

See all sterol lipids for LBDD at www.caymanchem.com

Reporter mRNA Cargo

Assess and visualize the efficacy of mRNA delivery and expression in target cells.

Item No.	Product Name
41964	Cas9 mRNA (Cap-1; mo ⁵ U)
41963	Cre mRNA (Cap-1; m1 Ψ)
39802	Cre mRNA (Cap-1; Ψ UTP)
39800	EGFP mRNA (Cap-1; mo ⁵ U)
41961	EPO mRNA (Cap-1; Ψ UTP)
39801	Firefly Luciferase mRNA (Cap-1; mo ⁵ U)
39799	mCherry mRNA (Cap-1; 5mCTP; Ψ UTP)
41962	mCherry mRNA (Cap-1; m1 Ψ)

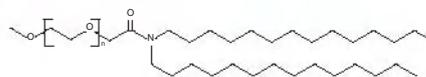
See all reporter mRNA cargo for LBDD at www.caymanchem.com

PEGylated Lipids

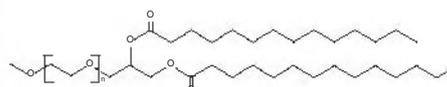
PEGylated lipids prevent opsonization, improving particle stability and increasing its bioavailability.

Featured Products

ALC-0159 - Item No. 34336



DMG-PEG(2000) - Item No. 33945



See all PEGylated lipids for LBDD at www.caymanchem.com

Functionalized PEGylated Lipids

Functionalized PEGylated lipids can be conjugated to a variety of targeting ligands to improve the selective targeting of LNPs to cells or tissues.

Item No.	Product Name
40710	DSPE-PEG(2000)-Azide
42164	DSPE-PEG(2000)-COOH
37798	DSPE-PEG(2000)-DBCO
42013	DSPE-PEG(2000) Maleimide
37275	DSPE-PEG(2000)-NHS
42160	DSPE-PEG(2000)-TCO
37148	PEG(2000)-DSPE (sodium salt)

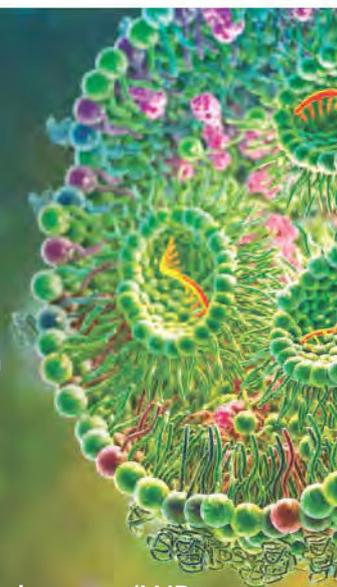
See all functionalized PEGylated lipids at www.caymanchem.com

Discover Our LNP Resources

- View our full collection of high-purity lipids
- Explore our LNP Development Services
- Access articles, application notes, & webinars



View more at www.caymanchem.com/LNPs



LipidLaunch™ LNP Research Tools

We have pioneered the development of LipidLaunch™ research-ready LNPs and reagent kits. They support the entire LNP research and development process, offering tailored solutions from discovery to bioanalysis. LipidLaunch™ products utilize LNP formulations of broad and current interest and are available in various formats to offer researchers flexibility in cargo selection and LNP formulation.

Features:

- Minimal hands-on time & expertise
- Available in multiple LNP & reporter formats
- Efficient transfection with low cytotoxicity
- Easy to use & cost effective



LipidLaunch™ Preloaded LNPs

Preformulated LNPs containing reporter gene mRNA for proof-of-concept studies.

Item No.	Product Name
40105	ALC-0315 LNP (GFP)
40104	ALC-0315 LNP (Luciferase)
40103	ALC-0315 LNP (mCherry)
40100	LP-01 LNP (GFP)
39896	LP-01 LNP (Luciferase)
40101	LP-01 LNP (mCherry)
40107	MC3 LNP (GFP)
40108	MC3 LNP (Luciferase)
39320	SM-102 LNP (GFP)
39318	SM-102 LNP (Luciferase)
39319	SM-102 LNP (mCherry)

See all LipidLaunch™ preloaded LNPs at www.caymanchem.com

LipidLaunch™ Loadable LNPs

Cargo-ready, loadable LNPs for encapsulating cargo of choice to simplify LNP screening.

Item No.	Product Name
702750	ALC-0315 LNP Kit (Loadable)
702620	SM-102 LNP Kit (Loadable)
702760	BODIPY SM-102 LNP Kit (Loadable)

See all LipidLaunch™ loadable LNPs at www.caymanchem.com

LipidLaunch™ LNP Exploration Kits

Complete sets of lipid reagents for preparing LNPs of broad and current interest.

Item No.	Product Name
41819	C12-200 LNP Exploration Kit
41820	C14-4 T Cell Exploration Kit
35426	LNP-0315 Exploration Kit
35425	LNP-102 Exploration Kit
36970	LNP-MC3 Exploration Kit
40098	LP-01 LNP Exploration Kit
40099	SORT LNP Exploration Kit

See all LipidLaunch™ LNP exploration kits at www.caymanchem.com

LipidLaunch™ LNP Uptake Kits

Complete sets of lipid reagents and a fluorescent tracer to visualize LNP cellular uptake.

Item No.	Product Name
38219	LNP-0315 Uptake Kit (Green Fluorescence)
39064	LNP-0315 Uptake Kit (Near-Infrared Fluorescence)
38218	LNP-102 Uptake Kit (Green Fluorescence)
39065	LNP-102 Uptake Kit (Near-Infrared Fluorescence)
39067	LNP-MC3 Uptake Kit (Green Fluorescence)
39066	LNP-MC3 Uptake Kit (Near-Infrared Fluorescence)

See all LipidLaunch™ LNP uptake kits at www.caymanchem.com

LipidLaunch™ Companion Products

Use these products to further streamline LNP screening, characterization, and optimization.

Item No.	Product Name
42831	Helper Lipid Set
42832	Ionizable Lipid LNP Screening Set
702680	LNP Apparent pK _a Assay Kit (TNS Method)
400813	LNP Formulation Buffer