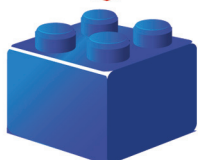


Introducing the **highest efficiency**
DNA assembly kits in the market
GenBuilder™ Cloning kits



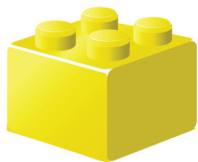
Consistent performance

- Quality control by assembling **12 DNA fragments** with >90% positive rate
- Performance verified by **>1,000** reactions per day in production line



Short assembly time

- DNA Assembly works with unpurified PCR fragments
- Incubation time is only **15** minutes



Highest cloning efficiency in the industry

- Rigorously tested among **8** DNA Assembly kits

Key Benefits

Restriction site
independent

One-step cloning of up to
12 gene fragments

Seamless assembly

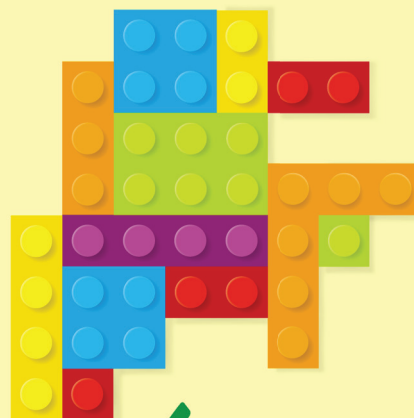
Suitable for long
fragments (> 8 kb)

Works perfectly
with

GenParts™!

GenParts™ is GenScript's reliable gene fragment service that offers guaranteed delivery in as few as two days.* For more information, go to <http://www.genscript.com/genparts-gene-fragments.html>

**For standard gene fragments.*



Available in Canada from...

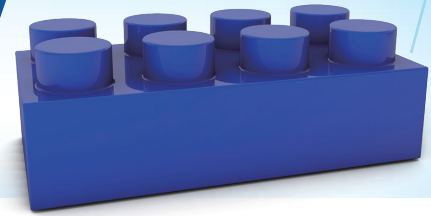
MJS
BioLynx
INC.

1-888-593-5969 • www.biolynx.ca • tech@biolynx.ca

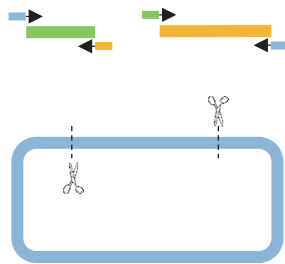


GenBuilder™ DNA Assembly

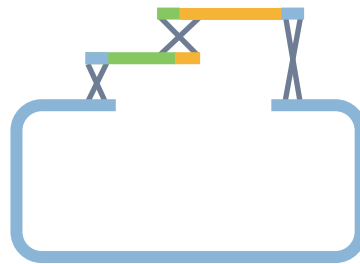
Mechanism of action



1. Prepare the DNA fragments with overlaps and the linearized vector for assembly.



2. Add DNA fragments and linearized vectors in the GenBuilder™ master mix. Mix well and incubate at 50°C for 15-50 minutes.



3. Transform assembly product into competent cells and plate on selective medium. Obtain colonies containing the assembled DNA. The DNA assembly in the colonies may be confirmed using techniques such as PCR and sequencing

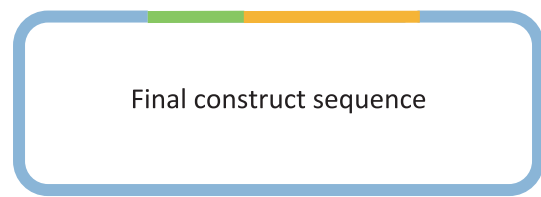


Figure 1. GenBuilder™ mechanism of action.

Visual screening of positive control reactions

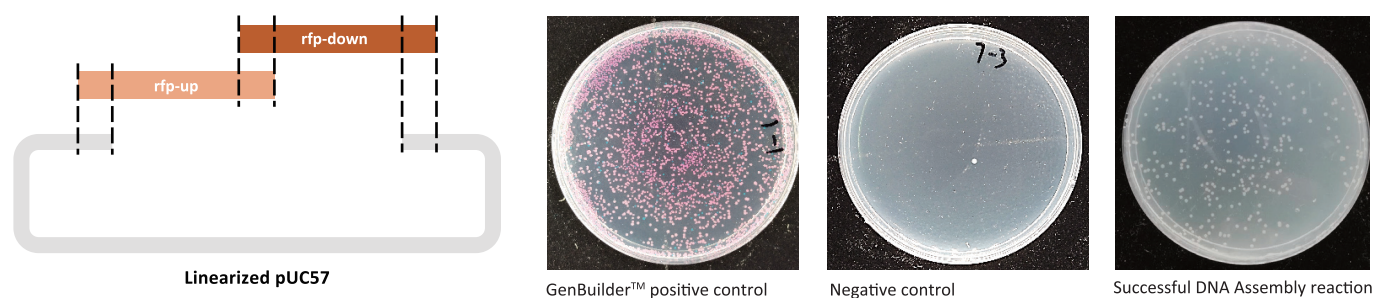
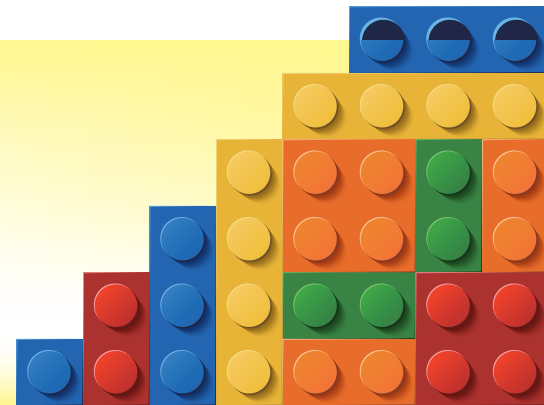


Figure 2. GenBuilder™ positive control reactions can be visually screened.

The control reactions containing two DNA fragments and one linearized vector were assembled together using the GenBuilder™ cloning kit. Following the assembly reaction (50 °C for 60 min), 1 µl assembly products were transformed into chemically competent DH10B cells (transformation efficiency: 5×10^7 cfu/µg pUC19 DNA). After recovery, 100 µl cells were plated on IPTG and Ampicillin plates. A successful cloning reaction produces hundreds of red colonies due to red fluorescent protein (RFP) reconstitution.

GenBuilder™ DNA Assembly

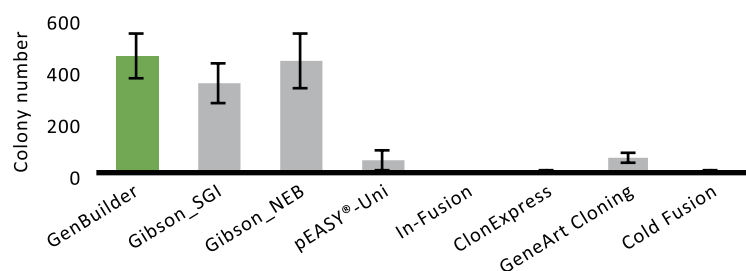
The *most efficient* seamless cloning solution



Highest cloning efficiency

GenBuilder and GenBuilder Plus have the highest cloning efficiency among competitors

A. DNA Assembly with five PCR fragments



B. Six or more PCR fragments

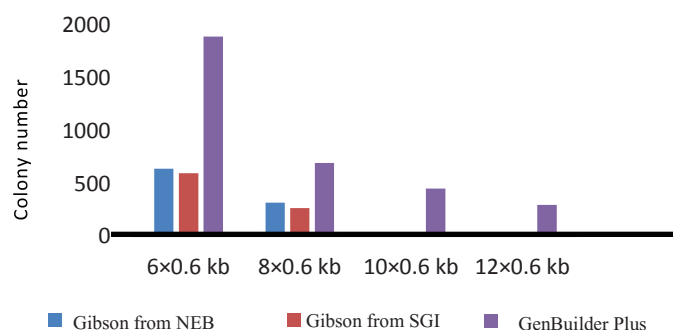


Figure 3. Cloning five or more PCR fragments with GenBuilder, GenBuilder Plus and other cloning kits

Save time on DNA Assembly

Successful assembly in only 15 minutes

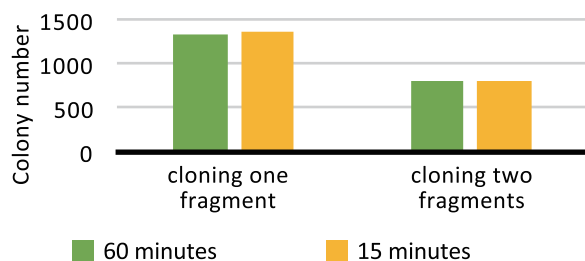


Figure 4. Comparing the effect of time of incubation with GenBuilder™ master-mix on cloning efficiency.

Two separate reactions were performed for DNA Assembly into the pUC57 vector - one using a single 1 kb PCR purified fragment, and another using two 1.5 kb PCR purified fragments. GenBuilder™ DNA assembly reactions were performed at 50°C for either 15 minutes or 60 minutes. Following the DNA assembly reaction, 1 µl assembly product was transformed into chemically competent DH10B cells. After recovery in 1 mL SOC medium, 100 µl of the cells were spread on selective plates. Using both one fragment (panel 1) and two fragments (panel 2), no detectable difference was observed between the number of colonies recovered when incubated with the GenBuilder™ master-mix at 50°C for 50 minutes (blue bars) or 15 minutes (yellow bars). All colonies were >90% PCR positive.

Successful assembly using unpurified PCR fragments

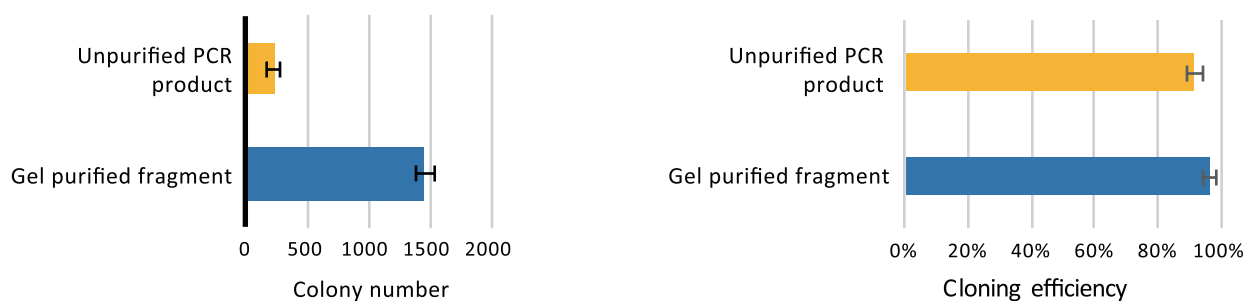


Figure 5. Cloning unpurified PCR products using GenBuilder™.

GenBuilder™ DNA Assembly either without PCR purification (yellow bars) or after gel-purification (blue bars). A. The number of colonies after the assembly reaction were fewer when unpurified PCR products were used. B. The percent colonies containing both the fragments in the correct orientation was comparable between PCR-purified (blue bars) and unpurified (yellow bars) PCR reactions. Error bars represent standard deviations of at least three independent experiments.

To download additional data and case studies, please visit: <https://www.genscript.com/GenBuilder-dna-assembly.html>

Kit Selection

GenBuilder vs. GenBuilder Plus

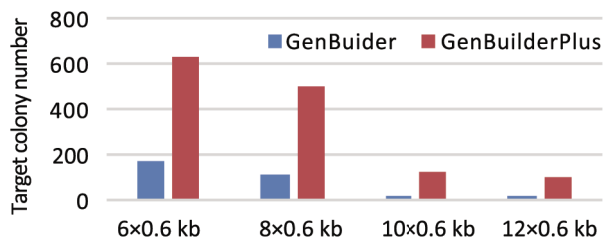


Figure 6. Multiple fragment cloning using GenBuilder™ and GenBuilder™ Plus.

In various assembly reactions, 6, 8, 10 and 12 PCR fragments were assembled into linearized pUC57 vector in a single-step assembly reaction. The number of colonies recovered from 1/10th of the cloning reaction were counted for each reaction.

Features		GenBuilder™ Cloning Kit L00701	GenBuilder™ Plus Cloning Kit L00744
1	Unique need fulfilled by the kit	Multi-gene cloning for up to 6 fragments	Multi gene cloning for up to 12 fragments
2	Cost per reaction	\$7.90	\$9.80
3	Number of fragments that can be cloned into a linearized vector	6	12
4	Cloning efficiency (insert was cloned into the vector) %	>90%	>90%
5	Plasmid library construction	Suitable	Recommended
6	Cloning unpurified PCR product	Efficient	Highly efficient
7	Assembly with ss oligos (single stranded oligos)	Yes, with ssDNA enhancer	Yes
8	Can be used for high throughput cloning	Yes	Yes
9	Seamless cloning	Yes	Yes
10	Positive control	Linearized pUC57 with two fragments to reconstitute RFP for visual determination of cloning efficiency	Linearized pUC57 with two fragments to reconstitute RFP for visual determination of cloning efficiency

Ordering information

Cat. No.	Product Name	Size
L00701-10	GenBuilder Cloning kit	10 reactions
L00701-50	GenBuilder Cloning kit	50 reactions
L00744-10	GenBuilder Plus Cloning kit	10 reactions
L00744-50	GenBuilder Plus Cloning kit	50 reactions