

## pMXs-CMV Retroviral Vector

CATALOG NUMBER: RTV-065

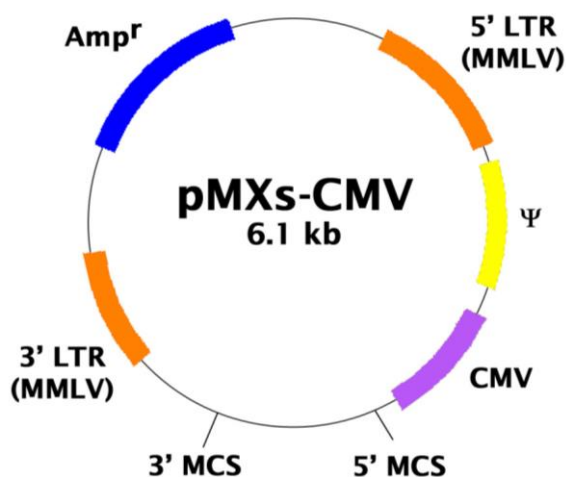
STORAGE: -20°C

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-CMV 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, CMV promoter and MCS for cloning of gene of interest (Figure 1).



**Figure 1.** Schematic representation of pMXs-CMV retroviral vector.

#### 5'-MCS:

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

#### 3'-MCS:

- Enzyme Sites: 5'-HpaI, BstXI, EcoRI, BlpI, XhoI, NotI, BstXI, SalI-3'
- MCS Sequence:  
TGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGGCGCTGGGTTCGGTTACGGCCAG  
GACAGTCGTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACC  
GCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGATA

TGTGGCGGATGAGCGGCATTCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCGAAT  
TGAATTATGGCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACA  
GTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCA  
CATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCC  
GTCAGTATCGGCGGAATTCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGG  
TGTCAAAAATAATAATAACCGGGCAGGCCATGTCTGCCCGTATTTCGCGTAAGGAAA  
TCCATTATGTACTATTTAACTCGAGCGGCCGCCAGCACAGTGGTTCGACGATA

*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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### **Contact Information**

Cell Biolabs, Inc.  
5628 Copley Drive  
San Diego, CA 92111  
Worldwide: +1 858 271-6500  
USA Toll-Free: 1-888-CBL-0505  
E-mail: [tech@cellbiolabs.com](mailto:tech@cellbiolabs.com)  
[www.cellbiolabs.com](http://www.cellbiolabs.com)

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