

# pUC19

2,686 base pairs  
 GenBank Accession #: L09137  
 See page 132 for ordering information.

Feature	Coordinates	Source
<i>lacZα</i>	469-146	—
origin	1455-867	pMB1 (mutant)
<i>bla</i> (Ap <sup>R</sup> )	2486-1626	<i>Tn3</i>

ori = origin of replication  
 Ap = ampicillin

### References

1. Yanisch-Perron, C., Vieira, J. and Messing, J. (1985) *Gene* 33, 103–119.
2. Lin-Chao, S., Chen, W.-T., and Wong, T.-T. (1992) *Mol. Microbiol.* 6, 3385–3393
3. Miki, T. et al. (1987) *Protein Eng.* 1, 327–332.

pUC19 is a small, high-copy number *E. coli* plasmid cloning vector containing portions of pBR322 and M13mp19 (1). It contains the pMB1 origin of replication from pBR322 but lacks the *rop* gene and carries a point mutation in the RNAlI transcript (G 2975 in pBR322 to A 1308 in pUC19; 2). These changes together result in a temperature-dependent copy number of about 75 per cell at 37°C and >200 per cell at 42°C (2, 3). The multiple cloning site (MCS) is in frame with the *lacZα* gene, allowing screening for insertions using α-complementation.

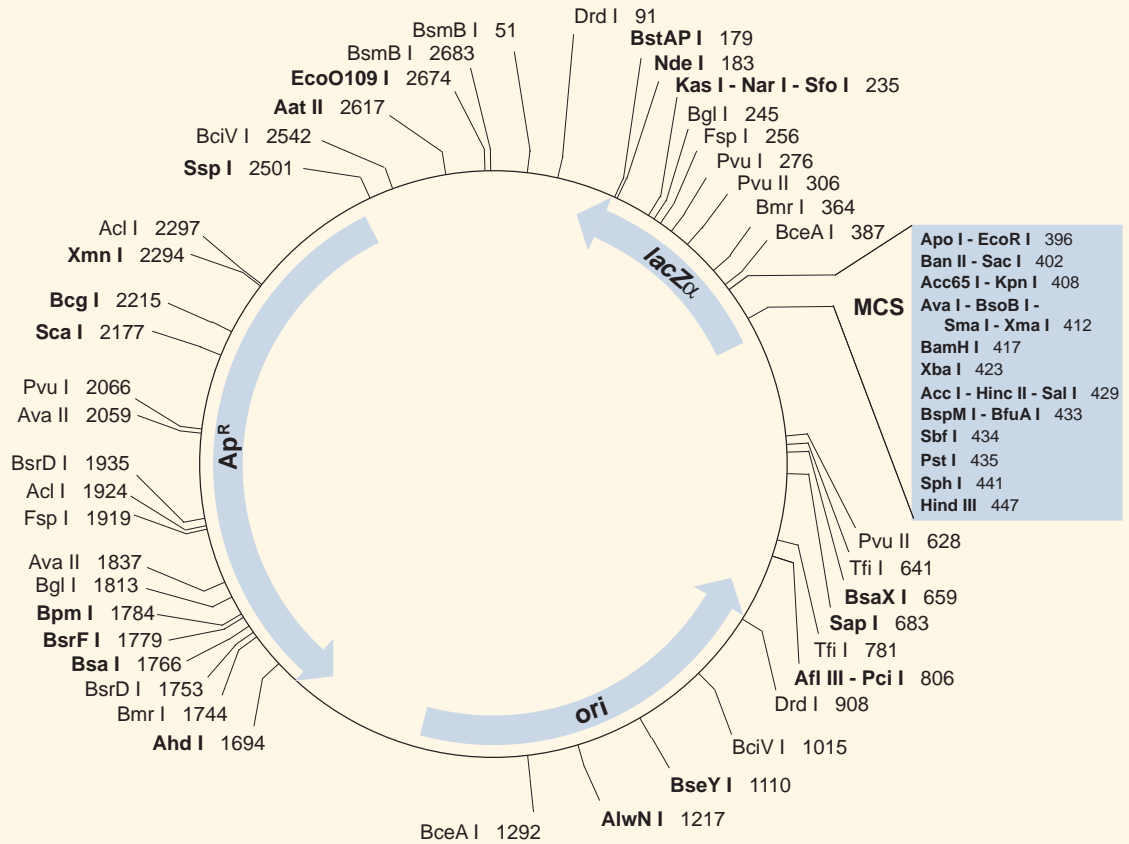
pUC18 is identical to pUC19 except that the MCS region (nt 397–454) is inverted.

pNEB193 (NEB #N3051S) is also identical to pUC19 except for the addition of several restriction endonuclease sites to the polylinker. Its total length is 2713 bp.

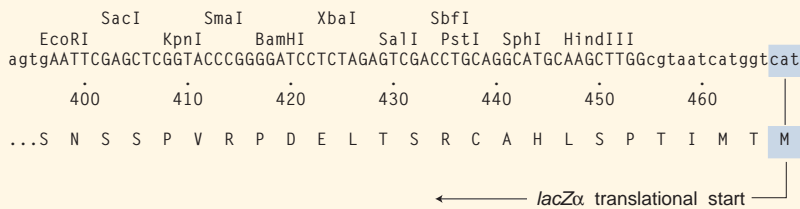
Enzymes with unique restriction sites are shown in **bold** type and enzymes with two restriction sites are shown in regular type. The accompanying table shows restriction sites of those enzymes that cut a moderate number of times. Restriction site coordinates refer to the position of the 5′-most base on the top strand in each recognition sequence.

Open reading frame (ORF) coordinates are in the form "translational start – translational stop"; numbers refer to positions on the top (clockwise) strand, regardless of the direction of transcription and include the start and stop codons.

Origin of replication coordinates include the region from the -35 promoter sequence of the RNAlI transcript to the RNA/DNA switch point. *bla* (Ap<sup>R</sup>) gene coordinates include the signal sequence.



### pUC19 MCS



### pNEB193 MCS

