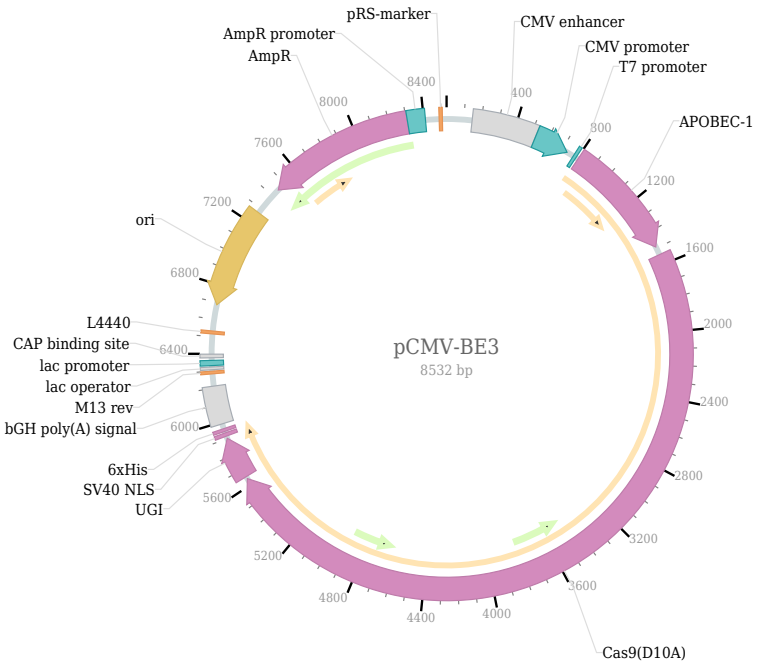
pCMV-BE3

Vector ID	V000899
Antibiotic Resistance	Ampicillin
Length	8532 bp
Vector Type	Mammalian Expression

Product Information

Replication Origin	ori
Copy Number	High Copy
Promoter	CMV
Cloning Method	Ligation Independent Cloning
5' Primer	CMV
3' Primer	TGGTTCTTTCCGCCTCAGAAGC
Growth Strain(s)	DH10B
Comment	pCMV-BE3 (Addgene #73021) is a mammalian expression plasmid constructed by Liu's lab for delivering the third-generation cytosine base editor BE3 under the strong CMV promoter. Its BE3 fusion protein consists of rAPOBEC1 cytidine deaminase, XTEN linker, Cas9 nickase (D10A, H840 wild-type), and UGI inhibitor to boost C-to-T conversion efficiency while suppressing DNA reversion and double-strand breaks. Unlike wild-type Cas9 HDR editing, this vector achieves 15–75% precise single-base correction in human/mouse cells with minimal indel formation (≤1.5%) by nicking the unedited G-containing strand to bias mismatch repair toward desired T:A outcomes. It was the core tool in Komor's landmark 2016 Nature work to fix pathogenic point mutations such as Alzheimer-linked APOE4 and cancer-causing TP53 variants without donor DNA templates.

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 ℃.