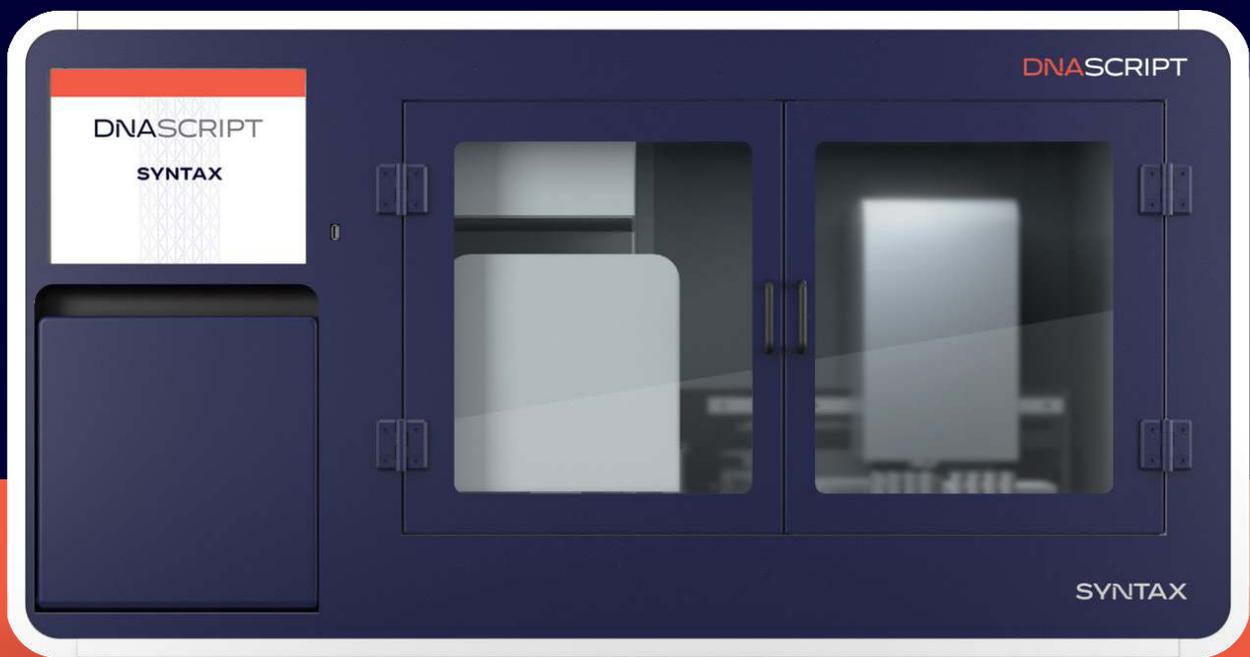


**DNASCRIPT**

# SYNTAX SYSTEM

**DNA ON DEMAND**

Benchtop convenience.  
Same-day results.



POWERING A  
BIO-REVOLUTION

## SYNTAX SYSTEM:

The First DNA  
Printer Powered by  
Enzymatic Synthesis



- Be done with your experiments before others receive their orders from service providers
- Optimize assays faster with same-day oligo synthesis
- Save time and costs by printing the quantities you need when you need them
- Print DNA in your lab without specialized infrastructure, skills, or training
- Maintain confidentiality over your sequences and control over your workflow schedule

DNA Script introduces a new paradigm in DNA synthesis, the SYNTAX System, powered by Enzymatic DNA Synthesis (EDS) technology to accelerate innovation. Designed for ease-of-use, productivity, convenience, control, and confidentiality, the SYNTAX System enables automated nucleic acid synthesis on your benchtop in your lab.

With same-day synthesis and a menu of modifications, researchers can access oligos for a range of molecular biology and genomics workflows anytime, eliminate bottlenecks in productivity, and iterate rapidly to accelerate innovation.

Welcome to the bio-revolution.

# Invest in Productivity, Convenience, and Control

EDS is a disruptive and transformative technology, designed to democratize access to oligo synthesis to the same extent that recent innovations have provided for DNA sequencing and editing. While supporting routine molecular biology and genomics applications today, EDS also is being used to unlock scientific discovery and new possibilities, such as rapid responses to emerging infectious diseases and biothreats, personalized medicine, and new data storage formats.



## Accessible

- Gain productivity with on-demand, benchtop oligo synthesis
- Utilize without need for specialized infrastructure, training, skills, or experience
- Simple and safe



## Convenient, Fast, and Flexible

- Update or modify designs minutes before printing
- Variable oligo lengths and batch sizes
- Custom oligos with or without modifications
- Sufficient for single use and rapid iteration
- Plug-and-play into existing workflows



## Full Control from Sequence to Application

- Control over sequence information and confidentiality
- Less risk of delays due to third-party manufacturing, logistical challenges, or unpredictable global events (e.g., pandemic)
- Higher productivity and predictable project schedules accelerate innovation and reduce hidden project costs

# Key Advantages

## System Capabilities



- Fully automated, walk-away synthesis
- Plug-and-play integration



- Parallel synthesis in 96-well plates
- Flexibility for up to 96 oligos per run
- Modifications enabled



- 15-minute setup time per run
- Same-day synthesis of 15 - 30 nt oligos enables two runs in 24 hours
- Synthesize oligos overnight for next-day use

## Oligo Features



- 15 - 80 nt *de novo* oligo synthesis
- Custom iDNA length: 1 - 45 nt
- Default 5'-phosphate



- Average yield: Up to 600 pmol (no mods), up to 400 pmol (with mods)
- Normalized concentration: 5-7  $\mu\text{M}$  (no mods),  $\geq 5 \mu\text{M}$  (with mods)



- Ready-to-use oligos for molecular biology and genomics applications
- Modify oligos with fluorophores, quenchers, and biotin



### SYNTAX Kits

- Complete kits for template-free Enzymatic DNA Synthesis
- Contains enzymes, reagents, and consumables needed for multiple runs
- Modification kits available
- Custom iDNA synthesis kits available
- No harsh organic solvents



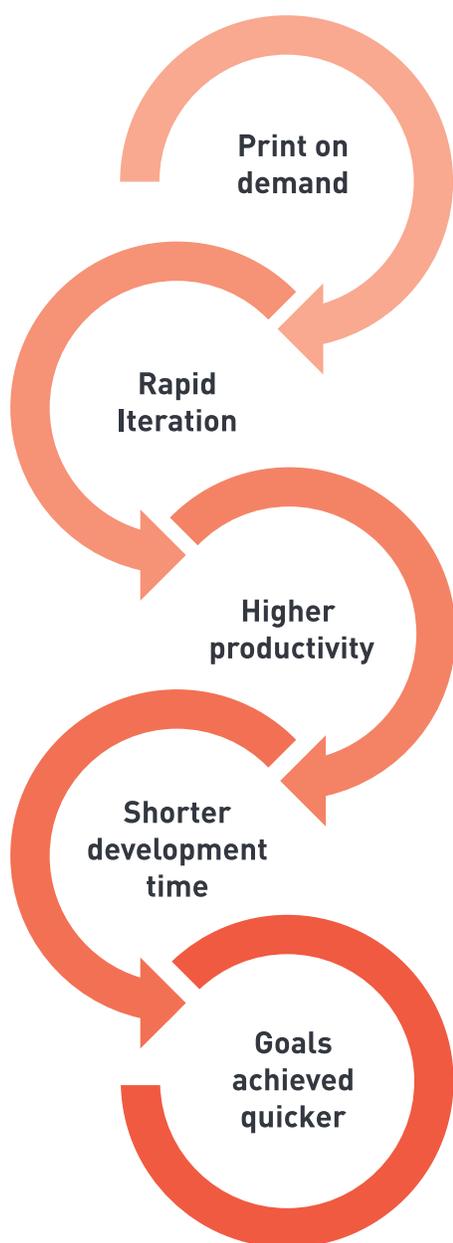
### Console Software

- Intuitive, remote interface to plan and track every synthesis run
- Plan and coordinate runs, view progress, monitor instrument performance, and manage results
- Web-based or on-premises options available
- Manage custom iDNA synthesis plates

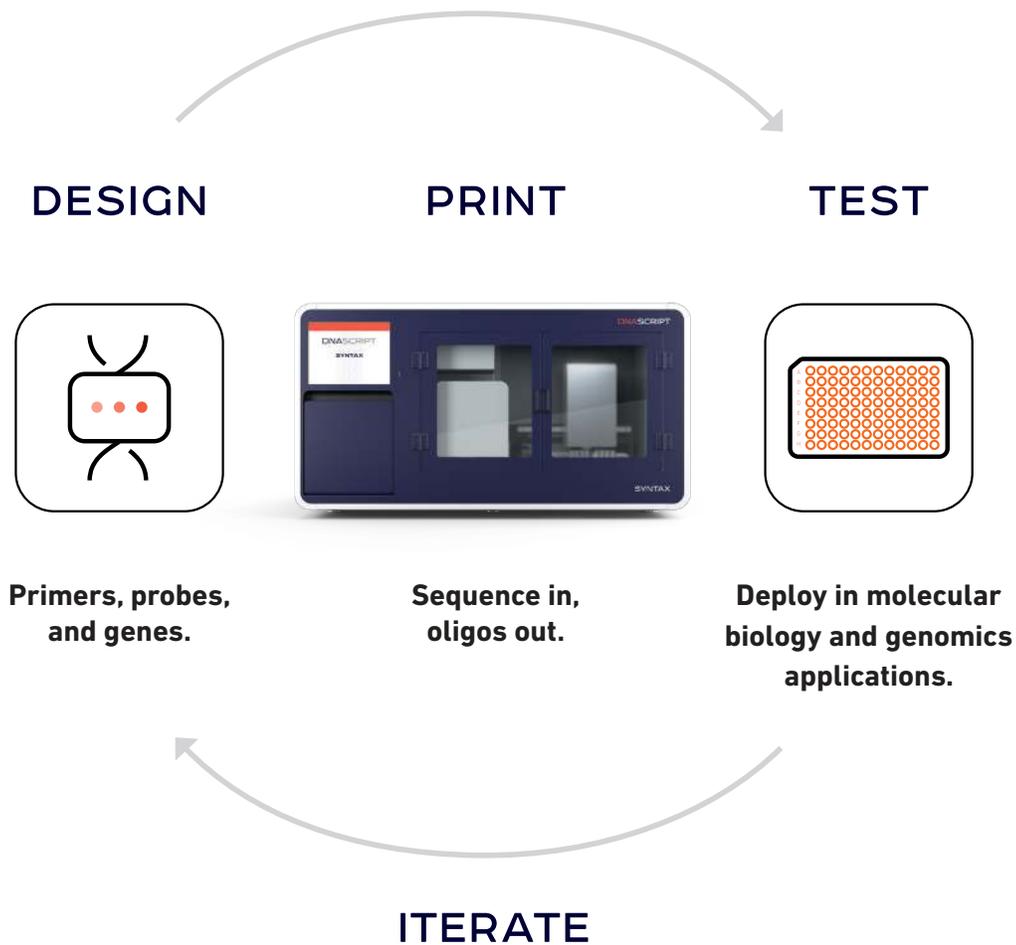
# Dependable Turnaround Times

Several commercial oligo suppliers can provide next-day delivery of simple primers. However delivery times may not be met and may be extended to weeks when you need long oligos, oligos with modifications, or oligos that require HPLC or PAGE purification. Weeks can turn into months when extraordinary circumstances overburden global manufacturing capabilities and logistics, as experienced during the COVID-19 pandemic.

In-house oligo synthesis with the SYNTAX System provides a predictable oligo supply, with tangible downstream benefits.



- Configure and initiate runs as needed
- Add extra sequences or controls last-minute
  
- Smaller scale and 96-well format enables parallel testing of multiple designs
- Incorporate today's results in tonight's print run
- Faster iteration accelerates innovation
  
- Plan effectively and execute experiments on schedule
- No extended downtime or unpredictable delivery delays
  
- Shave days off multi-day workflows
- Less time needed for feasibility, verification, and validation
- Remove supply bottlenecks from time-sensitive projects
  
- Shorter time-to-results
- Quicker service delivery
- Faster product-to-market



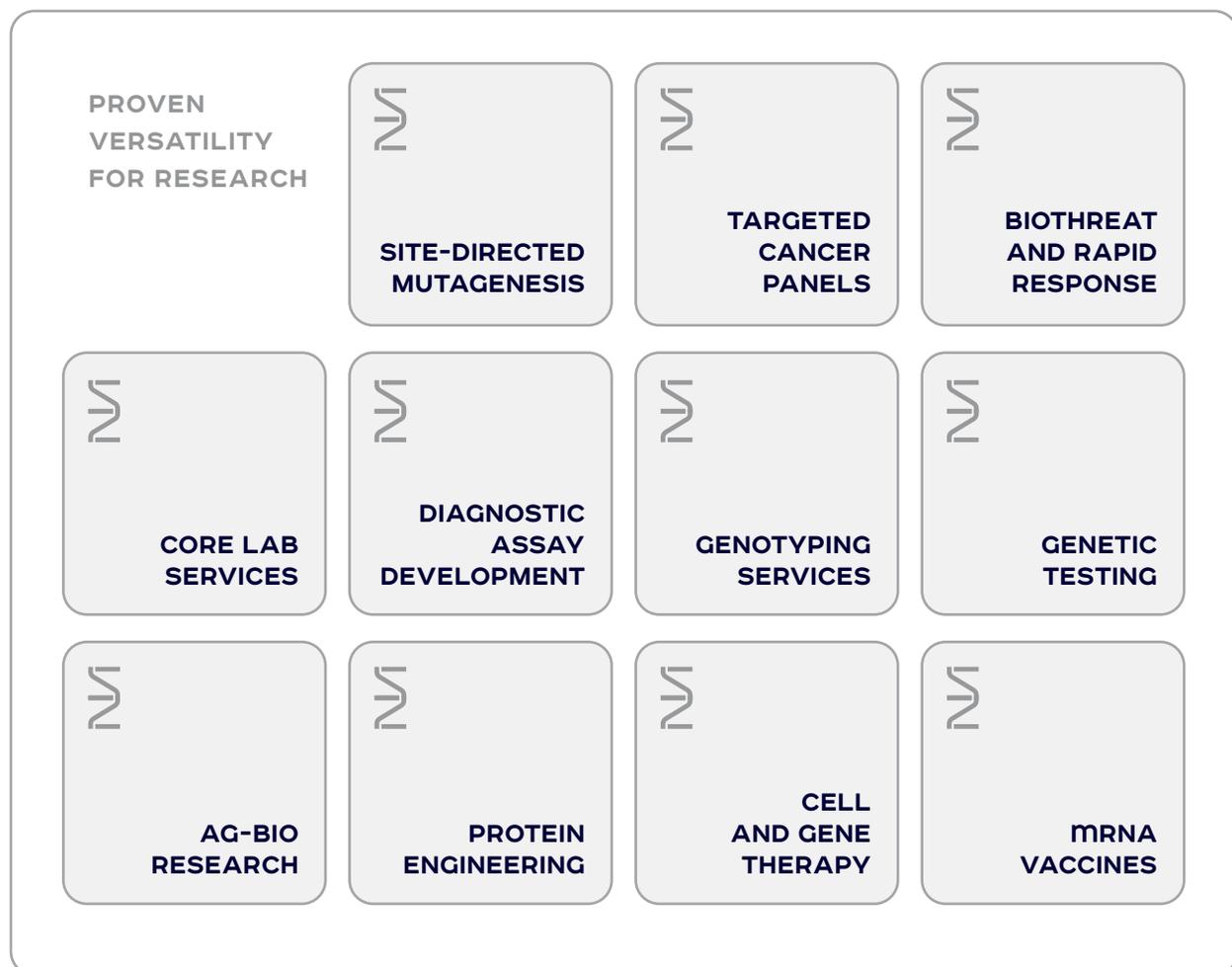
## Seamless Integration into Existing Workflows

Oligonucleotides are needed for almost every established and emerging genomics and life science application. The SYNTAX System produces molecular biology-ready oligos, which can be rapidly deployed in new or existing workflows.

The Console Software accepts oligo sequences, designed using your favorite software tools, in commonly used formats. Following synthesis, the SYNTAX System desalts, quantifies, and normalizes oligos, ready for the next step in your workflow with standard equipment and protocols.

# Versatile System for Many Research Applications

Our EDS technology has produced oligos that meet the functional performance requirements of many research applications using PCR, qPCR, dPCR, NGS, FISH, smFISH, Gene Assembly, CRISPR, and more.



Visit [www.dnascript.com/applications](http://www.dnascript.com/applications) to learn more.

# The Enzymatic Synthesis Revolution

DNA Script has pioneered Enzymatic DNA Synthesis with three core innovations:

## Synthesis Enzymes (TdT)

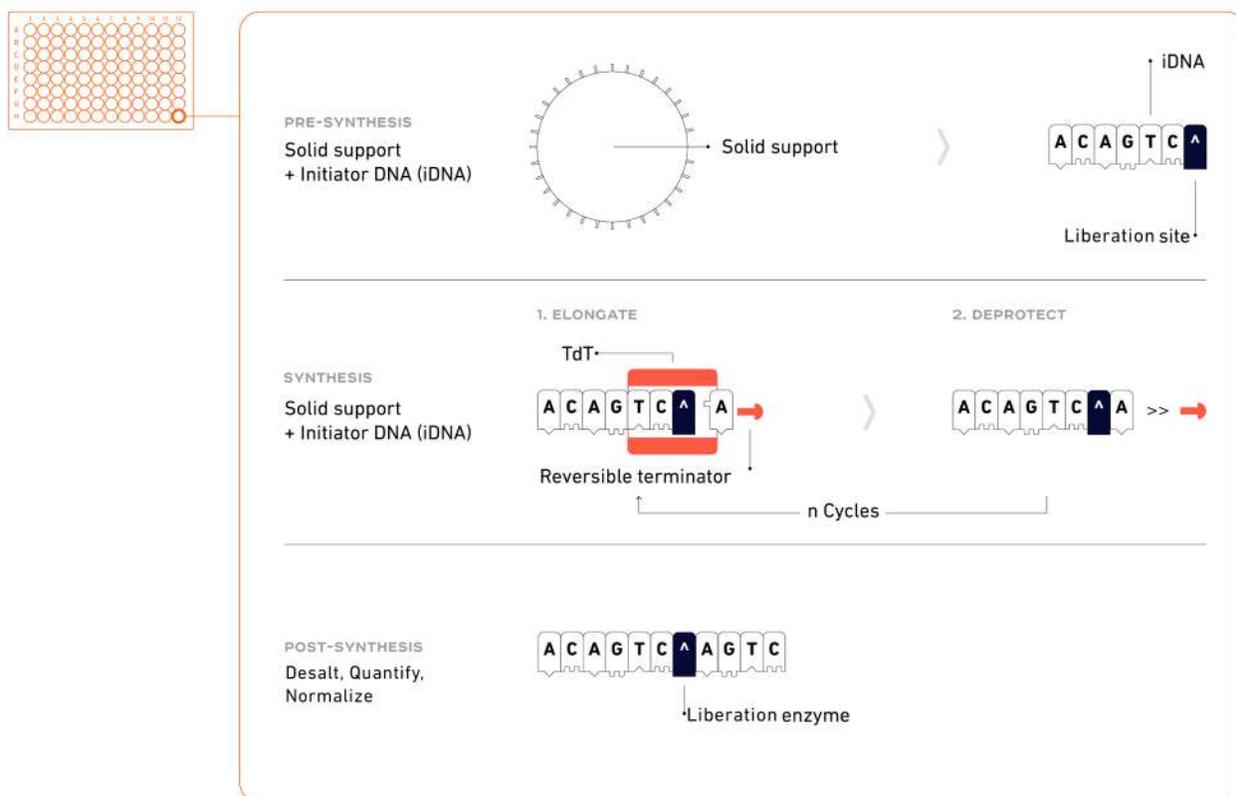
DNA Script has developed and optimized a portfolio of proprietary synthesis enzymes engineered to perform *de novo* synthesis of nucleic acids with high fidelity and high coupling efficiency.

## Reversibly Terminated Nucleotides

DNA Script has developed a range of modified nucleotides containing a reversible terminator on the 3' position to enable the incorporation of one, and only one, nucleotide per addition cycle.

## Solid Support

DNA Script's solid support has two key functions: provide a cleavable initiator DNA (iDNA) molecule to initiate synthesis, and ensure that chemical and physical properties are optimal for enzymatic reactions. The physical and chemical properties of the solid support are optimized to enable the synthesis of full-length DNA to support molecular biology and genomics applications and provide a surface to which the iDNA is bound. The iDNA contains an enzymatically cleavable entity and uniquely can be customized to incorporate a conserved sequence into each oligo synthesized.



## Synthesis Workflow

Oligos are synthesized in a cyclic, two-step process. 1) Elongate: the synthesis enzyme adds a single nucleotide to the iDNA. 2) Deprotect: the reversible terminator of the nucleotide is removed, leaving the strand ready to be elongated again. Steps 1 and 2 are repeated until the user-defined sequence length is reached. Following completion of the last synthesis cycle, enzymatic liberation is performed to release all bases downstream from the liberation site. The resulting oligos are desalted, quantified, and normalized. Molecular biology-ready oligos are collected, and the system may be prepared for another run within just 30 minutes.



## ENZYMATIC SYNTHESIS

# DNA as Nature Intended

### SYNTAX System

#### **Benchtop, DNA-On-Demand Instrument**

Powered by Enzymatic DNA Synthesis (EDS) technology.

Small volumes of aqueous reagents.

#### **Simple**

Integrated experience.

Accessible to any lab.

#### **Certain**

Reliable delivery of oligos.

Minimal logistical or production queue issues.

#### **Fast**

Same day results, from start to finish, are now accessible.

Run overnight for increased efficiency.

#### **Secure**

Print your own oligos on-site; low risk of contamination.

### DNA as a Service

#### **Traditional DNA Synthesis Service**

Phosphoramidite chemistry developed decades ago with few technical advancements since then.

Requires large volumes of harsh chemicals.

#### **Complex**

Transactions often involve multiple touchpoints.

Supply logistics can be complex.

#### **Uncertain**

Turnaround times may be inconsistent and unreliable.

Oligos may not arrive when you need them.

#### **Slow**

Long turnaround times delay your research and ability to respond quickly.

#### **Vulnerable**

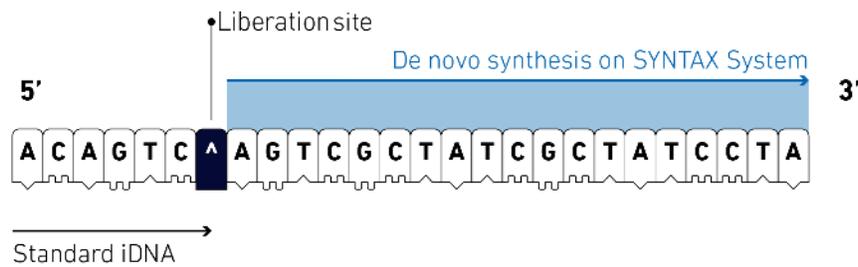
Centralized processing can increase risk of contamination.

# Customizable iDNA

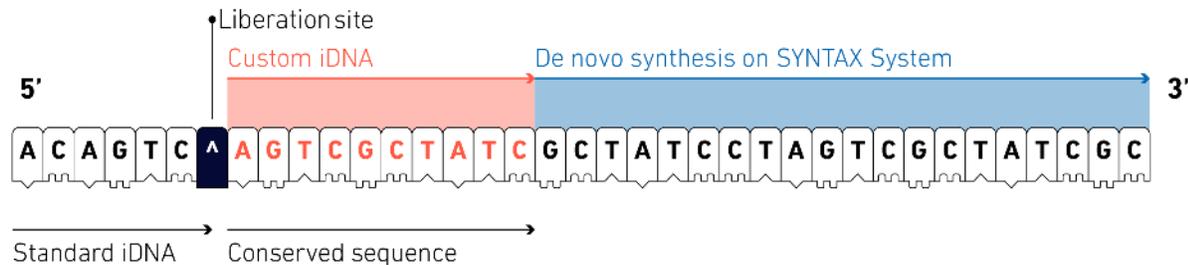
Because EDS does not require harsh and complicated organic chemistry that necessitates base protection, it offers the unique ability to add sequence to the 3'-end of pre-made, single-stranded DNA.

This distinct feature can be used to include a fixed 5'-motif—such as a primer or protein binding site, promoter sequence, restriction enzyme recognition site, adapter, or barcode—in all or a subset of oligos in a batch. Custom synthesis plates with your motif of choice in the iDNA are easy to design and manage with the Console Software.

Standard synthesis plates enable *de novo* synthesis immediately after the liberation site.



Custom iDNA synthesis plates enable *de novo* synthesis immediately after a customer-defined conserved sequence that follows the liberation site.



## Ordering Information

Cat. No.	Product Description
100296	SYNTAX System, Model STX-100 (with standard 12-month warranty)
100316	SYNTAX System, Model STX-100, with On-Premises Console Software
100294	SYNTAX 60-Cycle Kit, 96 Oligos, pack of 4
100274	SYNTAX 60-Cycle Custom iDNA Kit, 96 Oligos, pack of 4
100853	SYNTAX 80-Cycle Synthesis Kit, 96 Oligos, pack of 4
100855	SYNTAX 80-Cycle Processing Kit, 96 Oligos, pack of 4
100856	SYNTAX 80-Cycle Custom iDNA Processing Kit, 96 Oligos, pack of 8

Oligo Modifications - Please visit [www.DNAScript.com/kits](http://www.DNAScript.com/kits) for a list of available modifications including fluorophores, quenchers, and biotin in various quantities. Modifications available for SYNTAX 80-Cycle Kits only.

## Specifications

SYNTAX System	
<b>Dimensions</b> (W x H x D)	122 x 66 x 74 cm   48 x 26 x 29 in (Vacuum cabinet (freestanding): 46 x 66 x 30 cm   18 x 26 x 12 in)
<b>Weight</b>	350 lbs   159 kg (Vacuum cabinet (freestanding): 16 kg   35 lbs)
<b>Working Environment</b>	Temperature: 15–30°C   59–86°F Humidity: Noncondensing, 20–80% relative humidity Power output at typical power draw of 1,200 W: 4,094 BTU/hr
<b>Power</b>	100–240 VAC, ≤20 A, 50/60 Hz single-phase power outlet
<b>Communications</b>	USB 2.0, LAN, Internet
<b>Software</b>	Console Software (Web-based or On-Premises Available) and SYNTAX System Software
<b>SYNTAX System Computer</b>	Memory: 16 GB Storage: 250 GB CPU: Intel Core i7-6600U at 2.60 GHz x 4 Operating system: Linux, Ubuntu 18.04.5 LTS

# About DNA Script

Founded in 2014, DNA Script is a leading DNA synthesis company with a vision of engineering biology to accelerate breakthroughs in life science. The company is pioneering an alternative to traditional chemical DNA synthesis called Enzymatic DNA Synthesis, or EDS, and making it accessible to labs with the first benchtop enzymatic synthesis instrument, the SYNTAX System. By putting DNA synthesis back in the lab, DNA Script aims to transform life science research through innovative technology that gives researchers unprecedented speed, control, and autonomy.

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[www.DNAScript.com](http://www.DNAScript.com)

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