

TCATCCAC

TACCAGAGT

TCGTCTGT

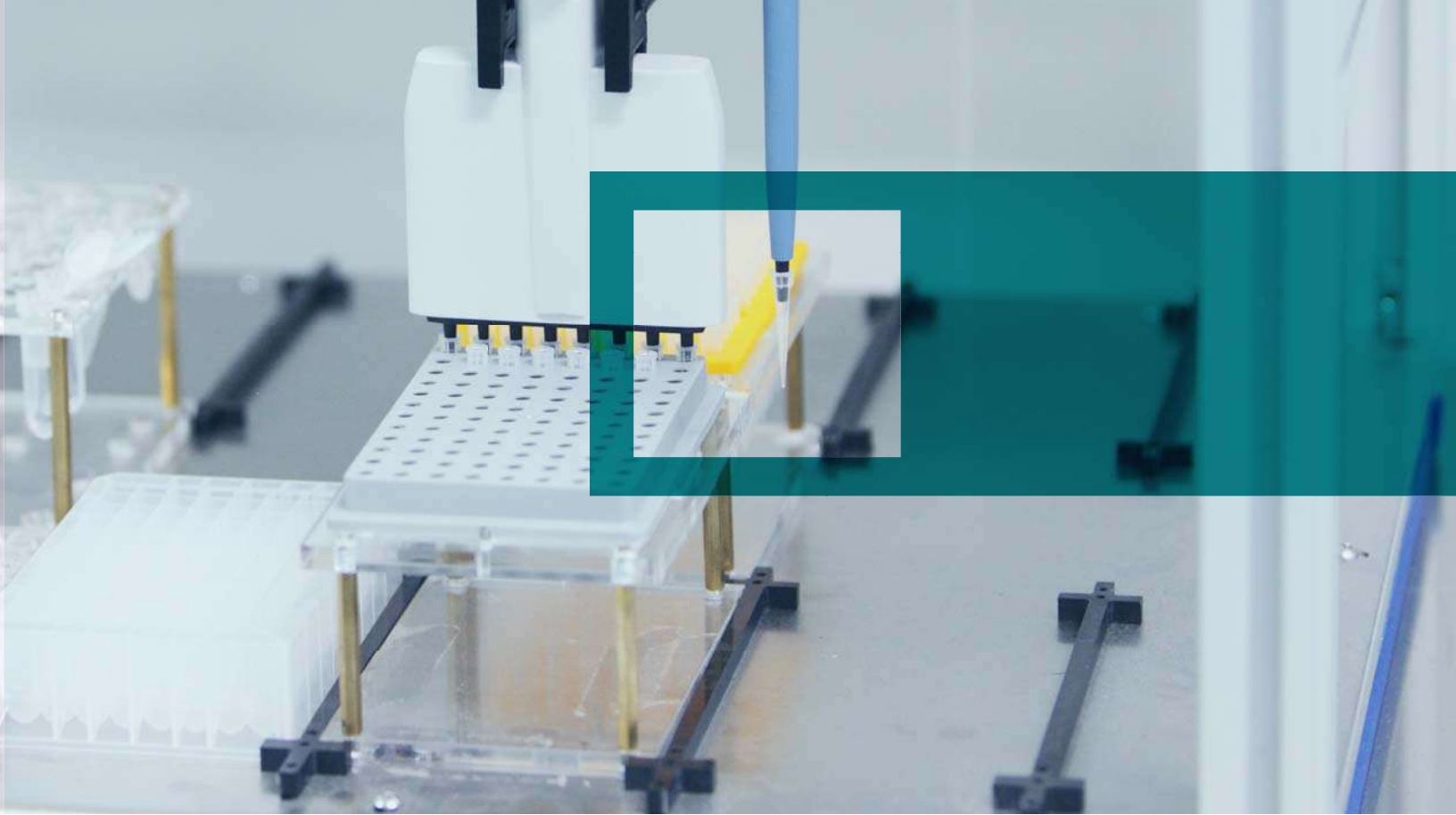
CGGGG

GENE SYNTHESIS

CCTGCGGGGCTGCGGCG

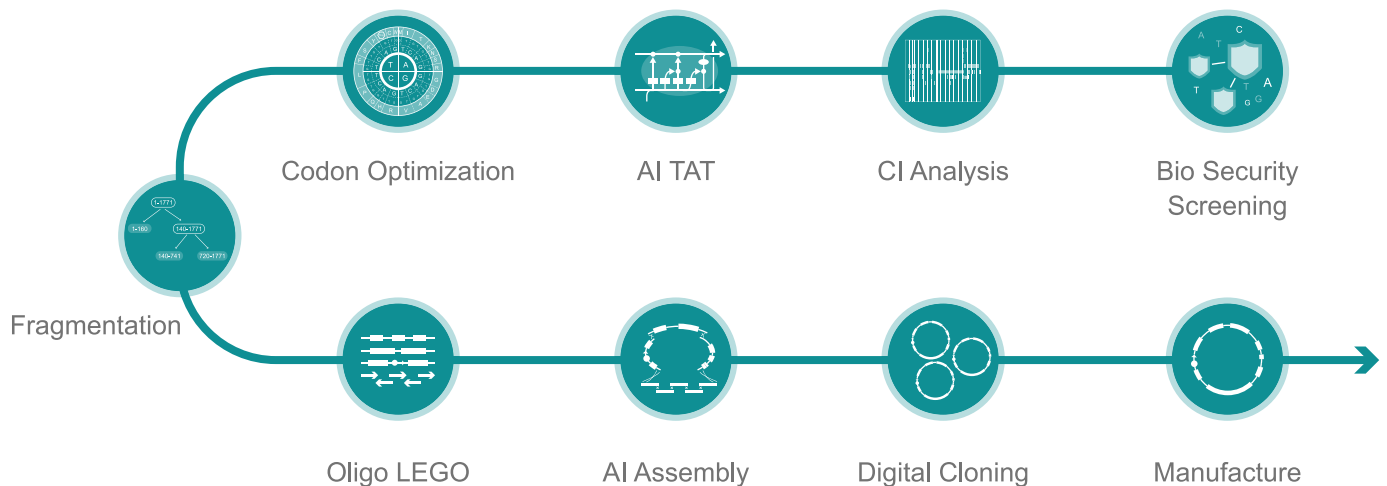
CATCA

ATACTCCCGTCATTTACGT



Gene synthesis is the process of artificially creating a DNA sequence. It is an important tool in the fields of biotechnology and medicine, as it allows for the creation of genes that would not otherwise exist in nature. Gene synthesis has a wide range of applications, from the production of therapeutic proteins to the creation of novel model organisms.

At Synbio Technologies, we take gene synthesis to the next level with our deep gene synthesis technology. This technology combines advanced algorithms and artificial intelligence with our leading gene synthesis platform to synthesize smarter, more precise gene sequences. Our deep synthesis process includes complexity index analysis (CI Analysis), synthetic cycle prediction (AI-TAT), codon optimization, and artificial intelligence aided assembly (AI Assembly) to ensure the timely and efficient delivery of precisely accurate gene sequences. This technology enables us to create highly-accurate genes at an affordable price; allowing you to discover more, while paying less.



STANDARD GENE SYNTHESIS

With the help of our automated system, we have the capacity to deliver more than 3 million base pairs each month. With a simple input of your DNA or amino acid sequences, our scientists are able to design the oligos and assemble fragments within 30 minutes. Then, they will conduct Sanger sequencing for 100% accuracy verification, guaranteeing your satisfaction.

Service Specifications

We are committed to providing quick turnaround times, high-quality, and the industry's most competitive pricing. We can clone your genes into a default pUC57-Amp or Kan vector, or we can customize the vector based on your unique needs.

Gene Length	Turnaround Time (business days)	Standard Deliverables	Optional Services
< 250 bp	5 – 10	• 2-5 µg lyophilized plasmid DNA • Sequencing chromatogram • Certificate of analysis (COA)	• Free codon optimization • Free vector deposit
250 – 1,500 bp	5 – 10		
1,501 – 3,000 bp	10 – 15		
3,001 – 4,500 bp	15 – 20		
4,501 – 6,000 bp	20 – 25		
> 6,000 bp	Quote		

* We offer discounts for bulk gene synthesis. Please contact quote@synbio-tech.com for additional information.

** Turnaround times apply to non-complex sequences.



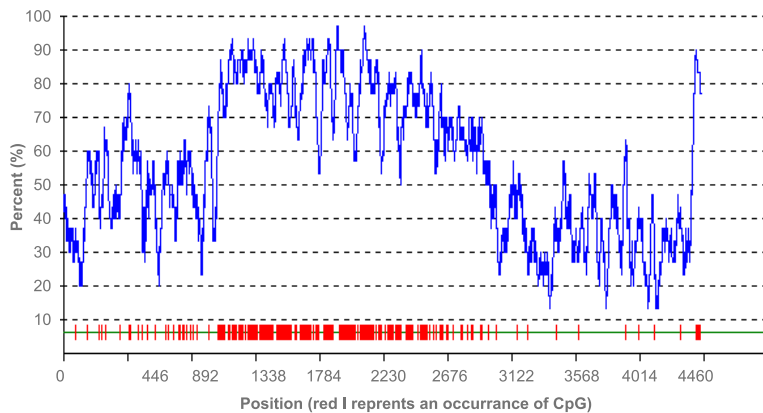
Complex Gene Synthesis

Our expertise enables us to deliver repetitive sequences (less than 40 bp), sequences with GC content ranging from 10% up 90%, as well hairpin structures and poly structural genes quickly and accurately. Thus, guaranteeing 100% successful cloning at any site of the vector system (commercial or custom).

Case Studies

• High GC content DNA synthesis

Synbio Technologies can synthesize gene sequences with varying GC content ranges (10%-90%). We have successfully synthesized a 4,464 bp gene sequence of extreme complexity with 4 long repeats and a large fluctuation in GC content (14% - 94%).



Sequence Complexity	Extreme
Sequence Length	4464
GC Content	55.8 Normal
GC50nt Volatility	80 Extreme
GC50nt Content	94-14 Complex
Base Repeat	A11C15G9T7 Complex
Number of Long Repeats 20nt	4 Complex
Short Repeat Density 9nt	45.4% Normal
Palindromic Sequence Length	12 Normal
Inverted Repeat Length	24 Complex

• Hairpin DNA synthesis

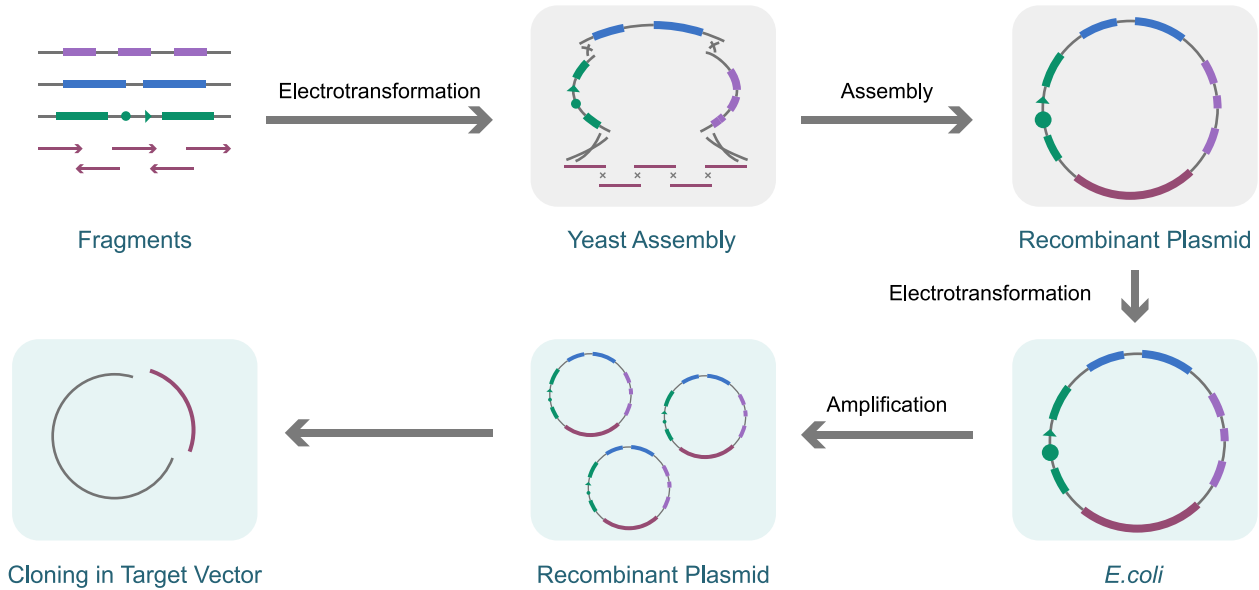
Palindromic sequences are likely to form hairpin structures, which makes gene synthesis difficult. With extensive experience in gene synthesis, Synbio Technologies can successfully synthesize extremely complex gene sequences. In this case, the complex sequence had a total length of 574bp, of which 494bp was a palindromic sequence.



Sequence Complexity	Extreme
Sequence Length	574
GC Content	65.3 Complex
GC50nt Volatility	36 Normal
GC50nt Content	80-44 Normal
Base Repeat	A4C5G5T4 Normal
Number of Long Repeats 20nt	0 Normal
Short Repeat Density 9nt	16.4% Normal
Palindromic Sequence Length	494 Extreme
Inverted Repeat Length	14 Normal

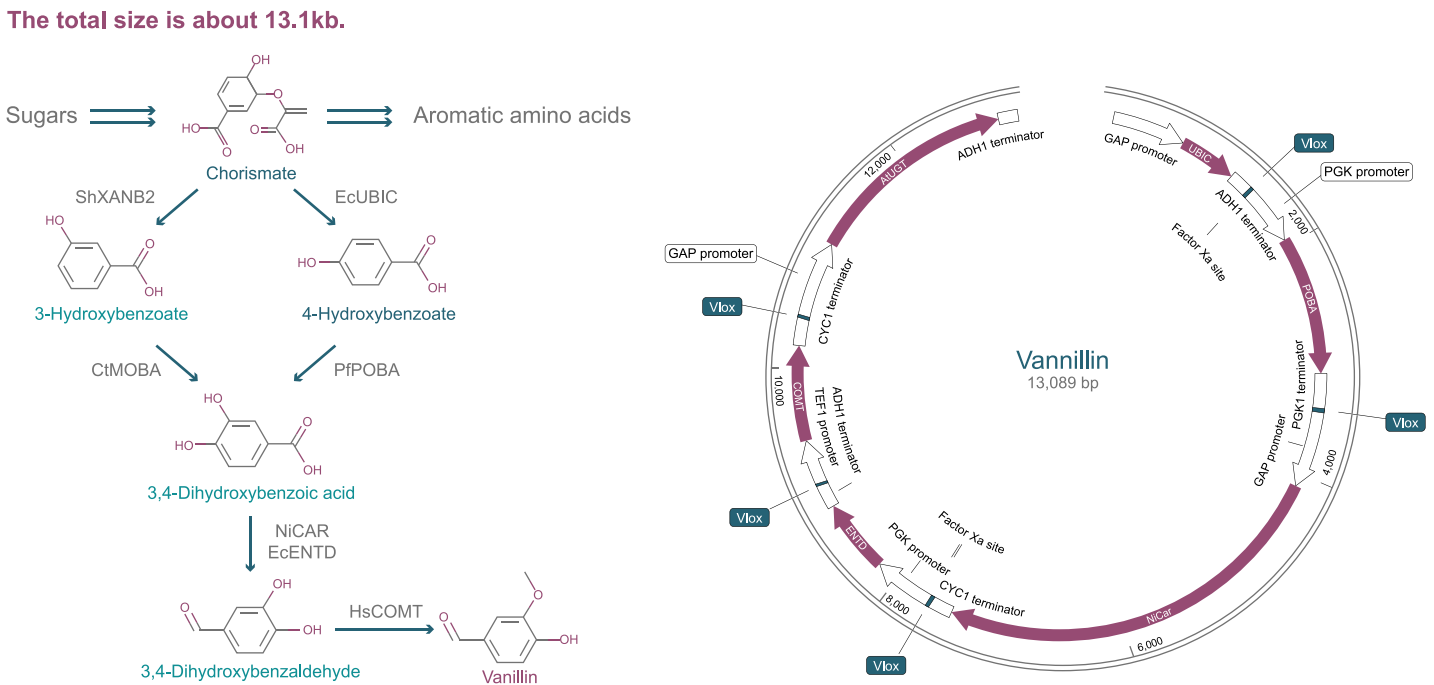
Long Gene Synthesis

Yeast has the potential to conveniently construct large DNA segments with ease as it can connect multiple genes automatically without any polymerases or ligases. The use of homologous recombination in this process enables efficient and effective assembly for long gene synthesis & genome building blocks, which are necessary when making larger molecules, like proteins, from their amino acid sequences. Unlike many providers, who only offer short single-gene segment synthesis, Synbio Technologies provides reliable single gene sequences up to 150 Kb.



Case Study

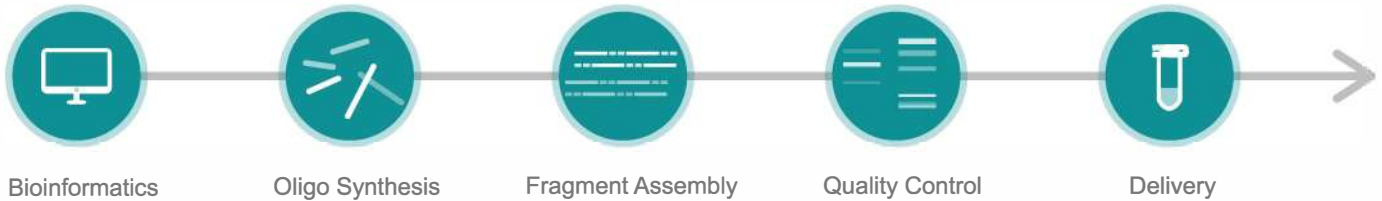
Synbio Technologies constructed the vanillin synthesis pathway, which consists of 6 heterologous biosynthetic gene clusters (BGCs). **The total size is about 13.1kb.**



Gene Fragment Synthesis

Gene fragments are the building blocks of genetic research. They're an affordable method for creating antibodies and CRISPR-based gene editing, and they can help define qPCR standards. Synbio Technologies delivers sequence verified, double-stranded gene fragments in just a few days, so you always have access to what you need, when you need it.

Service Process



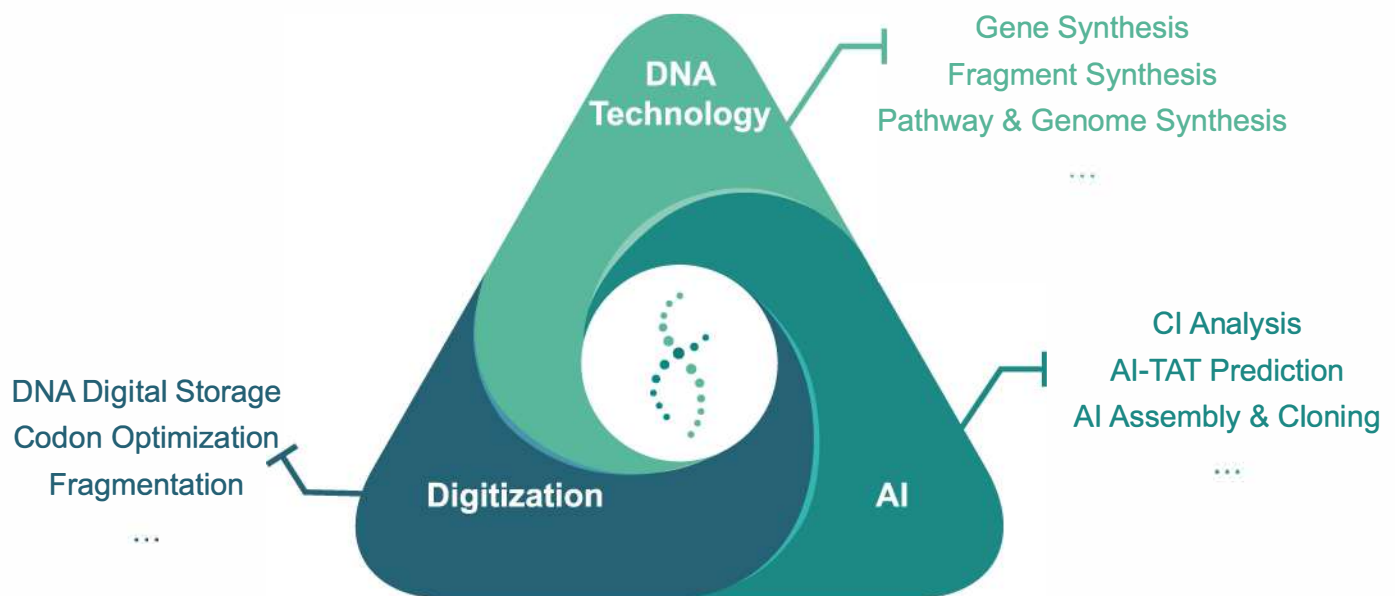
Normal Sequences Service Specifications

Length (in bp)	Production Time (business Days)
<300	8 – 10
300 – 1.8K	8 – 10
1.8K – 3.2K	10 – 12

*Synstrands gene fragments are available in two delivery forms: Eppendorf tubes or plates.

Expertise. Accuracy. Savings.

That's what you get with Synbio Technologies.



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