

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 Formulation & Bulk Fill LNP Encapsulation Polishing or Filtration

LNP Development and Manufacturing Scales

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

Typical mRNA / I NP Development and Manufacturing Timelines

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