pMXs-Neo Retroviral Vector

CATALOG NUMBER: RTV-011 **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-Neo 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 and MCS for cloning of gene of interest (Figure 1).

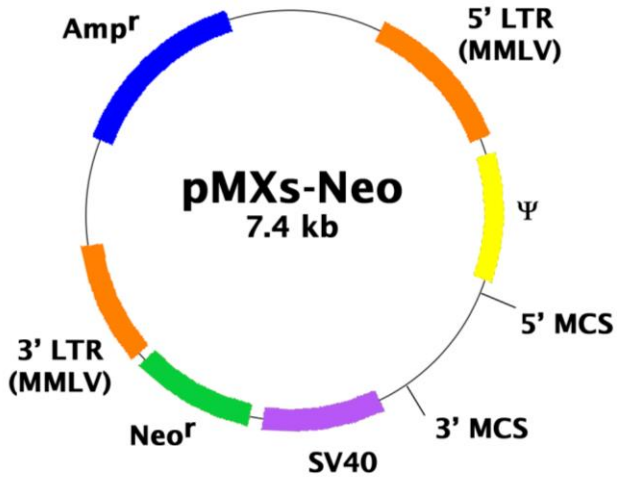

Figure 1. Schematic representation of pMXs-Neo retroviral vector.

5'-MCS:

- Enzyme Sites: 5'-PacI, BamHI, EcoRI-3'
- MCS Sequence: TTAATTAAGGATCCCAGTGTGGTGGTACGGGAATTCAAGCTTGATC

3'-MCS:

- Enzyme Sites: 5'-EcoRI, XhoI, NotI-3'
- MCS Sequence:
  GGCGGAATTCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAAAA
  ATAATAATAACCGGGCAGGCCATGTCTGCCCGTATTTCGCGTAAGGAAATCCATTATG
  TACTATTTAAACTCGAGCGGCCGCCAGCACAGTGGTCGAC---SV40---neo-GTCGAC---

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

Recent Product Citations

1. Harada, Y. et al. (2023). Metabolic clogging of mannose triggers dNTP loss and genomic instability in human cancer cells. *Elife*. **12**:e83870. doi: 10.7554/eLife.83870.
2. Saito, T. et al. (2022). Molecular Mechanisms Underlying the Cellular Entry and Host Range Restriction of Lujo Virus. *mBio*. **13**(1):e0306021. doi: 10.1128/mbio.03060-21.
3. Fu. R.Y. et al (2020). CD4+ T Cells Engineered with FVIII-CAR and Murine Foxp3 Suppress Anti-Factor VIII Immune Responses in Hemophilia A Mice. *Cell Immunol*. doi: 10.1016/j.cellimm.2020.104216.
4. Princely Abudu, Y. et al. (2019). NIPSNAP1 and NIPSNAP2 Act as "Eat Me" Signals for Mitophagy. *Dev Cell*. pii: S1534-5807(19)30224-2. doi: 10.1016/j.devcel.2019.03.013.
5. Takahashi, K. et al. (2019). DA-Raf, a dominant-negative regulator of the Ras-ERK pathway, is essential for skeletal myocyte differentiation including myoblast fusion and apoptosis. *Exp Cell Res*. **376**(2):168-180. doi: 10.1016/j.yexcr.2019.02.002.
6. Fukuda, M. et al. (2018). SIRT7 has a critical role in bone formation by regulating lysine acylation of SP7/Osterix. *Nat Commun*. **9**(1):2833. doi: 10.1038/s41467-018-05187-4.
7. Ogura, K. et al. (2018). Integrated genetic and epigenetic analysis of myxofibrosarcoma. *Nat Commun*. **9**(1):2765. doi: 10.1038/s41467-018-03891-9.
8. Yamashita, S. et al. (2016). Mitochondrial division occurs concurrently with autophagosome formation but independently of Dro1 during mitophagy. *J. Cell Biol.* **215**:649-665.
9. Fujimoto, M. et al. (2016). Epigenetic alteration to activate Bmp2-Smad signaling in Raf-induced senescence. *World J Biol Chem.* **7**:188-205.

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Warranty

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