pMXs-EF1α Retroviral Vector

CATALOG NUMBER: RTV-063 **STORAGE:** -20ºC

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-EF1α 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, EF1α promoter and MCS for cloning of gene of interest (Figure 1).

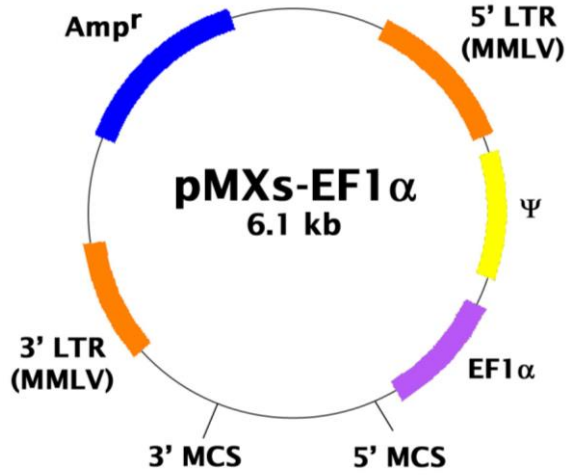

Figure 1. Schematic representation of pMXs-EF1α retroviral vector.

5'-MCS:

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

3'-MCS:

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

TGAATTATGGCCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACA
GTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCA
CATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCC
GTCAGTATCGGCGGAATTCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGG
TGTCAAAAATAATAATAACCGGGCAGGCCATGTCTGCCCGTATTTCGCGTAAGGAAA
TCCATTATGTACTATTTAAACTCGAGCGGCCGCCAGCACAGTGGTCGACGATA

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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