

Accelerating Oligonucleotides Discovery and Development Programs



Aragen embarks on oligonucleotide service with experience to construct novel oligonucleotide, characterize and conduct biological evaluation.

Aragen Life Sciences has established an advanced state-of-the-art laboratory for synthesis of quality oligonucleotides, from simple to highly complex oligonucleotides for diverse applications viz. ASO, siRNA, miRNA, Aptamer, and other niche applications. A highly talented and experienced scientific team to handle modern automatic synthesis, purification, and characterization of modified oligonucleotides..

In addition, Aragen can support synthesis of customized building-blocks for oligonucleotide synthesis. Aragen has strong track record in delivering high-quality nucleoside/tide synthesis and formulation services to partners worldwide for over a decade. There is a dedicated *in-vitro* and *in-vivo* laboratory to support oligonucleotides discovery programs. Our expertise and commitment have been validated by our customers across the globe, as we create these molecular structures for businesses worldwide always with an emphasis on quality and reliability.

Process flow for the synthesis of oligonucleotides

Project evaluation

Comprehensive analysis of the project feasibility and goals by our experts.
Estimation of raw material requirements, costs, and timelines

Purification

Reverse-phase HPLC purification, Anion exchange purification, Desalting

Delivery

Sharing of final analytical data. Shipping of final product according to your request.

Project request

Customized discovery and synthesis requests from researchers across the globe.

Synthesis

Synthesis scale: 1µmol - 100 µmol, Yield scale: 1 mg - 100 mg (deliverable quantities), Oligonucleotide lengths: 5 - 100 mer

Quality assurance

RP-HPLC purity check (UV), MS confirmation, Quantification based on A260 (UV-mg)

Oligonucleotide synthesis portfolio

Nucleotides:

- Standard: DNA, RNA, 2'OMe-RNA, 2'F-RNA, 2'MOE-RNA, LNA
- Custom synthesized sugar and base modified nucleotides
- Linkers: PO/PS/P-Me chemistry

Scale:

- Dynamic synthesis scale flexibility: 1-100 umol
- Yield scale: 1-100 mg

Applications:

- Bulk-scale primers and probes
- Small oligonucleotides (5-15 nt)
- Antisense oligonucleotide (16-22 nt)
- siRNAs (20-35 nt)
- Aptamers (35-75 nt)
- Long oligonucleotide for RNA editing and other applications

Modification:

(3'/5'/int)

Functional units:

Fluorophores, quenchers, cholesterol, biotin, digoxigenin, tris-galnac, phosphate, 5'-vinyl-phosphate, lipids spacers and others

Attachment units:

- amine/thiol/alkyne/azide

Solution phase conjugation:

- Acid-amine coupling
- Thiol-maleimide coupling
- Azide-alkyne coupling

In-house synthetic expertise to synthesize modified bases, linkers, and sugar motifs

Modern equipment's for synthesis, analysis, purification, characterization and sample processing

Oligonucleotide Synthesizer: H-16, K&A

Phenomenal flexibility, ultra-low maintenance, short cycle times, and low consumption featured with 2 columns to 16 columns for wide range of scales oligonucleotide synthesis.

- Automatic Recipe Management for 16 channel
- Online trityl monitor for all columns
- 12 amidite positions and 9 reagent positions for synthesis of highly complex oligonucleotide



Oligonucleotides Purification:

- Anion exchange purification with AKTA Pure 150M3
- Reverse-Phase HPLC purification with Shimadzu HPLC system

Characterization & Sequencing:

- UV based quantification of final product
- Purity analysis: Acquity Premier UPLC with Ion-pairing RP-HPLC mode
- HRMS: Thermo Orbitrap Exploris 240 Mass Spectrometer for mass confirmation
- Sequencing capability: MS/MS studies to identify and quantify impurities along with sequence confirmation

Let's begin the conversation



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