pMYs Retroviral Vector

CATALOG NUMBER: RTV-020 **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. Most retrovirus vectors including pBABE and pMXs are based on Moloney murine leukemia virus (MMLV). MMLV-based vectors usually are silenced in immature cells including embryonic carcinoma (EC) cells and embryonic stem (ES) cells, and possibly hematopoietic stem cells. Myeloproliferative sarcoma virus (MPSV) and PCC4-cell-passaged myeloproliferative sarcoma virus (PCMV) are mutants of MMLV and can stably express genes in immature cells including ES cells.

Cell Biolabs' pMYs retroviral vector includes hybrid LTRs containing elements from both MMLV and MPSV/PCMV, and it's capable of expressing genes in hematopoietic stem cells. 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, LTRs, package signal and MCS for cloning of your gene of interest (Figure 1).

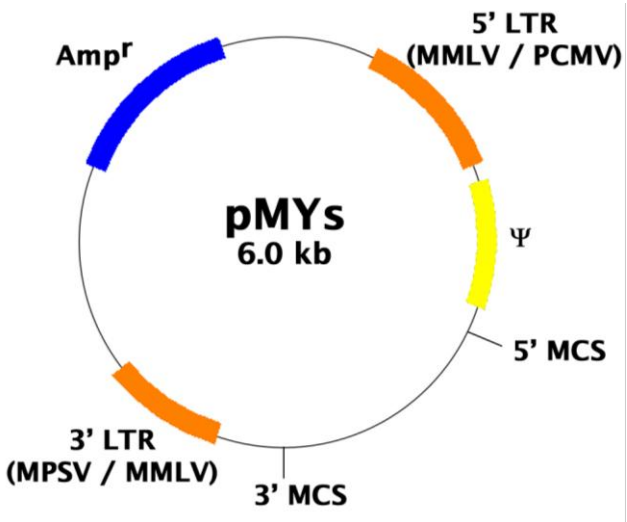

Figure 1. Schematic representation of pMYs retroviral vector.

5' MCS:

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

3’ MCS:

- Enzyme Sites: 5’-EcoRI, XhoI, NotI-3’
- MCS Sequence:
  GGCGGAATTCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAAAA
  ATAATAATAACCGGGCAGGCCATGTCTGCCCGTATTTCGCGTAAGGAAATCCATTATG
  TACTATTTAAACTCGAGCGGCCGCCAGC

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. Mishima, Y. et al. (2025). Development of chimeric antigen receptor T cells targeting cancer-expressing podocalyxin. *Regen Ther*. **28**:292-300. doi: 10.1016/j.reth.2024.12.010.
2. Bhatia, V. et al. (2023). Targeting advanced prostate cancer with STEAP1 chimeric antigen receptor T cell and tumor-localized IL-12 immunotherapy. *Nat Commun*. **14**(1):2041. doi: 10.1038/s41467-023-37874-2.
3. Ishikawa, A. et al. (2022). Improved anti-solid tumor response by humanized anti-podoplanin chimeric antigen receptor transduced human cytotoxic T cells in an animal model. *Genes Cells*. doi: 10.1111/gtc.12972.
4. Iriguchi, S. et al. (2021). A clinically applicable and scalable method to regenerate T-cells from iPSCs for off-the-shelf T-cell immunotherapy. *Nat Commun*. **12**(1):430. doi: 10.1038/s41467-020-20658-3.
5. Morimatsu, M. et al. (2020). Migration arrest of chemoresistant leukemia cells mediated by MRTF-SRF pathway. *Inflamm Regener*. doi: 10.1186/s41232-020-00127-6.

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Warranty

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