ATG:biosynthetics Solutions in bioGENESYS

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Do-It-Yourself Gene Assembly OR Pre-assembled multi-gene cassette constructs?

Need to co-express protein complexes or gene clusters for your structural investigations or in your metabolic engineering project?

ToggleTec might be just what you are looking for!

The systems allow you to:

- assemble individual gene cassettes into multi-gene expression constructs yourself, either via toggling or recombination (fig. 1)

BUT

- you may also **order pre-assembled multi-gene expression constructs** that are fully compatible with the ACDC-SD principle that ToggleTec systems follow. No hassle with restriction digests, complex cloning and loads of lab work.... just give us your design and we will do the rest: adapt codon usage, eliminate undesired restriction sites, smoothen out the design, etc.

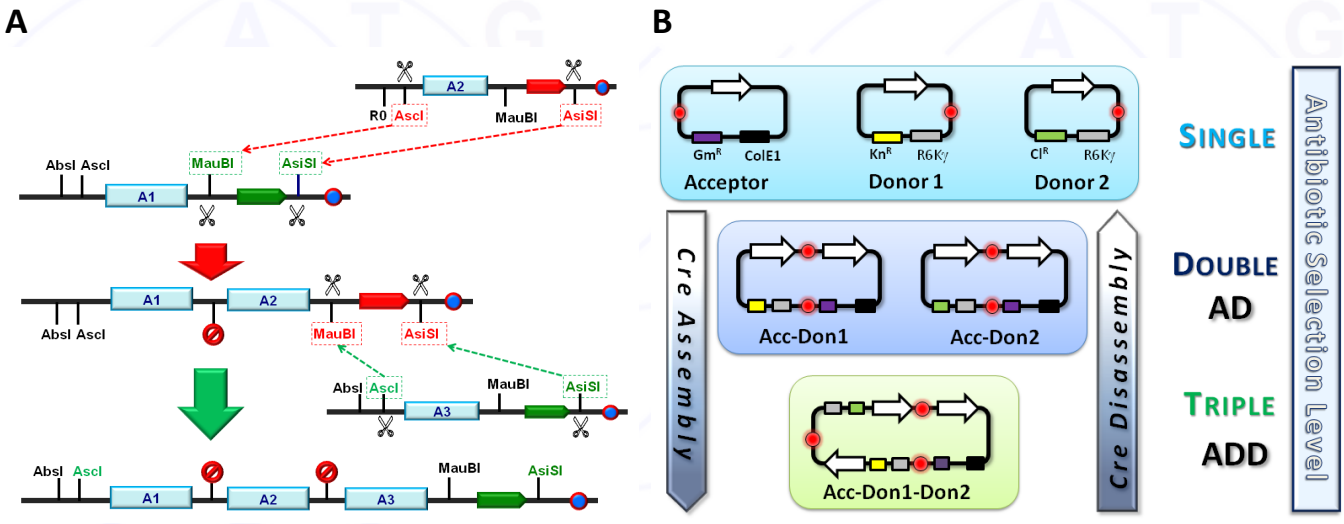

Figure 1: (Click on image to expand!) Illustration of building multi-gene constructs by a) toggling and b) recombination cloning (recombineering).

ToggleTec and ACDC-SC design: your ticket to maximum flexibility

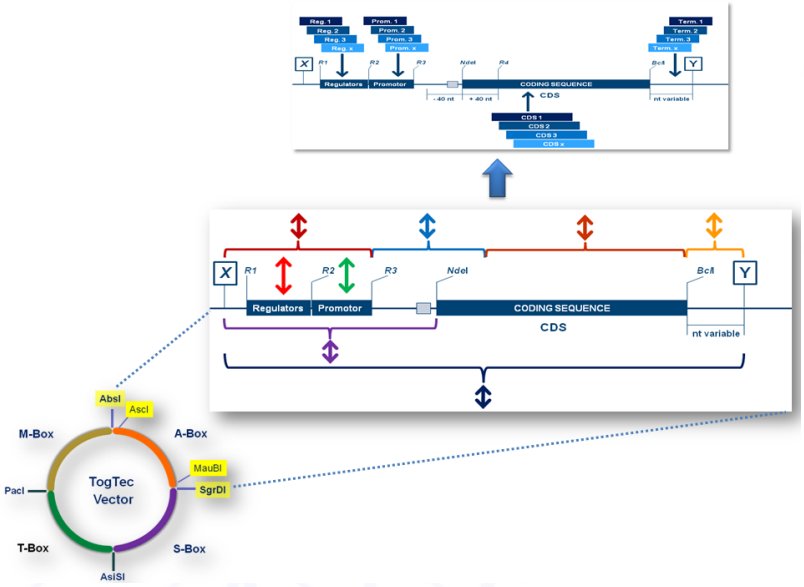

Fig. 2: (Click on image to expand!) Illustration of how the ACDC-SD lay-out (middle panel) fully blends in with the overall desing of the TogTec vectors (lower left). Genes, gene cassettes and gene assemblies are optimized for the system while preserving the ability to flexibly exchange / substitute components (top and middle panel).

ToggleTec advantages:

- **simple lay-out**: 4 constructive elements (A box, S box, T box, M box)
- **uniform design principle** → standardization of parts and assembly strategies fully flexible - exchange and recycle parts, change/modify or create alternative designs, build repositories of modular components
- **integration of additional functions easily implemented**, e.g. exonuclease cloning-ready sequences, additional restriction sites, etc.
- **Integrated option for full diassembly of multi-gene expression assemblies**. Any gene cassette from a multi-gene construct can, if based on the ACDC-S design, be released with one restriction digest.

The Toggle vector system allows completely modular exchange of all types of genetic functions (gene cassettes, promoters, terminators, oris, recombination signals, etc.) and can be adapted to and applied for the modulation of any organism's genetic system.
Using a unique standardized and modular vector system that incorporates/covers restriction-ligation, exonuclease and even recombineering-based cloning strategies in vivo and in vitro has the advantage of saving cost and time that streamlines all procedures. The free exchangeability of functional genetic elements **(FunGenEs)** between researchers/ developers who work with the same standard reduces the redundancy of labor and purchasing costs of genes.

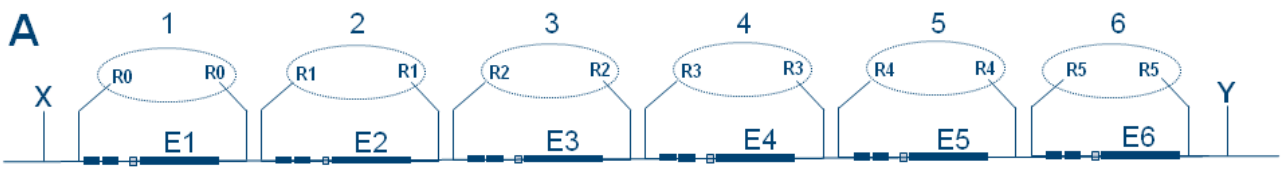

Fig. 3: Schematic example of a multi-gene cassettes assembly where each individual gene cassettes is bracketed by unique restriction sites considered in and computed into the design.

Applications: building multi-gene expression constructs for

- expression of protein complexes
- co-expression of proteins with chaperones
- pathway / metabolic engineering
- protein localization studies, e.g. by fusion with different reporter genes

Want to learn more - Ask for our quick system overviews or download them from our download page

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Complementary services:

- computational optimization: genes, gene cassettes, gene assemblies
- gene synthesis
- Multi-protein and peptiude expression systems

INQUIRE/ORDER For more information, just ask our experts!

ATG:biosynthetics ... experts in synthetic biology applications