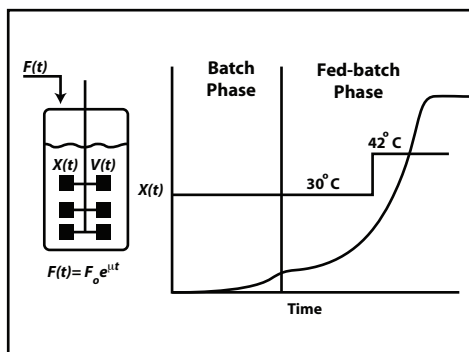


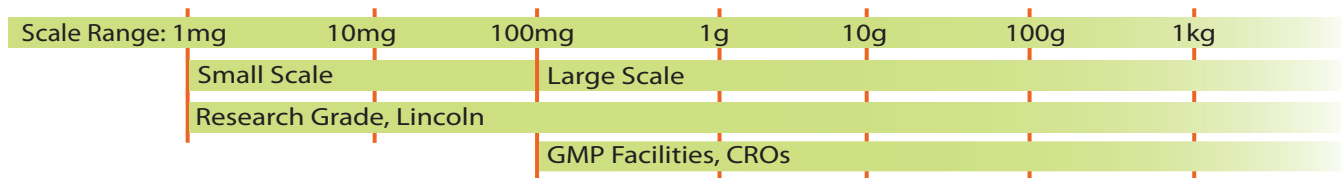
Plasmid DNA Manufacturing Services



Advantages of NTC's Plasmid Manufacturing Capabilities

- Highest yields (up to 2.6 g/L)
- Improved % supercoiled monomer using reduced metabolic burden process
- Highest quality purification (>95% supercoiled plasmid DNA)
- Highest plasmid yields per unit biomass
- Lowest cost per unit DNA
- Vector to process matching for highest overall performance
- Improved yield of toxic or unstable plasmids
- **Save 20% of large scale production cost with NTC's high-yield vectors**

Production of highly-purified research-grade plasmid DNA at NTC's Lincoln, Nebraska, USA plant range from 1mg to multi-gram scale, and production capabilities for GMP-grade DNA at NTC's CRO partners range from a hundred milligrams upward.



NTC's In-house pDNA services

- Small- and large-scale production and purification of research-grade pDNA (1mg – multi-gram)
- Quality testing of pDNA products (endotoxin [LAL]; residual RNA [gel], DNA [qPCR], protein [modified BCA testing])
- Production of plasmid-enriched *E. coli* cell paste for downstream processing in client facilities
- *E. coli* strain engineering, for production hosting of specific toxic plasmids
- Plasmid backbone engineering for substitution of antibiotic-free (markerless) or high copy plasmid backbones
- Low metabolic burden technology for stable production of toxic or unstable plasmids
- Production Research Cell Banks (RCB) using low metabolic burden technology
- Transfer of RCB to GMP facility for certification as Master and Working Cell Banks
- Technology Transfer of HyperGRO™ process to CROs and end-user facilities for best-in-class performance in plasmid fermentation

Plasmid Preparation Cost Comparison Chart:	Typical competitor:	NTC Small Scale:	NTC Large Scale:
Transformation of cells	Add-On Charge	No Extra Charge	No Extra Charge
Custom formulation	Add-On Charge	No Extra Charge	No Extra Charge
Endotoxin-free procedures and reagents	Add-On Charge	No Extra Charge	No Extra Charge
Certificate of Analysis	Yes/No	No Extra Charge	No Extra Charge
Gel Photo: single/double digests/uncut	Yes/No	No Extra Charge	No Extra Charge
Glycerol stock archiving	Add-On Charge	No Extra Charge	No Extra Charge
Lot sample archiving	Add-On Charge	No Extra Charge	No Extra Charge
Residual protein (modified BCA)	Add-On Charge	Add-On Charge	Add-On Charge
Residual RNA (spiked gel)	Add-On Charge	Add-On Charge	No Extra Charge
Genomic DNA (qPCR)	Add-On Charge	Add-On Charge	No Extra Charge
Endotoxin testing (LAL)	Add-On Charge	Add-On Charge	No Extra Charge
Guaranteed yield	Add-On Charge	No Extra Charge	No Extra Charge
Savings:	No Savings	\$100s	\$100s-\$1,000s

**For NTC high-yield SV40-PASBH Vectors:
20% discount on any order of 100mg or more**

