



# GenCefe Biotech

## DNA Synthesis

DNA Oligo Synthesis  
Modified/Labeled DNA Oligo  
qPCR Primer & Probes  
NGS Primers/Probes  
FISH Probes  
Forensic Diagnosis Primers  
circDNA Synthesis

## RNA Synthesis

siRNA/ASO  
Pre-designed siRNA Set  
miRNA Mimic/Inhibitor  
Aptamer  
Modified/Labeled RNA  
circRNA  
IVT mRNA

## Gene & Plasmid

Gene Synthesis  
Codon Optimization  
PCR Cloning & Subcloning  
Site-Directed Mutagenesis  
Plasmid Preparation  
Synthetic DNA Libraries

## Protein

Cell-Free Protein Synthesis  
Cell-Free System Development  
Membrane Protein Solutions  
Bacterial Expression  
Yeast Expression  
Insect Cell Expression  
Mammalian Cell Expression

## Peptide

Custom Peptide Synthesis  
Peptide Modifications  
Stable Isotope-Labeled Peptides  
Cyclic Peptide Synthesis  
Peptide Libraries  
Catalog Peptide

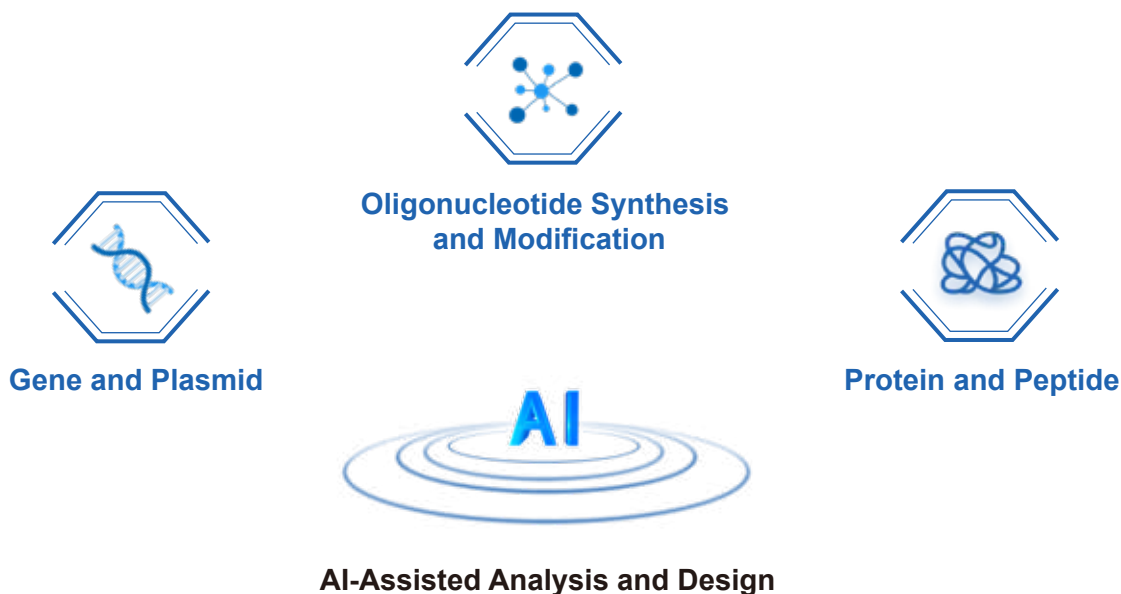
## CRISPR Services

sgRNA Synthesis  
IVT RNA Synthesis  
ssDNA Synthesis  
dsDNA Synthesis  
sgRNA Libraries

## About GenCefe

GenCefe Biotech was established in Wuxi, China in 2020, and started its US branch in California in 2021. The company focuses on advanced technology development, large-scale production, and applications of DNA, RNA, gene, and protein synthesis. We are committed to breaking through industry bottlenecks with advanced automation synthesis and AI platforms, promoting the development of synthetic biology, drug discovery, and molecular diagnostics.

### Technology Platforms



### Service Advantages

- Experienced production and R&D team, providing customized synthesis and flexible synthesis specifications, we can provide DNA and RNA synthesis up to gram level and have track records of successfully delivering difficult genes;
- Advanced technology platforms: we have developed the key modules for gene synthesis automation, and continuous improvement of the overall automated production process, combined with our proprietary AI platform, to facilitate the development of downstream applications;
- Professional technical support team, providing comprehensive pre-sales guidance and after-sales service;
- Our facilities include a 3,000m<sup>2</sup> R&D center and a 1,100m<sup>2</sup> GMP-like laboratory. We have established strict quality control standards, in line with the ISO9001 and ISO13485 quality management system.



# Oligonucleotide Synthesis and Modification

GenCefe provides high-quality oligonucleotide synthesis and modification services, including standard primers, RNA, qPCR primers and probes, NGS primers, etc. Our professional technical team has established a complete synthesis and purification process, providing oligonucleotide synthesis up to 100-gram scale, with more than 100 modifications to choose from.

Purification Method	Modifications		QC Items
	Positions	Groups	
RPC, MOP, PAGE, HPLC, etc,	5'-end Modifications 3'-end Modifications Intermedia Modifications Dual/Multiple Modifications	Rare Bases, Biotin, Digoxingein, Phosphorylation, Phosphorothioates, Amino Likers, Thiol, Quenchers, Internal Modification, Fluorescent Dyes, etc.	Standard detection items Custom detection items: purity, fluorescent value, Ct value, human genomic DNA contamination, NTC amplification, cross contamination rate, batch-to-batch consistency, etc.

## DNA Primers/Probes

### qPCR Primers/Probes

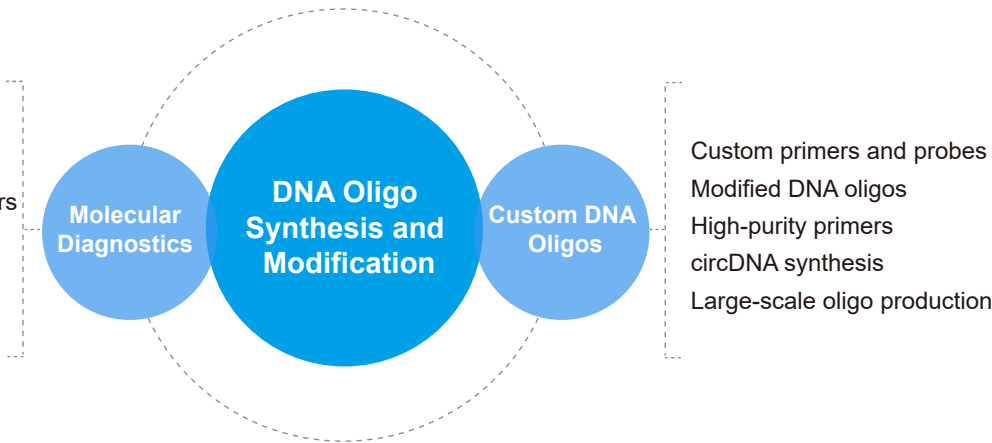
- IVD qPCR primers
- IVD qPCR probes

### Forensic Diagnosis

- STR fluorescent-labeled primers

### NGS Primers/Probes

- NGS adapter primers
- NGS capture probe
- NGS multiplex PCR primers
- NGS blocking primers



## RNA Synthesis and Modification

Small Nucleic Acid Synthesis	Modification
<ul style="list-style-type: none"><li><b>siRNA:</b> siRNA Synthesis, Pre-Designed siRNA Set</li><li><b>miRNA:</b> miRNA mimic, miRNA inhibitor, miRNA agomir, miRNA antagomir, miRNA Library</li><li><b>sgRNA:</b> sgRNA Synthesis, sgRNA Library</li><li>ASO, Aptamer</li><li>circRNA Synthesis</li></ul>	<ul style="list-style-type: none"><li><b>Sugar Modification:</b> 2'-OMe, 2'-MOE, 2'-F etc.</li><li><b>Base Modification:</b> methylated cytosine (5-Me-dC), etc.</li><li><b>Backbone Modification:</b> PS, PO, phosphoramidate modification, etc.</li><li><b>End Modification:</b> Chol, Biotin, Thiol, NH<sub>2</sub>, fluorescent dyes, etc.</li><li><b>Delivery System:</b> LNA, GalNAc, PMO, PNA, etc.</li></ul>

### IVT mRNA Synthesis



# Gene Synthesis and Related Services

GenCefe's experienced R&D and production team has established an advanced gene synthesis technology platform, standardized operating procedures, and a strict quality control system. We provide high-quality customized services including gene synthesis, codon optimization, PCR cloning, subcloning, plasmid preparation, site-directed mutagenesis, and mutation library construction.

Just submit the gene sequence you need, and GenCefe will deliver the desired plasmid on time!

## Service Features

- Advanced technology platform:** our team has successfully synthesized various types of difficult sequences, such as repetitive sequences, GC/AT-rich sequences, etc., and delivered the plasmids according to customer-specific requirements
- Professional technical support:** considerate pre-sales and after-sales services, free codon optimization and project design, timely project updates, and free technical consulting
- On-time delivery:** experienced production and R&D teams ensure the on-time delivery rate of over 95%
- Intellectual property protection:** the nucleic acid/amino acid sequence provided by the customer is kept strictly confidential and will not be distributed to third-party in any form

## Service Types

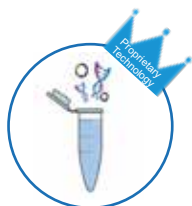


Gene Synthesis	On-time delivery rate >95%, successfully synthesized and delivered various difficult gene sequences
Codon Optimization	Free codon optimization, proven to significantly improve protein expression
PCR Cloning and Subcloning	Clone the gene of interest into any position of the designated vector; free vector storage for 3 years
Plasmid Preparation	Microgram to gram level, good stability between batches; the endotoxin level of transfection grade plasmid can reach <0.005 EU/μg upon request
Synthetic DNA Libraries	Design and construction of point mutation libraries, random mutation libraries, degenerate libraries, controlled libraries, sgRNA and other libraries

# Protein Expression and Purification

GenCefe's protein production team is composed of technical experts with years of experience in protein expression and purification. With stable production capacity and in-house R&D capabilities, we can provide one-stop solutions from codon optimization, gene synthesis, to protein expression and purification.

## Comprehensive Expression Systems



Cell-Free



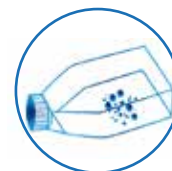
Bacterial



Yeast

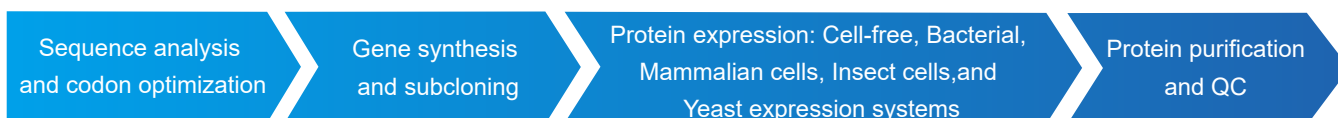


Insect Cell



Mammalian Cell

## Gene-to-Protein Solutions



## Cell-Free Protein Synthesis (CFPS)

- The GenCefe CFPS platform is led by Dr. Lei Kai, a world-renowned CFPS expert who holds 28 patents and has published more than 40 papers in related fields.
- Rich experience in production of GPCRs, ion channel proteins, aquaporins, transport proteins, etc.
- Customized solutions to meet customers individual needs.

Cell-Free System Development

Membrane Protein Preparation

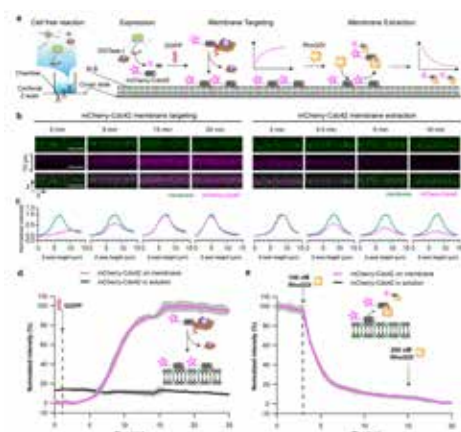
Optimization of Membrane Protein Expression System

Cell Extraction Preparation

Full-Length Membrane Protein

Membrane Protein Product Development

## Case Study



Dr. Kai's team developed an innovative cell-free expression system, and successfully reconstituted the prenylated polarity hub Cdc42 and its regulatory protein in vitro, implementing a key membrane switch.

*Kai L, Sonal, Heermann T, et al. Reconstitution of a reversible membrane switch via prenylation by one-pot cell-free expression[J]. ACS Synthetic Biology, 2022, 12(1): 108-119.*

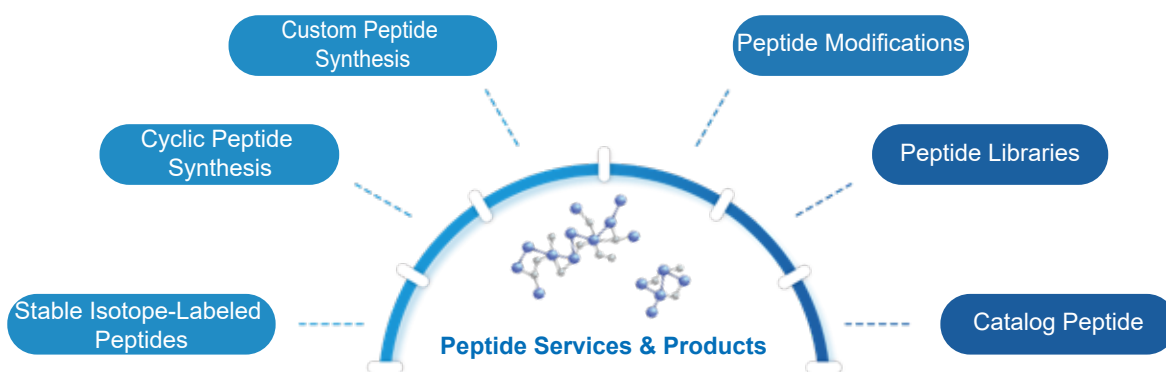
# Peptide Synthesis and Modification

GenCefe's peptide synthesis technology platform has advanced purification systems and comprehensive testing equipment, providing milligram to kilogram-level peptide synthesis and modification services, and the product purity can reach 98% and above. Our experienced technical support team offers professional pre-sales, in-sales, and after-sales services, and timely feedback on project progress.

## Service Features

- **Customized synthesis:** milligram to kilogram level, purity up to >98%, and the length can reach 180 amino acids.
- **Comprehensive modifications:** more than 300 modifications, including phosphorylation modification, biotin labeling, fluorescent labeling, etc.
- **Aliquot service:** we provide aliquot service according to customer needs, and the minimum aliquot volume is 0.2mg/tube.
- **Strict quality control:** we guarantee the quality and quantity of the delivered products, and all peptides are tested by MS and HPLC.

## Service Types



- **Custom Peptide Synthesis:** mg to kg level, crude to >98%, fast turnaround in as soon as 2 weeks
- **Peptide Modifications:** 300+ different peptide modification groups
- **Stable Isotope-Labeled Peptides:** N15, C13, and dual-labeled isotope peptides
- **Cyclic Peptide Synthesis:** Provides various cyclization methods, such as head-to-tail cyclization, stapled peptide, etc.
- **Peptide Libraries:** A variety of custom peptide libraries provide you with powerful screening tools
- **Catalog Peptide:** More than 2,000 catalog peptides, covering popular research areas

## GenCefe Biotech

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