

# TOP-10cc



A streamlined cloning system with inducible copy-control

# The Cloning Dilemma

## High Copy

- Toxic Inserts

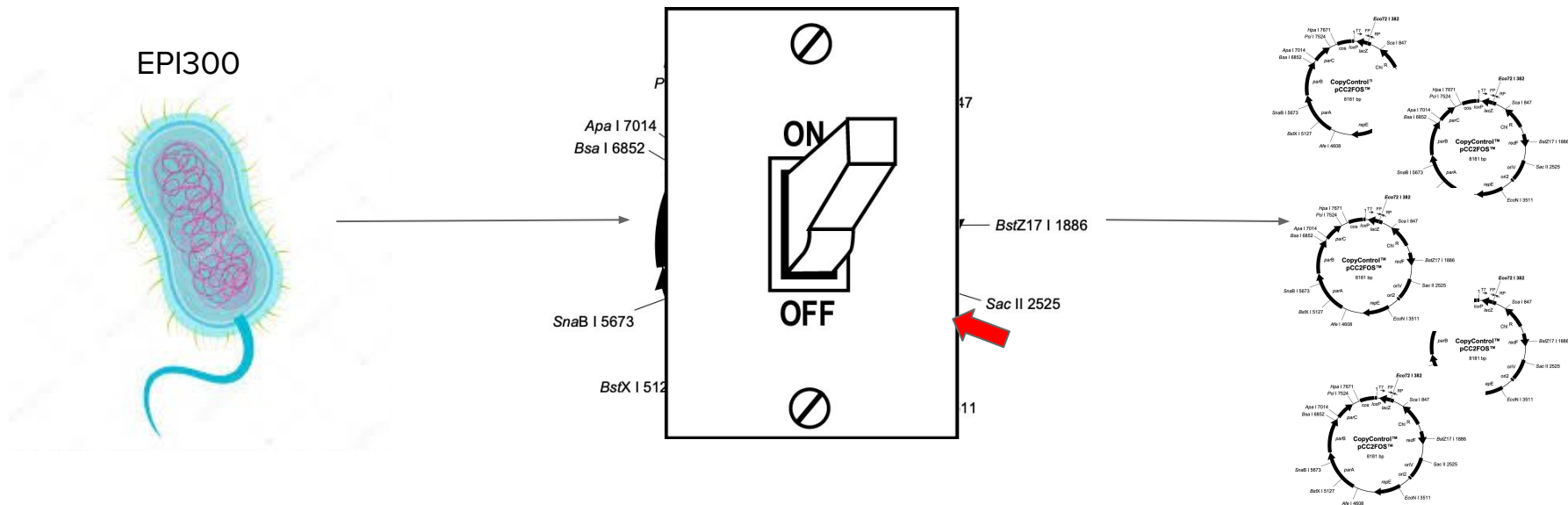
**Mutated or Empty Inserts**

- Insert Instability  
(AT, GC rich regions)
- Insert Size (  
>10kb )

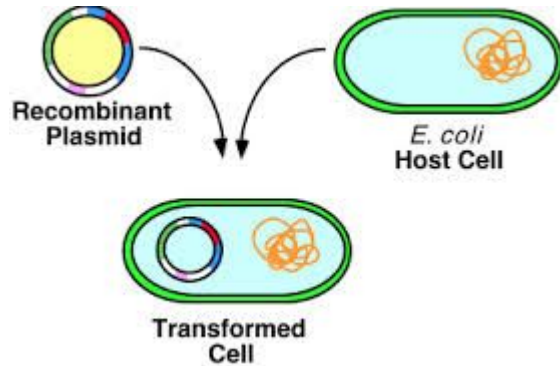
## Low Copy

**Not enough plasmid for purification**

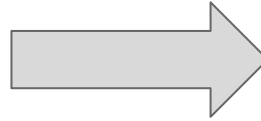
# Flipping the Switch



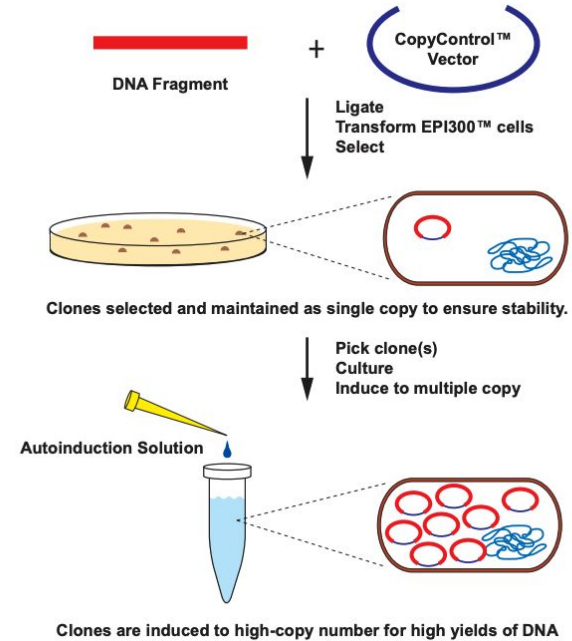
# What's Wrong?



**High Transformation Efficiency  
(TOP10)**



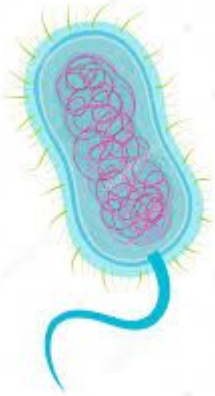
## Low Transformation Efficiency (EPI300)



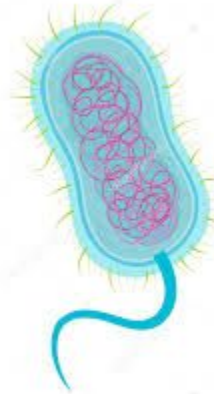
# Engineering a Solution

High Transformation  
Efficiency (Cheap)

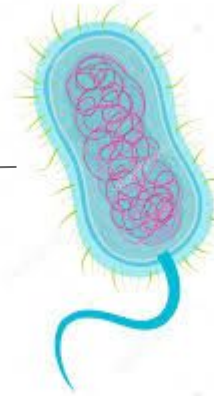
Inducible Copy Number



**TOP10**



**TOP10CC**

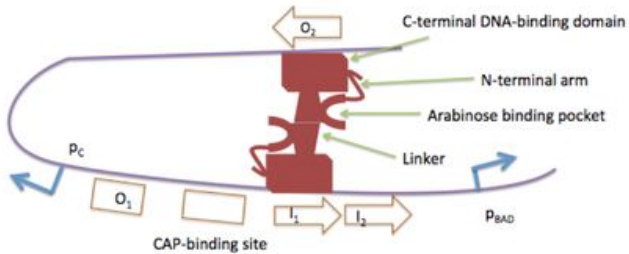


**EPI300**

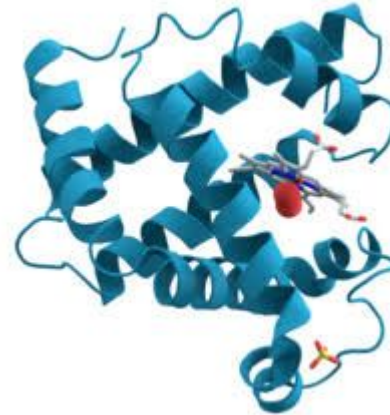
# Mission

**A Tightly Regulated Operon that Induces OriV**

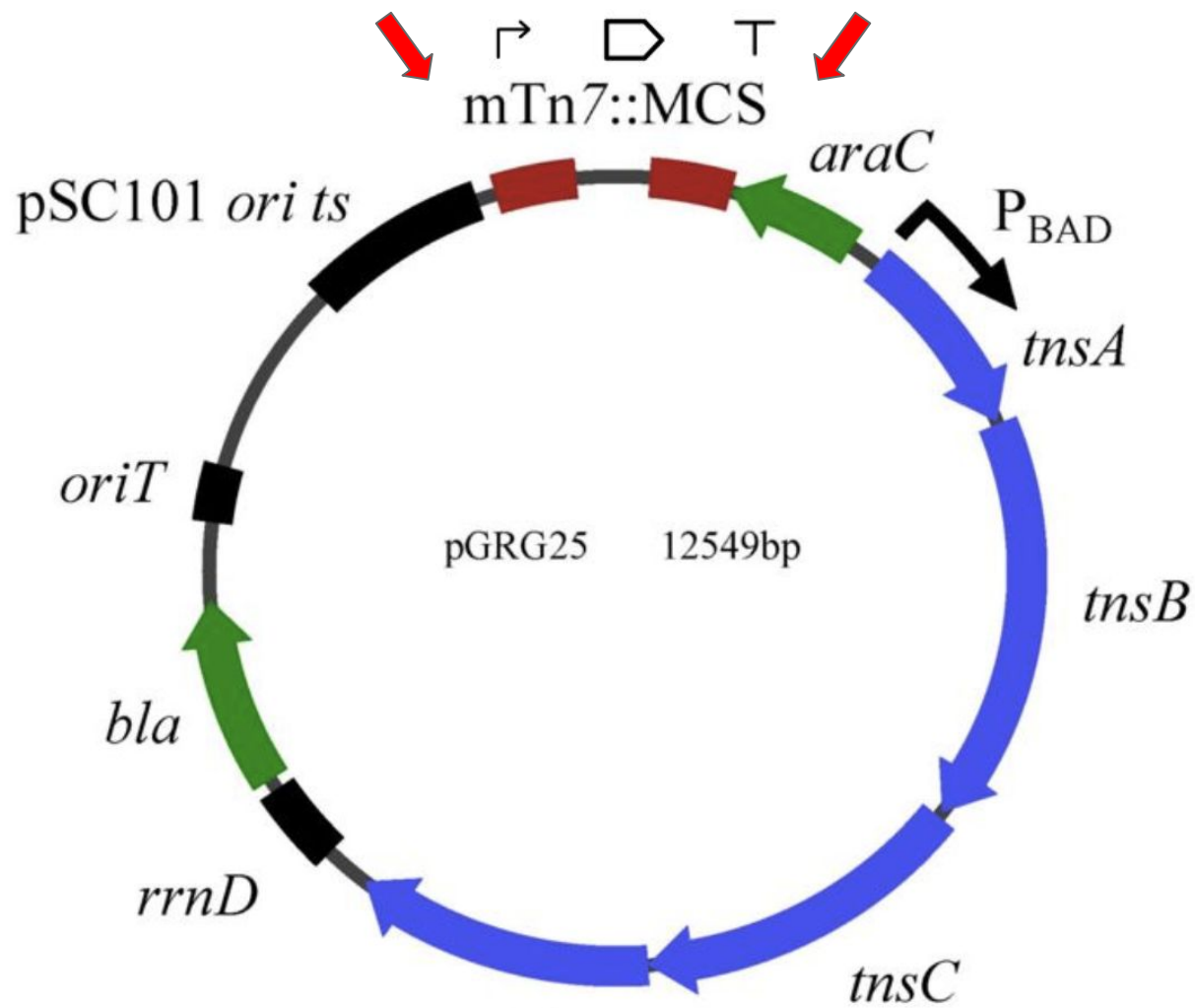
# The Parts



**araC/pBAD; Arabinose Promoter**



**trfA (required for replication in oriV)**





# Design Overview

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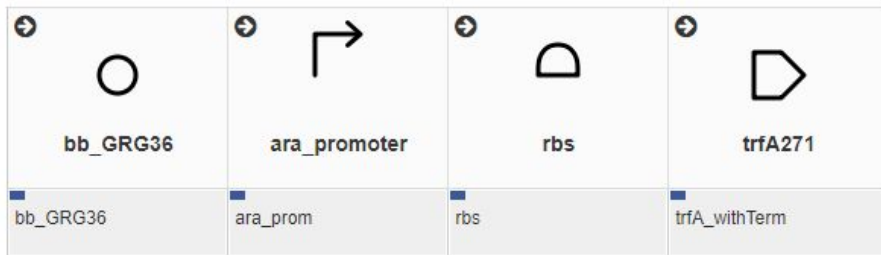
J5

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trfA Cluster on pGRG36

Design Info

[Part Info](#)[Collection Info](#)[History](#)

- J5 Ready
- Combinatorial

☒ Circular ☐ Linear

	Column	Direction	Items	FAS ?
↑↓	bb_GRG36	↻	1	DIGEST
↑↓	ara_promoter	↻	1	PCR
↑↓	rbs	↻	1	Embed_in
↑↓	trfA271	↻	1	PCR



# **A One Stop Shop**

**One Strain from Assembly to Application**