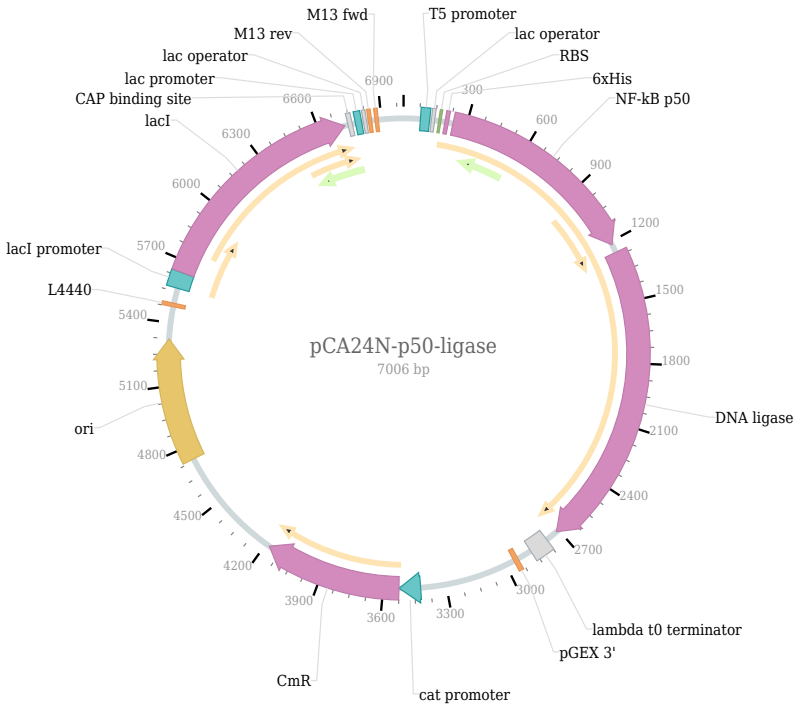
pCA24N-p50-ligase

Vector ID	V006854
Antibiotic Resistance	Chloramphenicol
Length	7006 bp
Vector Type	Bacterial Expression

Product Information

Replication Origin	ori
Promoter	T5-lac
Cloning Method	Restriction Enzyme
5' Primer	pCA24N.for (GATAACAATTTCACACAGAATTCATTAAAGAG)
3' Primer	pCA24N.rev2 — 5'-CAAATCCAGATGGAGTTCTGAGG-3'
Comment	pCA24N-p50-ligase is an IPTG-inducible chloramphenicol-resistant bacterial expression plasmid based on the pCA24N backbone. It encodes an N-terminal 6×His-tagged fusion protein with human NF-κB p50 fused upstream of T4 DNA ligase via a glycine-rich linker. The expressed p50-ligase drastically boosts blunt-end ligation and Illumina adapter ligation efficiency, outperforming native T4 ligase by ~160% in NGS library construction. This construct verifies that fusing high-affinity dsDNA-binding p50 generally enhances the in vitro activity of ATP-dependent DNA ligases. p50 has extremely high non-specific affinity for double-stranded DNA, recruiting ligase to DNA ends and fixing T4 ligase's intrinsic defect of poor binding to blunt/sticky dsDNA fragments.

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 ℃.