百力格生物
BIOLIGO

ISO9001 ISO13485

QUALITY&INNOVATION

RNA Synthesis

PRODUCTS & SERVICES

& SERVICES

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About BiOligo

QUALITY & INNOVATION

COMPANY PROFILE

BiOligo Biotechnology (Shanghai) Co., Ltd., established in 2011, is a high-tech company committed to providing essential raw materials for in vitro diagnostics and nucleic acid drug applications.Utilizing systematic technological breakthroughs and adopting a Lean Six Sigma management system, we emphasis on both pivotal technological advancements and continuous improvement through micro-innovation, resulting in significant achievements in product research and development, as well as notable progress in technological innovation. BiOligo provides premium, convenient and reliable services and products for over 1000 IVD customers.

Production and synthesis advantages

- Automated Production Line
- Large-Scale Manufacturing Capacity
- Stringent Quality Inspection Standards
- Professional Project Management

Chapter One:RNA interference(RNAi)

In living organisms, gene silencing induced by RNA interference (RNAi) through siRNA, miRNA, and ASO is a crucial mechanism for regulating gene expression. This process selectively triggers the degradation of target mRNA or inhibits protein translation, thereby reducing gene expression and modulating its function. Bioligo offers a range of RNA/DNA modulation nucleic acid products to support gene research and drug target development.

siRNA

The chemical synthesis of siRNA is the easiest and fastest approach for achieving gene silencing in cells or organisms. It stands out as an excellent tool for RNAi clinical therapy, offering the advantages of high specificity and facilitating efficient high-throughput screening.

Regular siRNA | Modified siRNA | UHP siRNA | Animal-grade in vivo-siRNA

Advantages

- **Utilization of professional algorithms and advanced technology for precise target specificity.**
- **Systematic optimization ensures siRNA achieves a silencing effect of over 70%.**
- **Significantly enhances the success rate of target gene silencing.**

miRNA

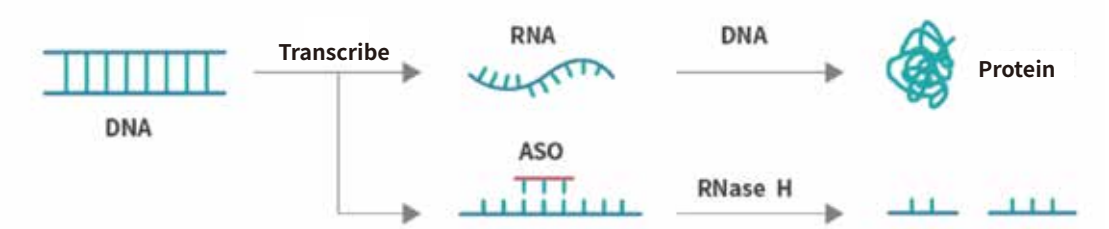
MicroRNAs (miRNAs) are endogenous small non-coding RNAs, typically 17-25 bp in length. They participate in post-transcriptional gene regulation by specifically binding to target mRNAs, leading to either degradation or translation inhibition of the target mRNA.

Functional deficiency research：inhibitor | Repression of miRNA in vivo：antagomir

Functional accessibility research：mimic | High expression of miRNA in vivo：agomir

ASO

Antisense oligonucleotide (ASO) is a type of single-stranded DNA or chimeric oligonucleotide typically consisting of 15-25 nucleotides. By complementary base pairing with the target RNA sequence, ASOs can facilitate RNase H-mediated cleavage, thereby inhibiting the function of non-coding RNAs (such as miRNA, siRNA, piRNA, snoRNA, snRNA, exRNA, scaRNA, and lncRNA) or preventing protein translation in mRNA.



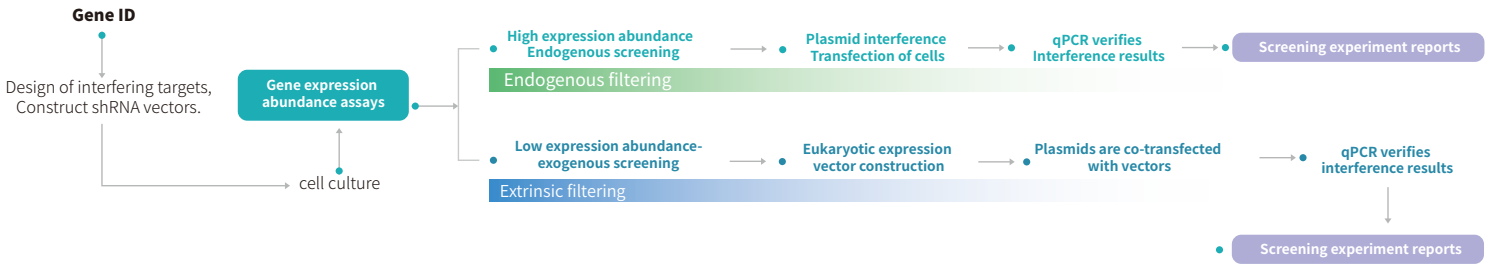
Advantages

- **Highly Specific Sequence Design. Enables precise interference with multiple genes.**
- **Nuclear Entry Capability. Chemically modified for enhanced stability, ensuring prolonged in vivo effectiveness.**
- **Special labeling allows direct usage in in vivo experiments.**
- **Short Synthesis Cycle.**

shRNA Vector Construction

shRNA is a short hairpin RNA, typically constructed by linking the sense strand, antisense strand, and loop sequence of siRNA to form the target sequence. This is achieved by building an expression vector containing an efficient promoter. In eukaryotic cells, the shRNA expression vector can generate siRNA, leading to gene silencing. The use of vectors or viral vectors to mediate RNAi experiments further expands the feasibility of its applications.

Service Process

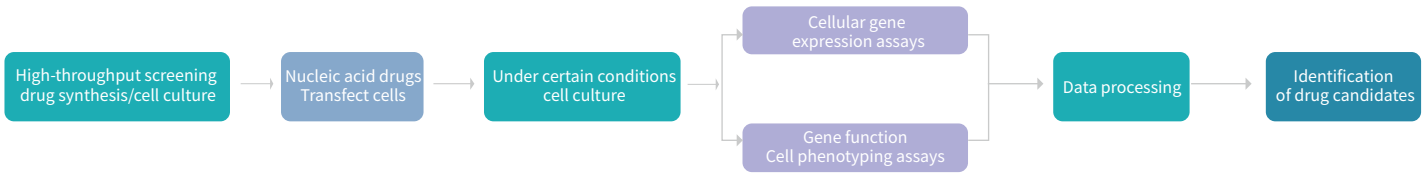


Advantages

- **Through labeling, it can achieve the purpose of transient observation or stable screening.**
- **It can be used to perform RNAi experiments in multiple cell types, such as primary cells and non-dividing cells that are difficult to transfect by viruses.**
- **To regulate gene suppression through induced RNAi expression.**
- **Screen out pure cell populations that can stably express RNAi sequences.**
- **To regulate the expected target cells or other non-essential in vivo gene expression regulation through tissue-specific promoters.**

shRNA Vector Construction

The BiOligo Cell Screening Platform is equipped with a high-throughput screening workstation, versatile chemiluminescence detector, nano-dot particle size analyzer, high-throughput nanofluidic control, efficient liquid chromatography mass spectrometer, high-throughput automated purification instrument, fluorescence cell imaging system, and other advanced instruments. Additionally, we have a dust-free standard cell screening laboratory to provide you with industry-leading solutions for nucleic acid drug target screening.



Chapter Two:RNA interference(RNAi)

CRISPR-Cas9 originates from the prokaryotic immune system and allows for gene knockout at the genomic level, completely eliminating the expression of the target gene in cells and potentially disrupting the function of the target protein. The CRISPR/Cas9 system consists of a single-guide RNA (sgRNA) and a Cas9 protein with nuclease activity. The sgRNA guides the Cas9 protein to specific genomic sequences, enabling gene editing. In theory, the target range of this system can cover all genomic sequences.

Service Details

Services	Specification
Standard crRNA	2.5 nmol/5 nmol/10 nmol 100 nmol/200 nmol/500 nmol/1 μmol /100 mg/200 mg/500 mg
Chemical modified HUP crRNA	
Chemical modified tracrRNA	
Chemical modified gRNA	2.5 nmol/5 nmol/10 nmol/100 nmol/200 nmol/500 nmol
Cas9 mRNA	10 μg
Cas9 protein	20 μg
T7E1 Protein	20 μg
Standard crRNA 3-in-1 package	2.5 nmol×3
Chemical modified HUPcrRNA 3-in-1 package	2.5 nmol×3

Services: In-Vitro Transcription Services

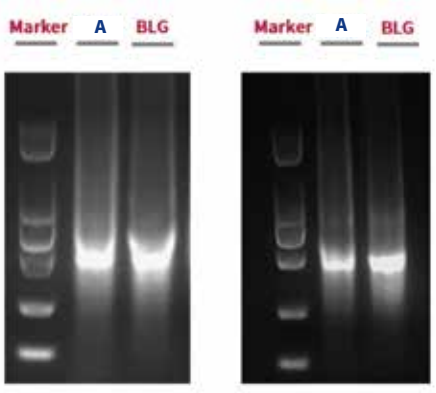
RNA, as a multifunctional biomolecule, encompasses coding RNA and non-coding RNA (ncRNA). Non-coding RNA includes diverse types such as tRNA, lncRNA, miRNA, small interfering RNA (siRNA), saRNA, circRNA, and exosomal RNA. BiOligo's RNA production solutions streamline the process from gene synthesis to in vitro transcription, delivering high-quality, large-scale DNA templates, and RNA reagents for robust RNA research, available in production scales ranging from 20 μg

Service Details

Type	Order	5’ cap	NTP modification	RNA modification	Ploy A-tail
lncRNA	20 μg-1 mg		N1-Me-pUTP 5-OMe-UTP m6A-ATP	3’ Biotin DIG-11- UTP	
mRNA	20 μg-1 mg	Cap 0、Cap 1	Pseudo-UTP 5-Me-CTP	Biotin-UTP Cy5-UTP	150A、Other

Products: T7 High Yield RNA Synthesis Kit

SM0701



- **Wide template input range suitable for various sample preparations.**
- **Up to 200 ng lncRNA yield, ideal for diverse downstream research applications.**
- **Inclusion of ammonium acetate effectively eliminates free nucleotides.**
- **Nucleotide composition in NTP Mix streamlines the workflow, reducing contamination risks.**

Using EGFP DNA as a template under reaction conditions of 37 °C for 2 hours, the T7 High Yield RNA Synthesis Kit from BIOLIGO demonstrates higher RNA production compared to its competitors from A/B.

Chapter Two:RNA interference(RNAi)

Services: In-Vitro Transcription Services

BiOligo's automated plasmid preparation platform extracts 10 μg or more plasmid DNA in one go from diverse source materials, offering customers high-quality plasmid DNA preparation services. The extracted plasmid is nearly free from protein, genomic DNA residues, and RNA contamination, ensuring the resulting transfection-grade DNA meets various requirements, including low endotoxin levels.

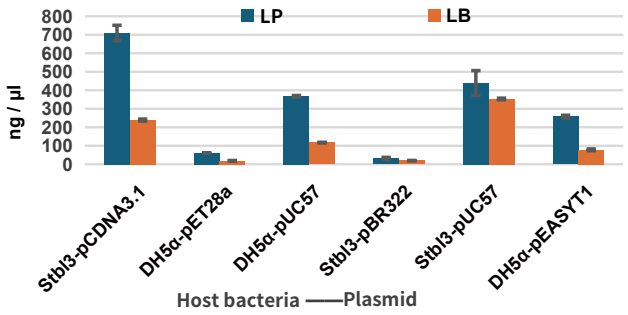
Experimental Process

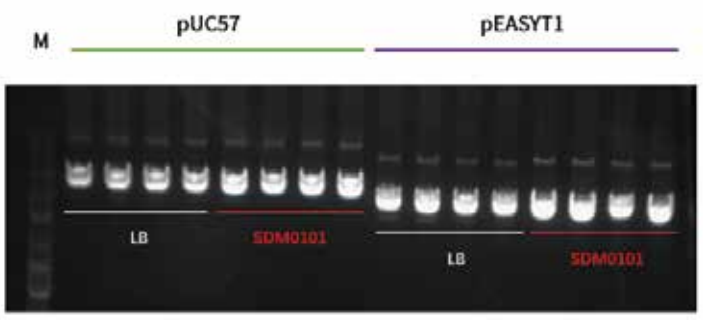
Service Details

	Molecular biology plasmid	Transfection grade plasmid	High-throughput plasmid DNA
Delivery quantity	μg-g	μg-g	Above 10 μg
Endotoxin analysis		⩽0.01 EU/μg DNA	⩽0.01 EU/μg DNA
Price	Low	High	High
Superhelix degree	⩾50%	⩾90%	⩾90%
Residual RNA	Invisible by electrophoresis		
Genetic DNA detection	Invisible by electrophoresis		
Appearance	Transparent, no obvious particles		
Sequencing verification	Consistent with expectations, completely correct		
Restriction enzyme analysis	Consistent with expected size		
OD 260/280	1.8-2.0		
Concentration	Default 1 μg/ul, can be adjusted according to user requirements		
Residual RNA	Invisible by electrophoresis		

Services: In-Vitro Transcription Services

SDM0101





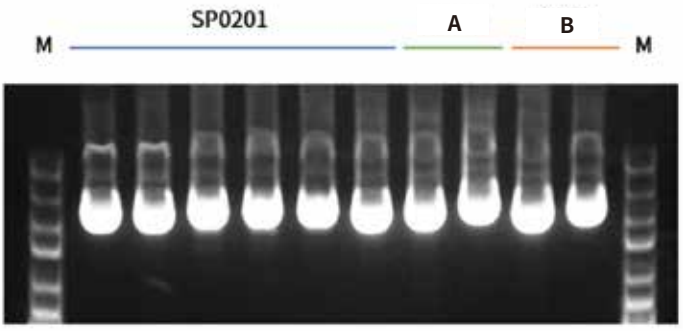
- **Significant Yield Increase: Plasmid production is 2-3 times higher compared to conventional LB culture.**
- **Nutritionally Rich and Animal-Free.**
- **Cultivating plasmids with a high supercoiling ratio.**
- **Suitable for various fermentation methods: Including test tubes, shake flasks, 48-well plates, and fermenter tanks.**

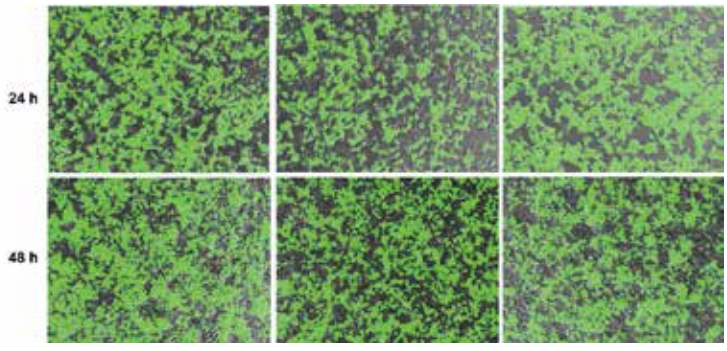
Service Details

Cultivation method	Media volume (ml)	Total volume of fermentation (ml)	Plasmid yield (μg)	OD600
48-well plates	2.5	4	10-15	3.75-4.5
test tube	2	15	15-20	3.75-4.5
Shake the flask	100	500	900-1200	3.75-4.5
Shake the flask	200	500	1800-2200	3.75-4.5

Products: Plasmid Extraction Kit (Fast/ Plus Version)

SP0101/SP0102





Comparison test chart of SP0201 BiOligoHP Endotoxin-Free Plasmid Mini-Prep Kit (Plus Version) with endotoxin-free plasmid mini-prep kits from Company A and Company B. The results demonstrate that the DNA supercoiling ratio of SP0201 is superior, and the concentration is not falsely elevated.

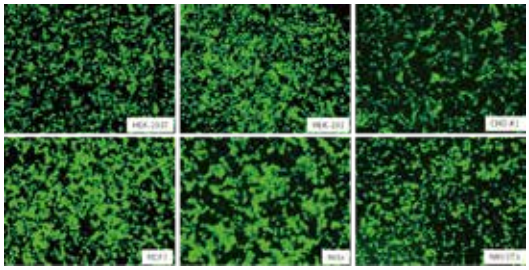
Advantage

- **Low endotoxin: Fast version <0.6 EU/μg, Plus version <0.1 EU/μg.**
- **High efficiency: 1-5 mL of fresh Escherichia coli bacterial liquid, capable of adsorbing a maximum of 30 μg plasmid.**
- **High purity: Plasmid A260/A280 ratio is less than 1.9, and A260/A230 ratio is between 2.0 and 2.2.**

Chapter Four: High Efficiency Transfection

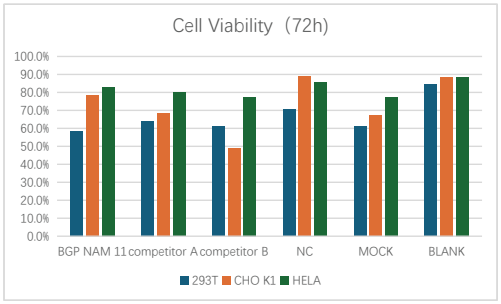
Products: BGP NAM11 Transfection Reagent SDM0101

Efficient siRNA and DNA plasmid transfection



High transfection efficiency was demonstrated in various cells 48 hours after transfection in a 24-well plate using 1 μL of BGP NAM11 transfection reagent and 0.5 μg of EGFP-DNA plasmid.

Low cytotoxicity



The cell viability after 72 hours of transfection was assessed using a cell counter, and BGP NAM11 demonstrated lower overall cytotoxicity.

- **Versatile cell compatibility**: HEK-293, HEK-293T, Hep G2, Hela, CHO-K1, COS-1, COS-7, NIH/3T3, Vero, etc.
- **Broad applicability** in nucleic acid drug screening (siRNA, miRNA, ASO), cell stability screening, virus packaging, and other genetic engineering fields.

Services: In-Vitro Transcription Services SDE0101

Advantage

- **Effective removal of endotoxins**: **After three or more repeated extractions, the activity level of endotoxins, initially ranging from 5000 to 50000 EU/ml, can be reduced to below 5-0.5 EU/ml. This represents a decrease of 1000-10000 times while maintaining a low sample loss**
- **Widely applicable: Suited for experiments aiming to remove endotoxins from DNA, proteins, or other liquid samples.**
- **Low equipment requirements.**

Chapter Four: High Efficiency Transfection

Products: DEPC-Treated Water (DNase/RNase free) SDW0101

- No residual RNAse.
- No nucleic acid residues.
- No residual DNA exonuclease.
- No residual heavy metal ions.
- No nonspecific DNA endonuclease residues.

Products: Nuclease-free Water (not DEPC-treated) SDW0201

- No residual RNAse.
- No nucleic acid residues.
- No residual DNA exonuclease.
- No nonspecific DNA endonuclease residues.

Products: Low TE Buffer (not DEPC-treated) SDT0301

- Passes residual RNAse, DNA exonuclease, and specific DNA endonuclease detection
- Filtered through a 0.22-micron membrane.
- Contains 0.1mM EDTA

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