



## Overall Solution for

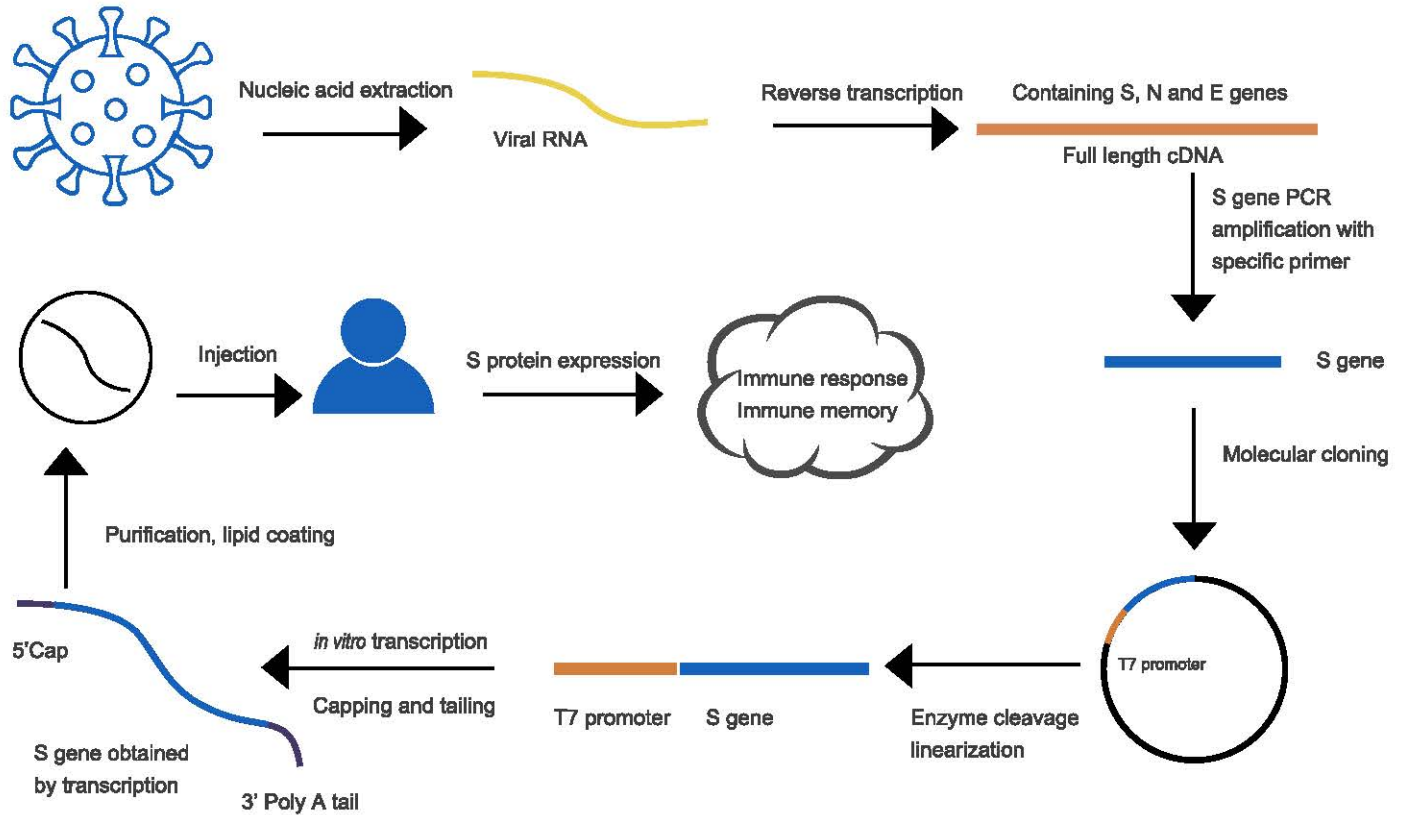
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mRNA Vaccine Production and Purification

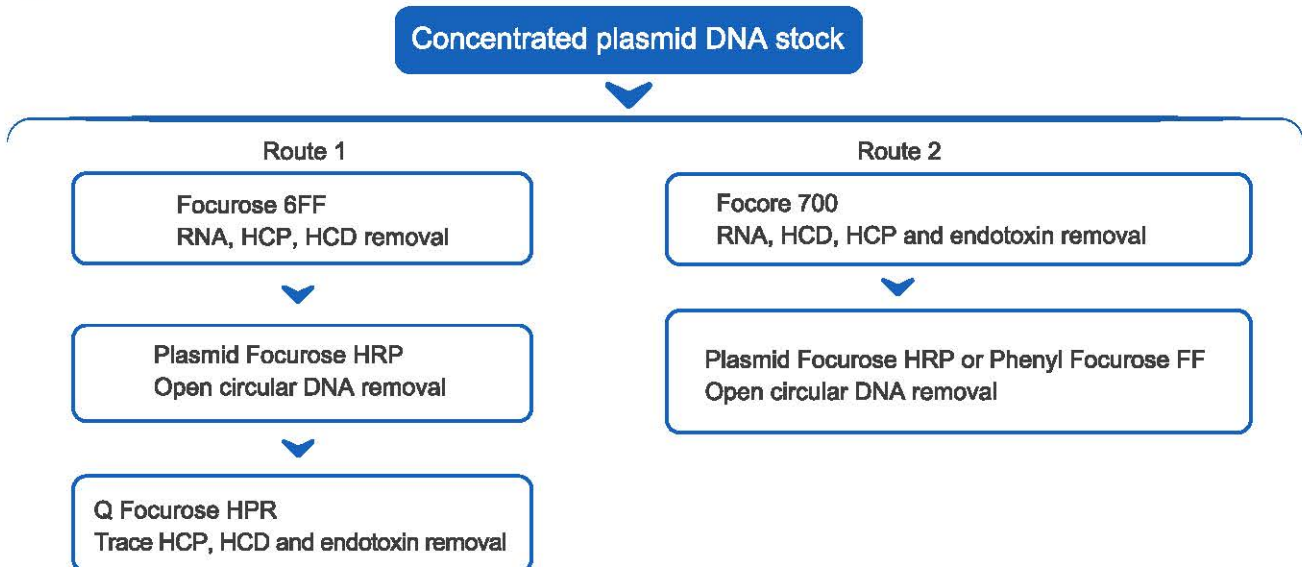
# mRNA Vaccine

The outbreak of COVID-19 has driven the rapid development of mRNA vaccine technology. Compared with traditional inactivated and attenuated vaccines, mRNA only expresses specific antigens and induces directional immune responses, which has a high effective protection rate. Due to the advantages of efficacy, safety and fast production, mRNA vaccine has become a star product in the field of medical science and technology innovation. During the production of mRNA vaccine, large-scale purification of plasmid DNA and mRNA vaccine is a key factor affecting the efficacy of mRNA vaccine.

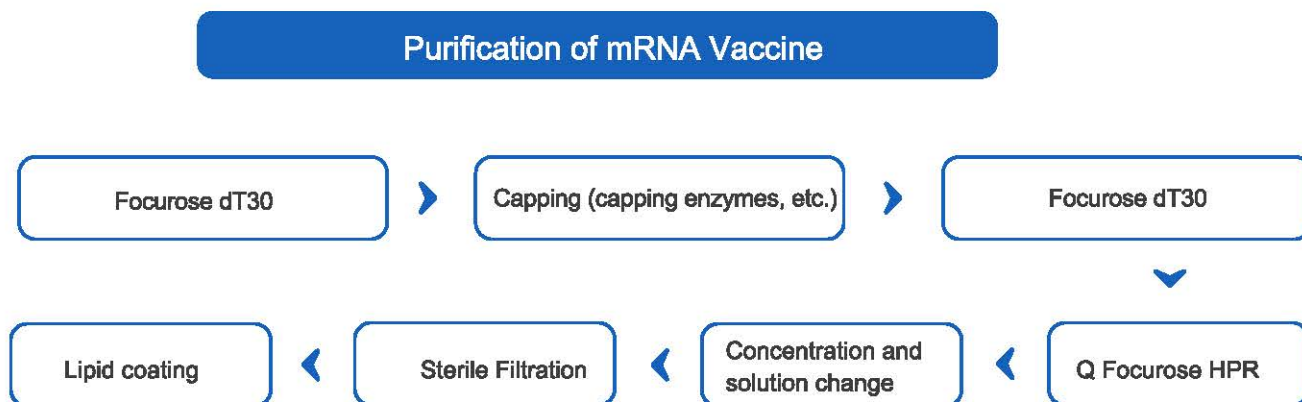
## mRNA Vaccine Production Process



## Large-scale Purification of pDNA



## mRNA Purification



## Product List of mRNA Purification Media

### Purification media for plasmid

#### Focurose 6FF

Product Name	Separation range (Globulin)	Particle size range	Average particle size	Withstand stress	Maximum flow rate	PH stability	Application
Focurose 6FF	1×10 <sup>4</sup> -4×10 <sup>6</sup>	45-165μm	90μm	≤0.3Mpa	700cm/h	2-12(Long term) 2-14(Short term)	Determination of biological macromolecular weight such as protein and polysaccharide; Plasmid DNA, virus, vaccine purification

#### Affinity media for plasmid purification

Product Name	Capacity mg/ml(Media)	Particle size range	Withstand stress	Maximum flow rate	PH stability	Application
Plasmid Focurose HPR	2mg(pDNA)	25-45μm	≤0.5Mpa	220cm/h	3-11(Short term) 2-13(Long term)	pDNA Isolation and purification
Plasmid Focurose HF	2mg(pDNA)	45-165μm	≤0.5Mpa	700cm/h		

#### Multi-mode chromatography media

Product Name	Particle size range	Average particle size	Withstand stress	Maximum flow rate	PH stability	Application
Focore 700	45-165μm	90μm	≤0.5Mpa	700cm/h	2-14(Short term) 4-12(Long term)	For flow-through purification of viruses, virus-like particles, virus vectors, etc.
Focore 400	45-165μm	90μm	≤0.5Mpa	700cm/h		

#### Q Focurose HPR

Product Name	Ion Load μmol/ml	Average particle size	Withstand stress	Maximum flow rate	PH stability	Application
Q Focurose HPR	130-160 Cl <sup>-</sup>	25-45μm	≤0.5Mpa	≥220cm/h	2-14(Short term) 2-12(Long term)	High flow rate and high capacity; High resolution and high recovery. Efficient purification of vaccines, viruses, proteins.

## Phenyl Focurose FF

Product Name	Ligand concentration μ mol/ml	Average particle size	Withstand stress	Maximum flow rate	PH stability	Application
Phenyl Focurose FF(LS)	20	45-165μm	≤0.3Mpa	700cm/h	2-14(Short term) 3-13(Long term)	Separation and purification of various proteins, suitable for the purification of substances containing aromatic groups, and further purification after desalting.
Phenyl Focurose FF(HS)	40	45-165μm	≤0.3Mpa	700cm/h		

## Ordering Information for Plasmid Purification Media

Product Name	Size	Cat. No.	Product Name	Size	Cat. No.
Focurose 6FF	25ml	HN060307025M	Q Focurose HPR	25ml	HL190306025M
	100ml	HN060307100M		100ml	HL190306100M
	500ml	HN060307500M		500ml	HL190306500M
	1L	HN060307001L		1L	HL190306001L
	5L	HN060307005L		5L	HL190306005L
	20L	HN060307020L		20L	HL190306020L
Plasmid Focurose HPR	25ml	HQ190220025M	Phenyl Focurose FF(LS)	25ml	HS060301025M
	100ml	HQ190220100M		100ml	HS060301100M
	500ml	HQ190220500M		500ml	HS060301500M
	1L	HQ190220001L		1L	HS060301001L
	5L	HQ190220005L		5L	HS060301005L
	20L	HQ190220020L		20L	HS060301020L
Plasmid Focurose HF	25ml	HQ190320025M	Phenyl Focurose FF(HS)	25ml	HS060302025M
	100ml	HQ190320100M		100ml	HS060302100M
	500ml	HQ190320500M		500ml	HS060302500M
	1L	HQ190320001L		1L	HS060302001L
	5L	HQ190320005L		5L	HS060302005L
	20L	HQ190320020L		20L	HS060302020L
Focore 700	25ml	HL270311025M			
	100ml	HL270311100M			
	500ml	HL270311500M			
	1L	HL270311001L			
	5L	HL270311005L			
	20L	HL270311020L			



## Ordering Information for Preloaded Columns with Plasmid Purification Media

Product Name	Size	Cat. No.	Product Name	Size	Cat. No.
HT Focurose 6FF	1ml	HN060307001E	HT Q Focurose HPR	1ml	HL190306001E
	5ml	HN060307005E		5ml	HL190306005E
HT Plasmid Focurose HPR	1ml	HQ190220001E	HT Phenyl Focurose FF (LS)	1ml	HS060301001E
	5ml	HQ190220005E		5ml	HS060301005E
HT Plasmid Focurose HF	1ml	HQ190320001E	HT Phenyl Focurose FF (HS)	1ml	HS060302001E
	5ml	HQ190320005E		5ml	HS060302005E
HT Focore 700	1ml	HL270311001E			
	5ml	HL270311005E			

## Chromatography Media for mRNA Purification

### Product List of mRNA Purification Media

Product Name	Ligand concentration mg/ml Media	Average particle size	Withstand stress	Maximum flow rate	PH stability	Application
Focurose dT30	4mg/ml Media	45-165µm	≤0.3Mpa	100-300cm/h	3-11(Short term) 2-13(Long term)	Separation and purification of mRNA
Q Focurose HPR	130-160 Cl <sup>-</sup>	25-45µm	≤0.5Mpa	≥220cm/h		

### Ordering Information for mRNA Purification Media

Product Name	Size	Cat. No.	Product Name	Size	Cat. No.
Focurose dT30	25ml	HQ270331025M	Q Focurose HPR	25ml	HL190306025M
	100ml	HQ270331100M		100ml	HL190306100M
	500ml	HQ270331500M		500ml	HL190306500M
	1L	HQ270331001L		1L	HL190306001L
	5L	HQ270331005L		5L	HL190306005L
	20L	HQ270331020L		20L	HL190306020L

### Ordering information of magnetic microspheres for mRNA purification (pilot stage)

Cat. No.	Particle Size	Color	Surface Group	Solids	Size
MS04T	1µm	Brownish yellow	Oligo (dT)	1.0%	10ml,100ml

Inspiring & Enabling Life Science Innovation



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