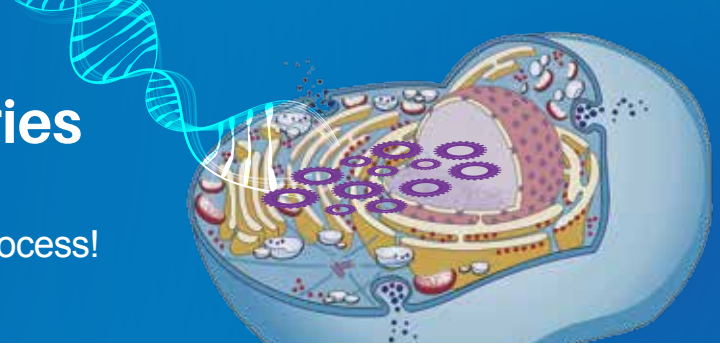
Combinatorial DNA Libraries

Let DNA Building Experts Speed Up Your Metabolic and Microbial Strain Engineering Process!



Accelerate the build phase of your iterative cycle in metabolic pathway and microbial strain engineering with our high-throughput combinatorial DNA libraries, a set of predefined DNA parts strategically assembled in a specific arrangement.

Our Advantages

- **One-stop, high-throughput** solution
- **Highly-customizable**
  - In **pool or individual construct** format
  - Up to **4 variable slots for 15 kb inserts**
  - Up to **1x10^8 constructs**
- **Seamlessly assembled** with advanced methods
- **Free storage** for all your synthesized projects **with CloneArk™ Storage System**
- **Faster and more economical** compared to your in-house operations
- **15+ year experience** in gene synthesis
- **Expert advising on all project plans by our Ph.D.-level scientists**

Applications

Metabolic pathway and microbial strain engineering for optimizing biological systems and the production of:

- **Chemicals**
- **Biofuels**
- **Pharmaceuticals**
- **Sustainable foods**

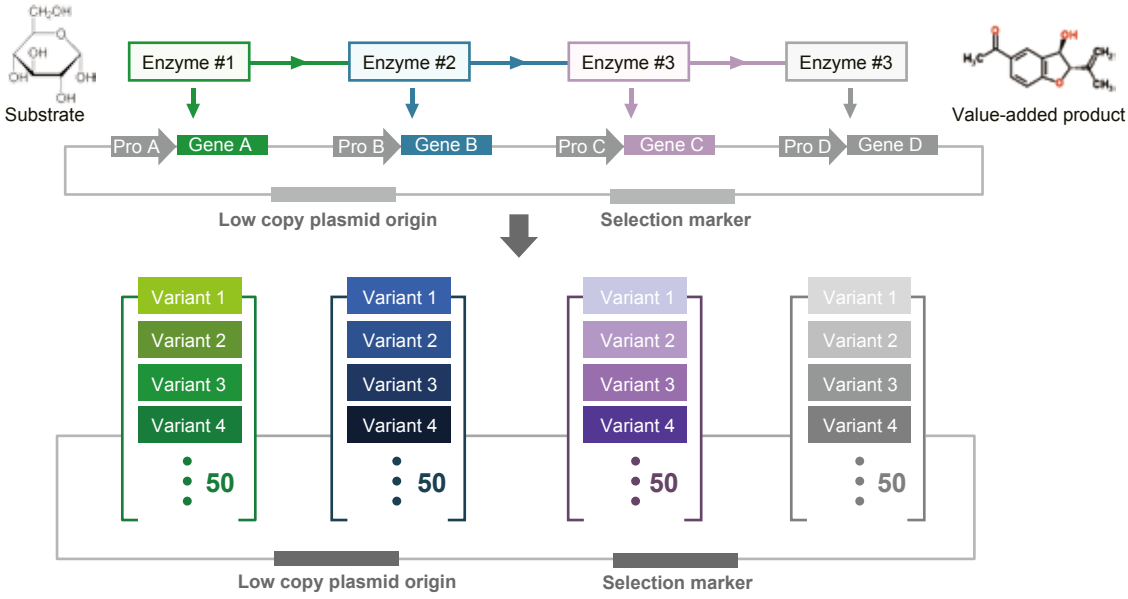
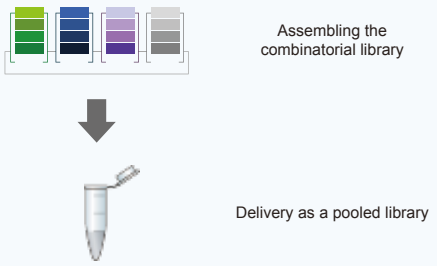


Figure 1. Combinatorial optimization of metabolic pathway enzymes. Customer requested the construction of a four gene metabolic pathway on a low copy number vector and that each gene needs to be expressed under its own constitutive promoter. Through database and literature search, 50 variants were designed for each of the pathway gene by the customer, and the final theoretical library size for this construction is 6,250,000. Due to customers' screening capability, they requested 2,000 randomly assembled constructs from this library. For this request, all gene variants were assembled in one reaction using our GenBuilder™ assembly platform, then transformed into E.coli cells. 2,000 positive clones were randomly selected from culture and plasmids were isolated individually. The diversity of delivered plasmids was 100%, assessed through sequencing 24 positive clones, ensuring the high quality of this combinatorial DNA library.

GenScript
Scripting Possibilities

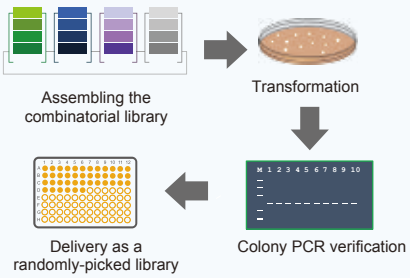
Combinatorial DNA Library Services

Pooled Library



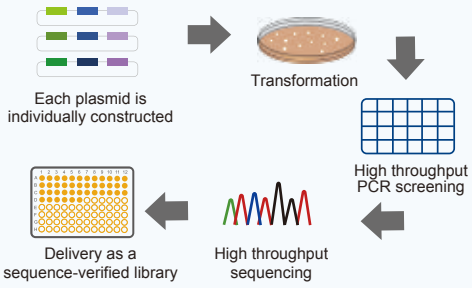
Ideal for	• **> 10^4 throughput screening** • For screening platforms that are not sensitive to the presence of negative clones
Service Features	• Cloned into pUC57 or **custom vector** with 4 µg in quantity • Delivering pooled a plasmid library with **up to 1×10^8 library size**
Quality Control	• **PCR verification of more than 48 clones** to determine positive rate • Sequence verification of 24 positive clones with a guarantee on **more than 85% diversity**

Representative Library



Ideal for	• **10^2 - 10^4 throughput screening** • Screening a pool of individual constructs with no concern for the presence of exact sequence
Service Features	• Guaranteeing that **every delivered construct contains all designed parts or modules** Delivering **up to 10,000** randomly-picked and PCR-verified **individual constructs** • Cloned into pUC57 or **custom vector** with 4 µg in quantity
Quality Control	• **PCR verification of all delivered plasmids** • Sequence verification of 24 positive clones with a guarantee on **more than 85% diversity**

Arrayed Library



Ideal for	• **Testing every single design** in your library
Service Features	• **Enabling the design of every construct** in the library in any combination • Delivering **up to 10,000 sequence-verified individual constructs** ready for transformation • Cloned into pUC57 or **custom vector** with 4 µg in quantity
Quality Control	• **Each delivered plasmid is sequence-verified**

For more information:

Or visit: https://www.genscript.com/combinatorial-DNA-library.html
Contact our Ph.D. level customer support: order@genscript.com

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