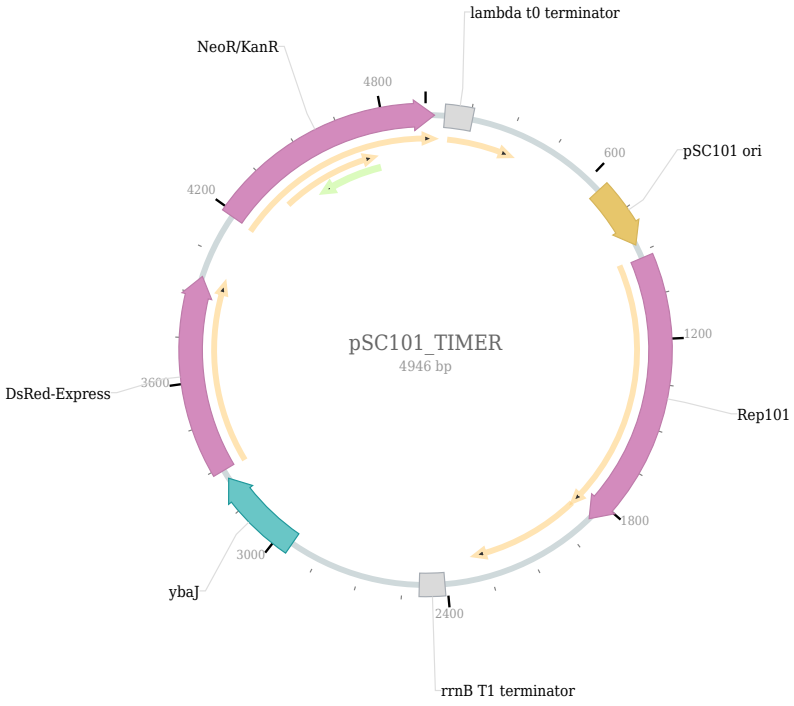
pSC101_TIMER

Vector ID	V001033
Antibiotic Resistance	Kanamycin
Length	4946 bp
Vector Type	Bacterial Expression

Product Information

Replication Origin	pSC101 ori
Copy Number	Low Copy
Promoter	constitutive ybaJp promoter
Cloning Method	Restriction Enzyme
Growth Temperature	30℃
Comment	pSC101_TIMER is a kanamycin-resistant low-copy plasmid that expresses the bacterial fluorescent timer TIMER^{bac} under the constitutive moderate-strength ybaJp promoter. It works in E. coli and Salmonella enterica to report single-cell bacterial division rates via green-to-orange fluorescence ratios. This construct serves as a dosage-control counterpart to the high-copy pBR322_TIMER, verifying that observed growth-rate heterogeneity is not caused by reporter overexpression artifacts. The ybaJ (ybaJp) promoter is a native moderate-strength constitutive bacterial promoter derived from the ybaJ-hha operon, which drives stable constant transcription of TIMER^{bac} in both E. coli and Salmonella enterica under diverse infection-relevant conditions. It maintains nearly invariant reporter-gene expression to eliminate transcriptional fluctuations, enabling the TIMER^{bac} fluorescence ratio to faithfully report bacterial single-cell division rates. pSC101 ori is a low-copy replication origin that requires the Rep101 protein, which is a temperature-sensitive protein. When bacteria containing a plasmid with this ori is cultured at 37℃, the plasmid will be lost.

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 ℃.