

pMXs-CAG Retroviral Vector

CATALOG NUMBER: RTV-064

STORAGE: -20°C

QUANTITY AND CONCENTRATION: 10 µg at 0.25 µg/µL in TE

Background

Retroviruses are efficient tools for delivering heritable genes into the genome of dividing cells. Cell Biolabs' pMXs-CAG retroviral vector is based on Moloney murine leukemia virus (MMLV). The vector provides the viral package signal, transcription and processing elements, and MCS for cloning of a target gene. The viral *env* gene, produced by the package cell line, encodes the envelope protein, which determines the viral infectivity range. Transfection into a package cell line produces high-titer, replication-incompetent viruses. In addition to transfer and expression of exogenous genes in mammalian cells, recently, retroviruses have been used to express silencing RNAs (siRNA) to decrease the expression of target genes both *in vitro* and *in vivo*.

The vector contains the ampicillin-resistance gene, MMLV LTRs, package signal, CAG promoter and MCS for cloning of gene of interest (Figure 1).

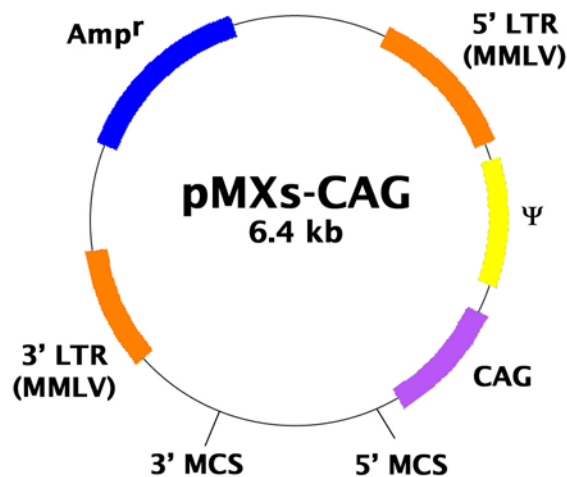


Figure 1. Schematic representation of pMXs-CAG retroviral vector.

5'-MCS:

- Enzyme Sites: 5'-BamHI, BstXI, EcoRI, HindIII-3'
- MCS Sequence: TTAAGGATCCAGTGTGGTGGTACGGGAATTCAAGCTTGATC

3'-MCS:

- Enzyme Sites: 5'-HpaI, BstXI, EcoRI, BlpI, XhoI, NotI, BstXI, SalI-3'

- MCS Sequence:

TGGCGTAACTCGGCGTTTCATCTGTGGTGCAACGGGCGCTGGGTTCGGTTACGGCCAG
 GACAGTCGTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACC
 GCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGATA
 TGTGGCGGATGAGCGGCATTCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCAAT
 TGAATTATGGCCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACAG
 TCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCAC
 ATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCG
 TCAGTATCGGCGGAATTCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGT
 GTCAAAAATAATAATAACCGGGCAGGCCATGTCTGCCCGTATTTTCGCGTAAGGAAAT
 CCATTATGTACTATTTAAACTCGAGCGGCCCGCCAGCACAGTGGTTCGACGATA

Note: For optimal expression, both 5' MCS and 3' MCS should be used to clone gene of interest and replace the stuffer sequence between them.

Safety Consideration

Remember that you will be working with samples containing infectious virus. Follow the recommended NIH guidelines for all materials containing BSL-2 organisms. Always wear gloves, use filtered tips and work under a biosafety hood.

References

1. Kitamura T., *et al.*, (2003) *Exp. Hematol.* **31**, 1007-1014.

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