






BOC Sciences  
Solution Provider  
- Custom Synthesis and Services

 Tel: 1-631-504-6093

 Email: [info@bocsci.com](mailto:info@bocsci.com)

 Fax: 1-631-614-7828

 45-16 Ramsey Road, Shirley, NY 11967, USA

**BOC Sciences**<sup>®</sup>  
*services*

<http://www.bocsci.com/>

## BOC Sciences Snapshot

Established in 2005, headquartered in New York.

Employee number: 250+, 95% employees with a master degree or above.

Leading chemical supplier with a large variety of products that are offered to academia and industrial in all fields of research and production.

The preferred CRO who offers tailor-made solutions for customers.

## Competitive Advantages

**Comprehensive product portfolio:** including inhibitors, impurities, natural compounds, fluorescent probes, amino acids derivatives, carbohydrates, nucleoside & nucleotide products, etc.

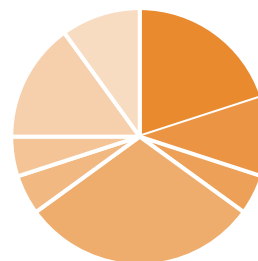
**Versatile services:** product upgrade, custom synthesis, biosynthesis, bioconjugation and analytical services.

Established **powerful** synthesis and fermentation **platforms** to produce high-quality chemicals.

A **team** with **enthusiasm and flexibility**. Our broad network of best-in-class providers allows us to strategically source the product that is tailored to our client's specific needs.

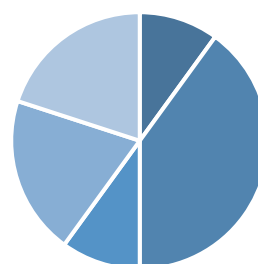
BOC Sciences works closely with virtual and large pharma providing **one stop solutions** for their outsourcing needs.

## Company Portfolio



### Products

- Inhibitors
- Impurities
- Natural Compounds
- Building Blocks and Intermediates
- Amino Acids Derivatives
- Carbohydrates
- Nucleosides & Nucleotides
- Others



### Services

- Analytical Service
- Custom Synthesis
- Bioconjugation
- Fermentation
- Innovation Platform

## Services & Innovation Platforms

- ✓ Custom Synthesis and Route Design
- ✓ Strain Engineering and Fermentation
- ✓ Bioconjugation and Custom Labeling
- ✓ Antibody Drug Conjugate Development
- ✓ Target Protein Degradation Platform
- ✓ Liposome and Drug Delivery
- ✓ RNAi Therapy Support
- ✓ Analytical Services



## Chemical Synthesis CRO/CDMO

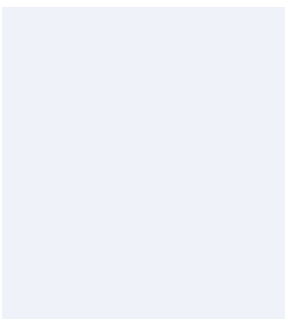
BOC Sciences provides contract research, development and manufacturing services to help customers industrialize their products from research to clinical trials to commercialization.

We offer lab scale custom synthesis, biosynthesis, bioconjugation and analytical services.

We provide a seamless one stop process development service, effectively speeding up the process of new drug development and reducing overall costs.

We can provide GMP production for HPAPI, API and Peptides.

[www.bocsci.com/custom-synthesis.html](http://www.bocsci.com/custom-synthesis.html)



# Custom Synthesis Small Molecules

<https://www.bocsci.com/custom-synthesis.html>

We expertise in synthesis of a broad array of customized molecules.

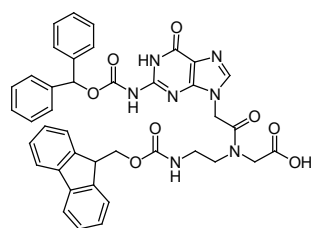
We specialize in chiral synthesis (asymmetric catalysis, chiral auxiliaries, biocatalysis, enantioselective organocatalysis, chiral pool synthesis and chiral resolution)

We offer product upgrade service to improve product quality (recrystallization, prep HPLC, chiral HPLC, chiral resolution).

## Reaction Type

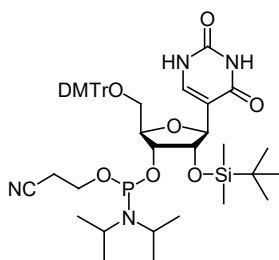
- Acylation
- Asymmetric hydrogenation
- Chiral resolution
- Heterocyclic formation
- Fluorination
- High-pressure hydrogenation
- Stille coupling
- Friedel-Crafts reaction
- Suzuki coupling
- Grignard reaction

## Featured Products



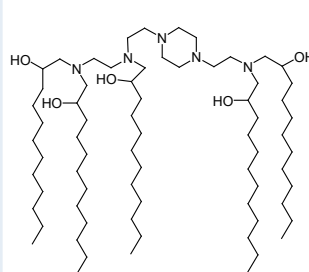
### PNA Monomers

Fmoc Monomer G  
CAS: 186046-83-3



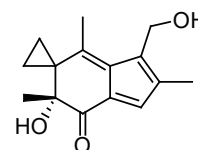
### Oligonucleotide Synthesis Reagents

Pseudouridine CEP  
CAS: 163496-23-9



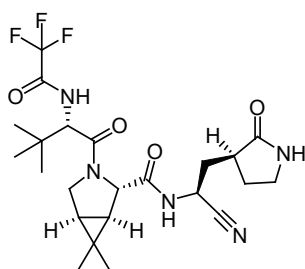
### Cationic Lipids

C12-200  
CAS: 1220890-25-4



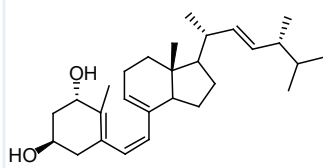
### ADC Payloads

Irofulven  
CAS: 158440-71-2



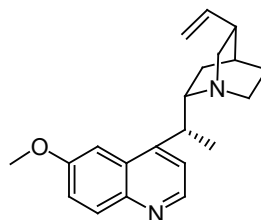
### SARS-CoV-2 Inhibitors

Nirmatrelvir  
CAS: 2628280-40-8



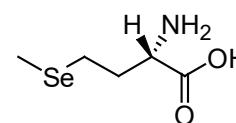
### Impurities

Pre-doxercalciferol  
CAS: 1818286-63-3



### Natural Compounds

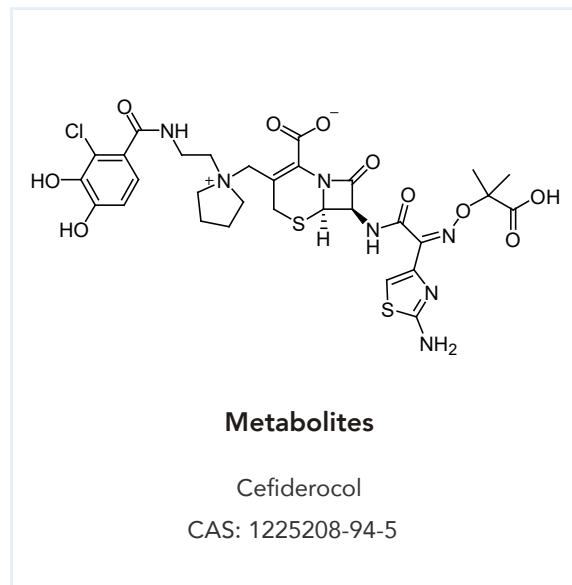
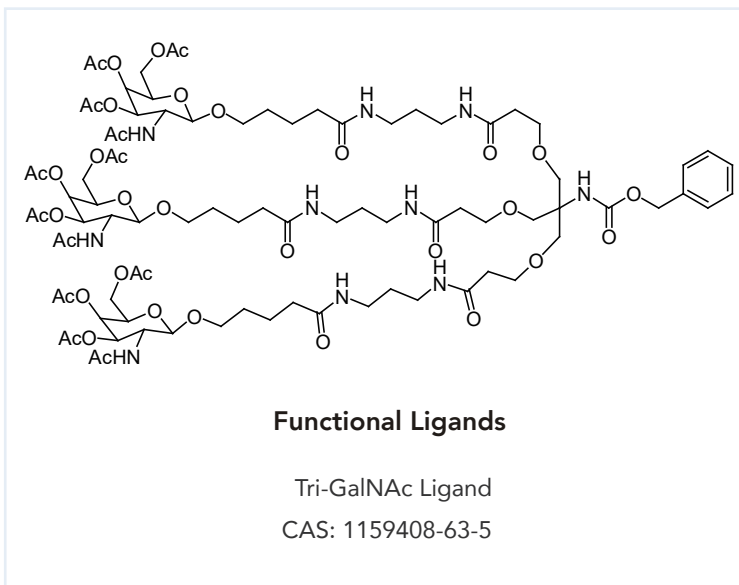
(-)-Quinine  
CAS: 130-95-0



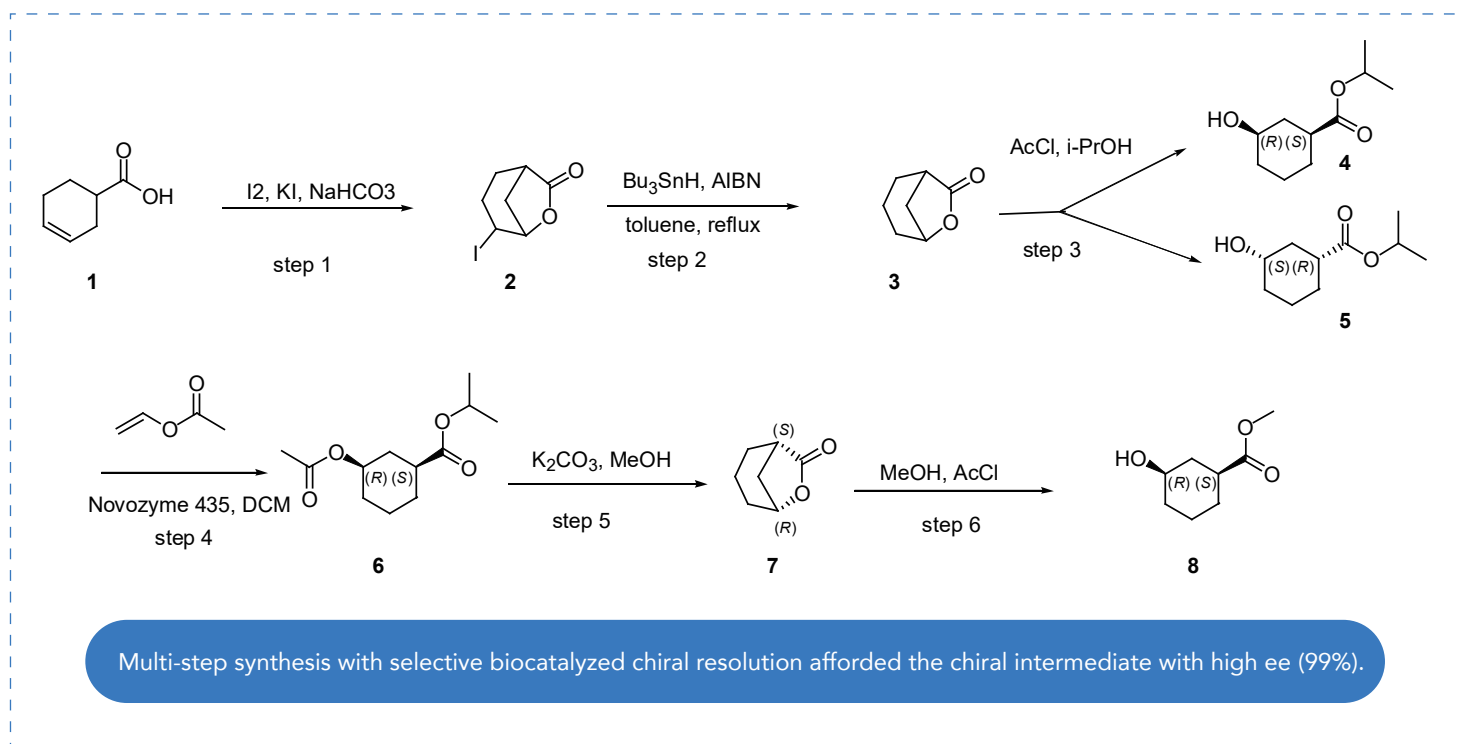
### Amino Acids

L-Selenomethionine  
CAS: 3211-76-5

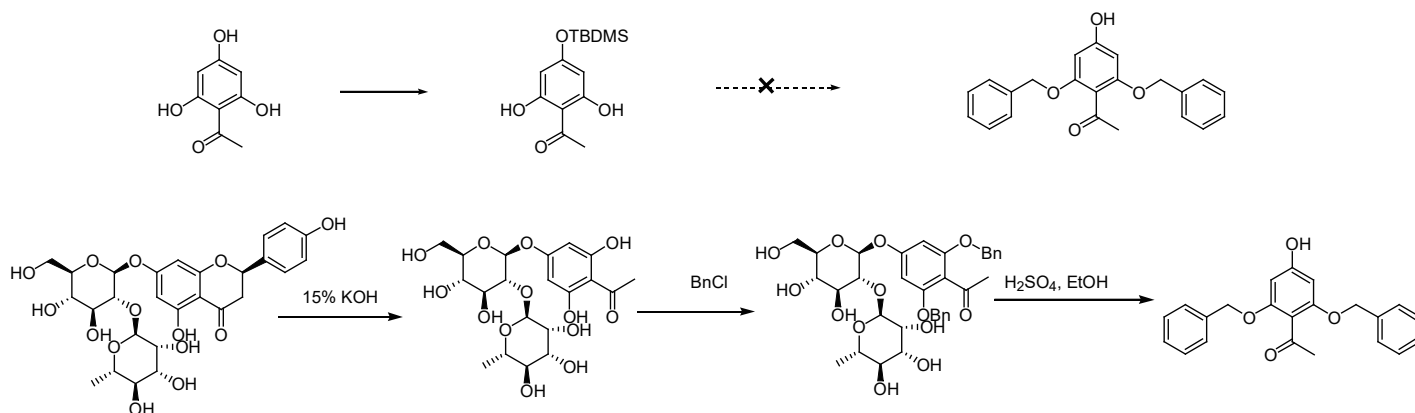




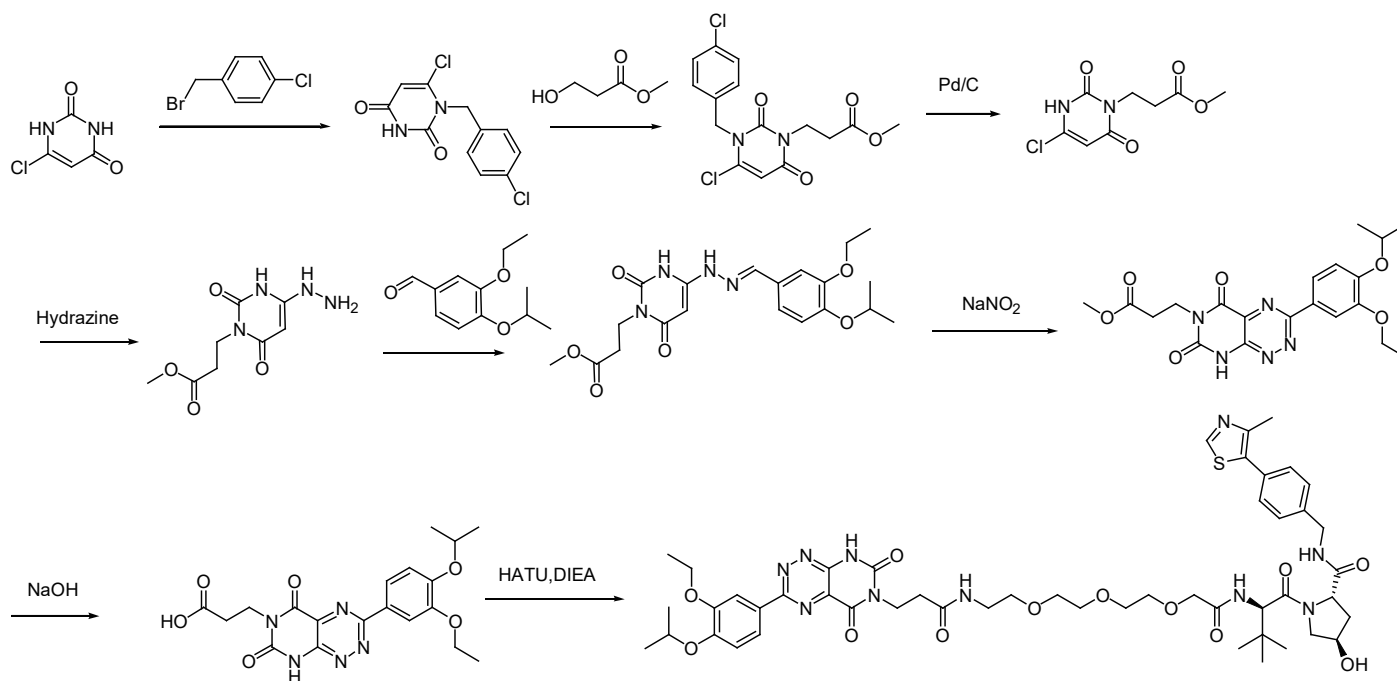
## Case Study - Chiral Synthesis



## Case Study - Route esign



## Case Study - PROTAC Design



## ● R&D Facilities

- 50,000 sq. ft. multipurpose laboratory
- 50 fume hoods
- 4 scale up labs
- Synthesis scale from mg to kg
- Smooth technical transfer from lab to large scale production plant
- Quality upgrade of small molecules



## Analytical Capability

Our analytical laboratory routinely runs instruments like HPLC, GC, LC-MS, GC-MS, TGA/DSC, ICP-MS, etc.

We have multiple sources for advanced instruments like 500 MHz and 700 MHz NMR, XRD, TEM, MALD, etc. and internal bioassay capability to support us accomplish challenging projects and interdisciplinary collaboration.

Our QC team, well equipped with a comprehensive set of analytical instruments, is dedicated to ensuring the quality of our chemicals to meet

**Quality is our top priority!**



## Chemical Synthesis CDMO

<https://www.bocsci.com/custom-synthesis.html>

BOC Sciences provides contract manufacturing service for

- Peptides and modified nucleotides
- Structural modification of complicated natural products
- High potent APIs

Capability

- Green chemistry: Enzyme catalysis
- Chiral catalysis
- Tubular reactor process
- Heat related hazards analysis

**Pilot scale:** 7 production lines, 20-2000L reactors

**Commercial scale:** Annual capacity - 150 tons



## Fermentation CDMO

<https://bio-fermen.bocsci.com/services.html>

BOC Sciences provides full service packages from strain development to commercial scale up for Microbial API, facilitated by six R&D platforms as well as supporting functions such as QA, Analytics, EHS, Crystallization R&D and Impurity R&D.

**Lab scale:** equipped with 30 L to 200 L fermentation tanks imported or domestic sourced.

**Pilot scale:** equipped with fully automatic fermentation tanks of different volume from from 4,000 L to 12,000 L

**Commercial scale:** Fermentation tanks of 10-120 m<sup>3</sup>

## CRO and CDMO - Capability

### R&D capability

We have a team of 60 chemists and analysts with PhD or MS degree possess a wealth of knowledge in organic, medicinal chemistry and fermentation. We expertise in developing a broad range of compounds of high purity levels via chemical synthesis and biosynthesis.

### Scale up capability

7 Production lines at pilot scale

100+ Reactors of 20 L-2,000 L for reactions at gram to ton scale.

2 Fermentation lines, total capacity: 460 tons

7 Purification workshops

FDA inspected, GMP compliant



## Platform Advantages

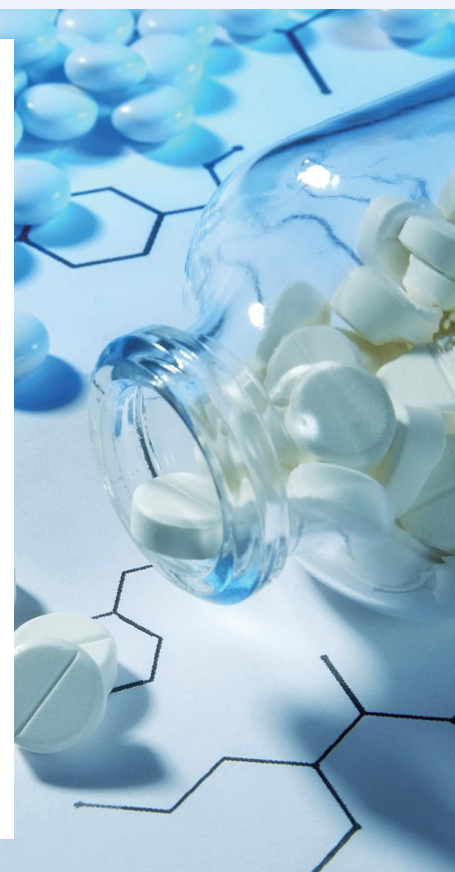
Versatile platforms enable one stop solution for R&D

- Protein platform: protein expression, modification and labeling
- Antibody platform: antibody production, antibody sequencing
- Cell platform: Cell-based drug screening, cell editing
- Gene platform: gene editing, vector delivery, gene expression regulation
- Small molecule platform: custom synthesis, drug discovery, drug screening

Multidisciplinary platform

- Bioconjugation - Antibody Drug Conjugate, Peptide Drug Conjugate, Antibody Oligonucleotide Conjugate, Peptide Oligonucleotide Conjugate, etc.
- Target Protein Degradation platform - PROTAC® AbTAC, etc

6 Granted invention patents

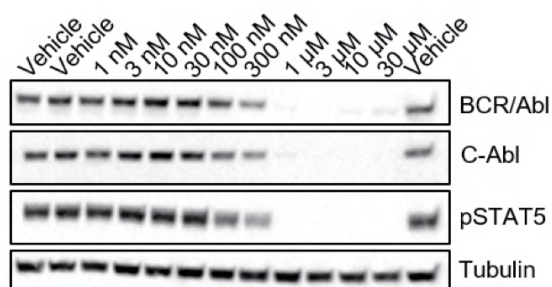
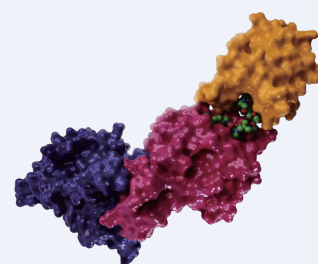


## PROTAC® Platform

<https://ptc.bocsci.com/services.html>

BOC Sciences provides accessible PROTAC® warheads, linkers and E3 ligase ligands for researchers to develop novel PROTAC® molecules for protein degradation.

We offer ligand design for target protein and PROTAC® design and synthesis for screening and validation.



### PROTAC® *in vitro* Evaluation

- Binding affinity measurement
- Degradation ability assay
- E3 Ubiquitin ligase activity assay
- PROTAC® activity assay
- Solubility and stability evaluation

## ADC Platform

<https://adc.bocsci.com/services.html>

BOC Sciences provides a wide range of payloads linkers and payload-linker conjugates for researchers in the development of Antibody Drug Conjugate.

Combined with our capability in HPAPI fermentation/synthesis, we could support customers for their clinical trials and commercialization by supplying bulk quantity of payload-linkers.



### ADC *in vitro* analysis

#### Biochemical Analysis

- ADC stability assays
- Structural analysis
- DAR determination
- Conjugation sites analysis

#### Efficacy Evaluation

- ADC affinity evaluation
- Internalization assays
- Cytotoxicity assays
- ADCC and CDC assays

## HPAPI in Development

Toxin	Lab scale	Pilot scale	Commercial	Batch size
AP3	[Progress bar]		DMF Q42022	~2kg
DM1	[Progress bar]		DMF Q12022	~200g
DM4	[Progress bar]		DMF Q42022	~200g
MMAF	[Progress bar]			~200g
N-Acetyl-Calicheamicin	[Progress bar]			~60g
Thailanstatin A	[Progress bar]			~300g
Exatecan Mesylate	[Progress bar]		DMF Q42021	/
FR901464	[Progress bar]			/
Meayamycin	[Progress bar]			/
PBD	[Progress bar]			/
α-amanitin	[Progress bar]			/
marizomib	[Progress bar]			600g
Midostaurin	[Progress bar]			2.5kg

Early R&D stage toxins: MMAE, Duocarmycin, Actinomycin D, PE38, Streptonigrin, Esperamicin, Sibiromycin, Doxorubicin, FR901463, FR901465, Sudemycin C, Thailanstatin D, SN38, Staphylococcus aureus enterotoxin A/E-120, etc.

## RNA Research Support

<https://rna.bocsci.com/>

BOC RNA, with professional R&D team and state-of-the-art facilities, provides customers with research support in RNA drug design, and in vivo delivery. We work with scientists and professionals from academia, biotechnology and pharmaceutical industry. Currently, BOC RNA helps develop and deliver innovative RNAi products and provides a variety of synthesis services for molecular biology study.

### Services

DNA synthesis - Custom/IVD oligos, long chain primers

RNA synthesis - siRNA, shRNA, miRNA, ASO

mRNA transcription - plasmid construction, PCR, IVT

Oligo modification - GalNAc, peptide, PEG, dye conjugation

## Working with BOC Sciences



Customer oriented



Ensured quality



Capable of offering a variety of customized products



Flexible package size



CRO and CDMO capability



Global delivery



High cost performance



One on one customer service



## Contact Us



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