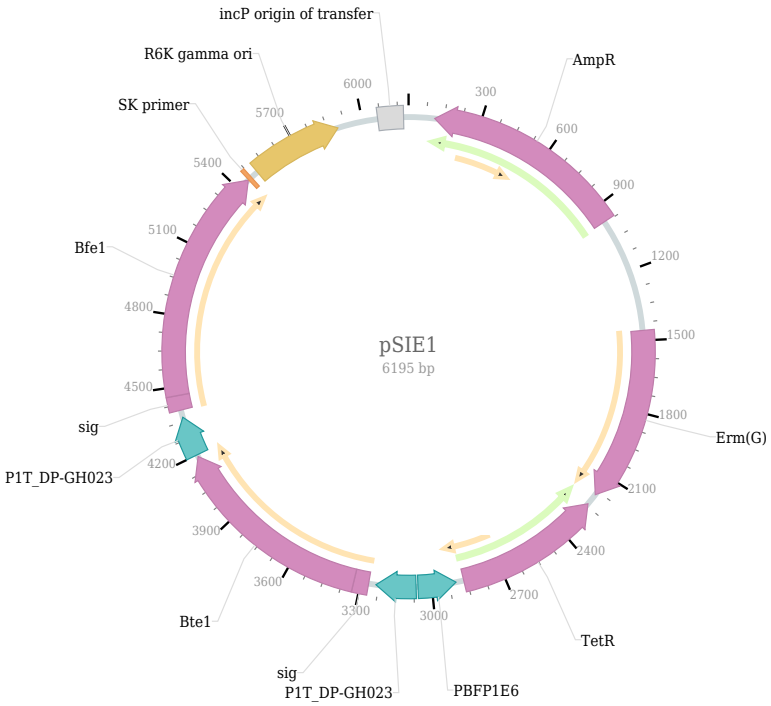
pSIE1

Vector ID	V017237
Antibiotic Resistance	Ampicillin
Length	6195 bp
Vector Type	Gene cloning
Host	E. coli

Product Information

Replication Origin	R6K γ ori
Selection Marker	Gen
Copy Number	Low
Promoter	P1TDP-GHO23
Growth Strain(s)	DH5α-λpir
Growth Temperature	37℃
Comment	pSIE1 is an allelic-exchange suicide plasmid developed for targeted genetic modification of wild-type human-gut-derived Bacteroides strains. Its SIE1 counterselection cassette employs two modified type-VI-system antimicrobial effectors, Bfe1 and Bte1, which are originally deployed by Bacteroides fragilis for interbacterial killing; signal sequences are fused to route these toxins into the bacterial periplasm where they exert potent bactericidal activity. The toxin-coding genes are independently controlled by anhydrotetracycline (aTC)-inducible promoters, while the repressor tetR is constitutively driven by PBfP1E6 to suppress leaky toxin expression without aTC. Delivered via conjugation from E. coli S17-1 pir, this vector enables marker-free gene deletion or replacement, requiring no prior genomic edits to recipients or defined growth media. Using dual effectors mitigates counter-selection failure caused by strain-specific immunity against a single toxin, making pSIE1 functional across many diverse Bacteroides human isolates for gut commensal mechanistic research.

Vector Map



Plasmid Resuspension Protocol

1. Centrifuge at 5,000×g for 5 min.
2. Carefully open the tube and add sterile water to dissolve the DNA: add 20 µl for 5 µg plasmid, and 100 µl for 100 µg plasmid.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin to concentrate the liquid at the bottom. Speed is less than 5000×g.
5. Store the plasmid at -20 ℃.