



RNA Synthesis Services

As an important research tool, RNA is widely used in gene function analysis, disease diagnosis and therapy development. GenCefe Biotech provides high-quality custom RNA synthesis services, including chemical synthesis and modification, as well as IVT RNA synthesis, to meet customers' needs for different scales, purities and applications.



RNA Synthesis and Modification

- siRNA/ASO Synthesis
- Pre-designed siRNA Set
- miRNA Mimic and Inhibitor
- circRNA, sgRNA Synthesis
- Custom RNA Synthesis and Modification

IVT RNA Synthesis

- Plasmid Construction
- Custom IVT mRNA
- Off-the-Shelf mRNAs
- circRNA, saRNA, sgRNA Synthesis
- mRNA Analysis and Detection

siRNA Synthesis Services

- High-quality siRNA synthesis, all RNA products are purified by HPLC
- Experienced technical support team, providing professional siRNA design, pre-sales guidance, and after-sales service
- Customized synthesis with flexible specifications; single batches can reach gram-level production
- Strict quality control standards, ISO9001 and ISO13485 dual system certification

Experimental Data

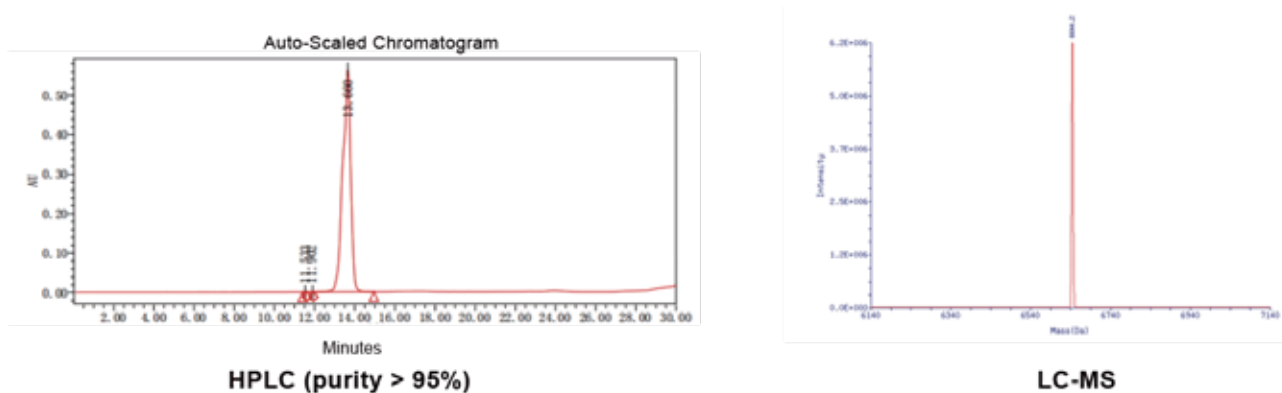


Fig 1. The siRNA products we deliver are purified by HPLC, and detected by LC-MS with a molecular weight deviation of <0.05%

Custom siRNA Synthesis

Product Name	Size (Yield)*	Purification	Turnaround Time
Custom siRNA	5/10/20 nmol	HPLC	4-6 days
Modified siRNA	5/10/20 nmol	HPLC	Get a Quote

Control siRNAs

Product Name	Size (Yield)*	Purification	Turnaround Time
NC siRNA	5/10/20 nmol	HPLC	2-3 days
FAM NC siRNA			
GAPDH positive control siRNA			
P53 positive control siRNA			
Beta-actin positive control siRNA			

* Quotes based on production scale or OD unit yield are available upon request, with single batch capacity up to grams.

Pre-designed siRNA Set

- Precise design, guaranteed* silencing efficiency >75%
- 50,000+ pre-designed siRNAs for **human, mouse, and rat**
- Free** Control siRNAs
- Fast turnaround time, starting from **4 days**

Case Studies

- Knockdown efficiency detection at mRNA level

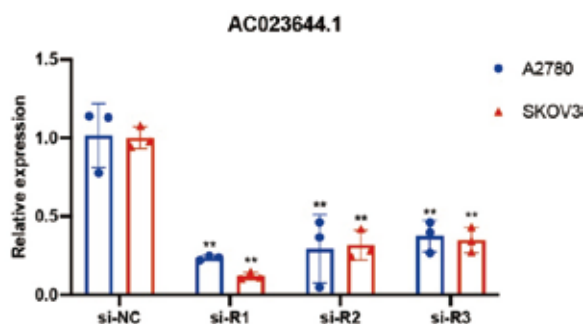


Fig 2. Knockdown efficiency of siRNA Set detected by RT-qPCR

Small interfering RNA (siRNA) successfully knocked down AC023644.1 in the human ovarian cancer epithelial cell lines A2780 and SKOV3 cells by RT-qPCR detection.

Ref: Chen R et al., *Heliyon*, 10(15), e35004.

- Knockdown efficiency detection at mRNA and protein level

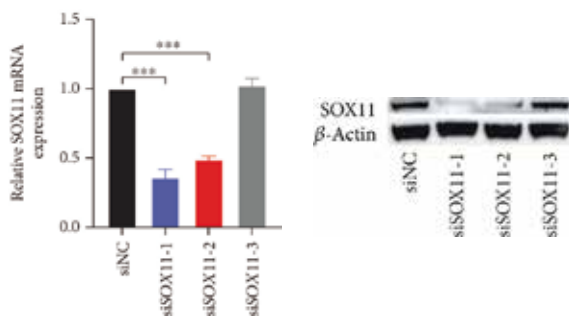


Fig3. Knockdown efficiency of siRNA Set detected by RT-qPCR (left) and Western Blot (right)

Three human SOX11-specific small interfering RNAs (siSOX11) or scrambled small RNAs (siNC) were transfected into periodontal ligament stem cells (PDLSCs), and qRT-PCR and Western blot verified that siSOX11 could effectively silence the mRNA and protein levels of SOX11.

Ref: Tu S et al., *Stem Cells Int.* 2023;2023:5671809.

Product Specifications

	Pre-Designed siRNAs	Control siRNAs	List Price
siRNA Set A	3 individual siRNA: 5 nmol/siRNA	Positive Control Negative Control FAM-NC	\$279
siRNA Set B	4 individual siRNA: 10 nmol/siRNA		\$399
siRNA Set C-Modified	3 individual modified siRNA: 5 nmol/siRNA		Get a Quote
siRNA Set D-Fluorescent Labeled	3 individual fluorescent labeled siRNA: 5 nmol/siRNA		
siRNA Set E-in vivo	3 individual modified siRNA for in vivo experiments: 5 nmol/siRNA		

* Guaranteed Policy: We guarantee that when the cell transfection efficiency is > 80%, at least one pair of siRNA can achieve a silencing effect of > 75%. Otherwise, 2 pairs of siRNA will be re-synthesized for free after comprehensive analysis.

miRNA Synthesis Services

MicroRNA (miRNA) is a class of non-coding single-stranded RNA molecules with a length of about 22 nucleotides encoded by endogenous genes. They play an important role in the process of cell differentiation, biological development, and disease development. With in-depth research on the mechanism of miRNA, miRNA is expected to provide new ideas for diagnosis and drug discovery and development.

GenCefe's experienced oligo synthesis technology team has developed various miRNA mimics for gain-of-function studies and inhibitors for loss-of-function studies, with different options for both in vitro and in vivo experiments.

miRNA Products Selection Guide

	Overexpression of target microRNA		Inhibition of target microRNA	
	in vitro	in vivo	in vitro	in vivo
miRNA Mimic	√			
miRNA Inhibitor			√	
miRNA Agomir	√	√		
miRNA Antagomir			√	√

Custom miRNAs

Product Name	Size (Yield)*	Purification	Turnaround Time
miRNA Mimic	5/10/20 nmol	HPLC	4+ days
miRNA Inhibitor	5/10/20 nmol	HPLC	
miRNA Agomir	5/10/20 nmol	HPLC	7+ days
miRNA Antagomir	5/10/20 nmol	HPLC	

Control miRNAs

Product Name	Size (Yield)*	Purification	Turnaround Time
miRNA mimic negative control	5/10/20 nmol	HPLC	4+ days
miRNA inhibitor negative control	5/10/20 nmol	HPLC	
miRNA agomir negative control	5/10/20 nmol	HPLC	
miRNA antagomir negative control	5/10/20 nmol	HPLC	

* Quotes based on production scale or OD unit yield are available upon request, with single batch capacity up to grams.

sgRNA Synthesis

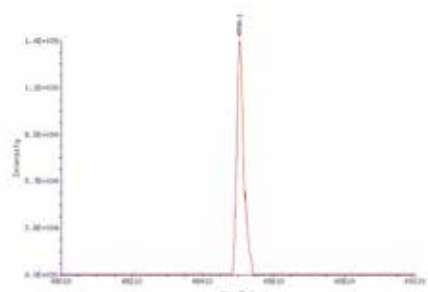
GenCefe Biotech provides sgRNA design, sgRNA chemical synthesis and IVT sgRNA synthesis services. We are committed to providing sgRNA with low toxicity, batch-to-batch stability, high editing efficiency, and can meet the synthesis requirements of different lengths and purity. We also provide sgRNA library design and construction services for high-throughput gene editing applications.

Service Specifications

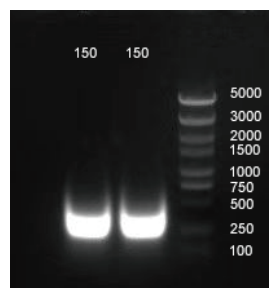
Product Name	Length	Size	Turnaround Time
Chemically synthesized sgRNA	20-150 nt	Starting from 1.5 nmol	7 days
IVT synthesized sgRNA	>150 nt	µg-mg level	Get a Quote

Custom RNA Synthesis and Modification

Case Study of Long RNA Synthesis



LC-MS of a 150 nt RNA



Gel electrophoresis of a 150 nt RNA

Fig 4. Successful synthesis of a 150 nt RNA oligo

Modification Types

Modified Bases	2'OMe, 2'F, 2'MOE, dI, dU, rI, m6A, m5C, m5U, LNA, S
Linkers	Amino (NH ₂), Biotin, Cholesterol, Desthiobiotin, Digoxigenin, Thiol (SH)
Fluorescent and Quencher Labeling	FAM, HEX, TET, TAMRA, Cy3, Cy5, Cy5.5, Cy7, BHQ1, BHQ2, BHQ3, MGB
Spacers	Spacer C9, Spacer C18, dSpacer/THF
Chimera	DNA\RNA, RNA\2'F\2'OMe\DNA
Conjugation & Others	GalNAc, DBCO, Hexynyl, Phosphate

Service Specifications

Product Name	Length	Amount	Purification	Turnaround Time
RNA Synthesis	5-150 nt	nmol to µmol	HPLC	4-20 days
Modified/Labeled RNA	5-150 nt	nmol to µmol	HPLC	Get a Quote
Large-scale RNA Synthesis	5-150 nt	Up to gram level	HPLC	Get a Quote

IVT mRNA Synthesis

In vitro transcribed (IVT) mRNA synthesis provides researchers with a customizable, rapid, and controlled method for generating high-quality mRNA molecules for diverse applications.

At GenCefe Biotech, we specialize in providing cutting-edge IVT mRNA synthesis services. Our state-of-the-art facilities and experienced team ensure the production of high-quality synthetic mRNA tailored to meet your specific research or discovery needs.

Service Workflow



Service Specifications

RNA Type	<ul style="list-style-type: none">• ncRNA: non-capped RNA• mRNA: Cap and PolyA Tail• LNP-encapsulated mRNA: Cap and PolyA Tail
Modification	Pseudouridine or customized modifications
Turnaround Time	3+ weeks (gene-to-mRNA)
QC Items	Standard QC items Customized QC items, such as purity analysis, sequence verification, etc
Deliverables	Lyophilized or liquid mRNA* and CoA file

* LNP-encapsulated mRNA can only be shipped in liquid form at low temperatures, which will incur additional shipping costs.

Off-the-Shelf mRNA (Partial)

Product Name	Size	Product Name	Size
GFP	100µg /1mg/5mg	Cas 9	1mg circRNA
LUC	100µg/1mg/10mg/20mg	Cas9-LNP	20µg high-purity circRNA
Cy5/Cy3 Modified	100µg/1mg /2mg/5mg	LNP-encapsulated mRNA	1mg/2mg

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