

## Lipid Nanoparticle (LNP) **Encapsulation Capabilities**

Offering cutting-edge Lipid Nanoparticle (LNP) encapsulation services can support a wide range of applications, including mRNA vaccines, addressing therapeutic areas such as infectious diseases, oncology, and rare diseases.

BioCina leverages advanced technologies and a highly skilled team to deliver high-quality, scalable LNP solutions tailored to your needs.

**Drug Substance Source** LNP Encapsulation LNP Encapsulation Formulation & Bulk Fill

## LNP Development and Manufacturing Scales

Stage	Equipment	Working Volume	Yield
Process Development	Non-Turbulent Microfluidic Mixing	20 μL – 1 L (Pre-Dilution)	Up to 4 L
cGMP Manufacturing	(Various Scales Available)	1 – 50 L (Pre-Dilution)	Up to 40+ L

## Typical mRNA / LNP Development and Manufacturing Timelines

3 Months →	6 Months →	9 Months →	
Process / Analytical Development	4 months to PD and AD completion, I	4 months to PD and AD completion, LNP encapsulation processes ready to scale	
	Scale-Up, ENG Manufacture	6 months to ENG manufacture and disposition	
	8 months to cGMP Batch Disposition	cGMP Batch Manufacture	

