LUBIO SCIENCE

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synthetic biology

eBLOCKS™ GENE FRAGMENTS

Made for speed

Fast turnaround   **Minimal screening effort**   **Budget friendly**

eBlocks Gene Fragments are double-stranded DNA (dsDNA) fragments of 300–1500 bp in length that typically ship in 1–3 business days. They have a median error rate of less than 1:5000 bp making them uniquely suited for high-throughput screening of multiple constructs.

Unlike some other dsDNA synthesis vendors, IDT offers fragments without flanking (i.e., universal adapter) sequences at no extra cost. With no flanking sequences to remove, eBlocks are ready-to-use for various research applications, including antibody discovery, enzyme engineering, and vaccine research.
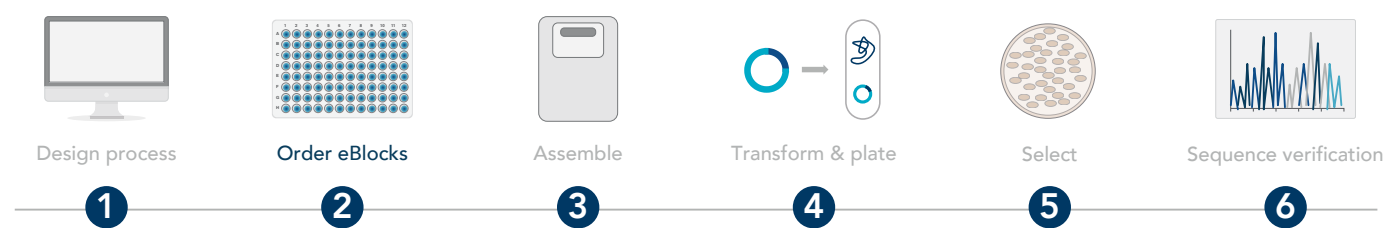

| Design process | Order eBlocks | Assemble | Transform & plate | Select | Sequence verification |
| 1 | 2 | 3 | 4 | 5 | 6 |

Figure 1. Example of high-thoughput workflow.

IDT's proprietary synthesis technology manufactures quality eBlocks Gene Fragments for automating large-scale workflows for high-throughput screening. By utilizing IDT's free online design tools suite, researchers can design custom and ready-to-use eBlocks Gene Fragments for cloning workflows.

QUALITY CONTROL FOR HIGHER CLONING EFFICIENCY

Each eBlocks Gene Fragment goes through a quality control process by verifying the size of the fragment by capillary electrophoresis. This testing ensures that most recombinant colonies obtained from cloning contain the desired insert. More complex sequences may require you to sequence additional clones.

LOW SCREENING EFFORT

eBlocks Gene Fragments reduce the time and expense of screening colonies compared to alternative DNA fragment options. The values in Table 1 represent typical screening requirements when using an isothermal assembly method under optimal cloning conditions.*

Table 1. eBlocks Gene Fragments reduce the time and expense for screening colonies.

Sequence length	Colonies to pick
300–499 bp	2
500–1500 bp	3

* Cloning efficiency is affected by many factors, which includes the cloning method used, the stability of the cell line and plasmid, vector preparation, and cellular stress from expressing toxic proteins.

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IDT
INTEGRATED DNA TECHNOLOGIES

custom oligos • next generation sequencing • CRISPR genome editing • qPCR & PCR • synthetic biology • functional genomics

CONSISTENT HIGH FIDELITY

IDT gene fragments, including eBlocks Gene Fragments, demonstrate consistent cloning efficiency and cloning fidelity across various lengths (Figures 2A and 2B). In a recent study, eBlocks outperformed those from another leading supplier at lower length ranges.

A. IDT fragments display a lower error rate compared to other supplier
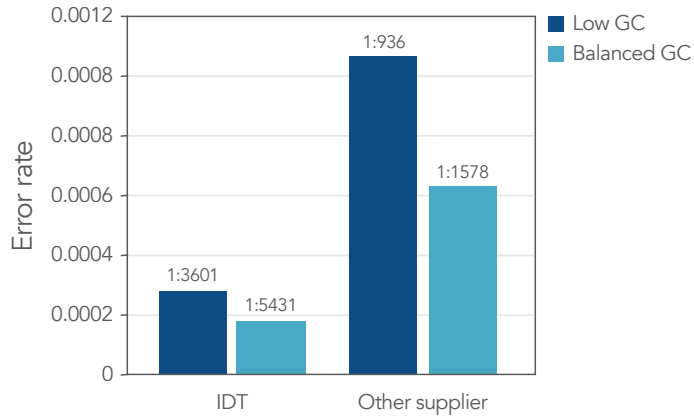
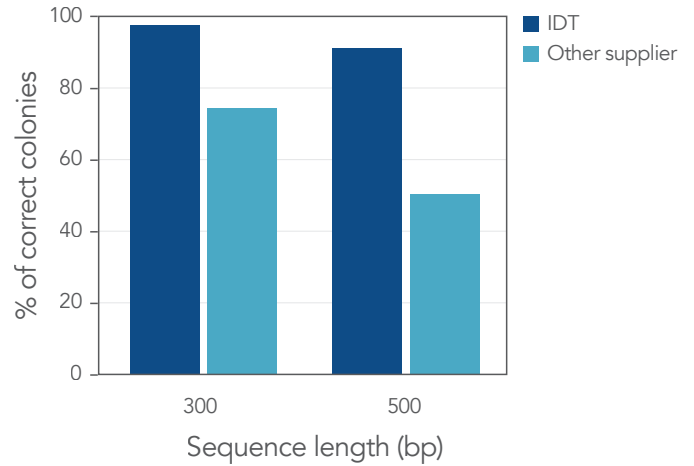B. IDT fragments display higher percentage of correct colonies compared to other supplier

Figure 2. eBlocks Gene Fragments have a cloning success of greater than 92%. (**A**) Based on the NGS analysis of the dsDNA fragments between 300 and 500 bp in length, IDT fragments showed low error rates in both balanced and low GC samples. N = 4 per supplier per condition. (**B**) The screening and sequencing of 24 colonies per supplier per sequence demonstrates that IDT's dsDNA fragments contain the desired full-length sequence in more than 92% of colonies selected.

PRODUCT SPECIFICATIONS

	Specifications
Length	300–1500 bp
Median error rate	1:5000 bp
Estimated shipping time (business days)*	1–3
Yield	200 ng
Format	Plate
Minimum order	24 sequences

* Shipping time is dependent on the length and complexity of the eBlocks Gene Fragments ordered. In a few cases, shipping time may exceed the estimated time.

COMMITMENT TO SUSTAINABILITY

IDT has implemented sustainable manufacturing practices, including a reagent reuse program to minimize hazardous waste.

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