pMXs- IRES- Puro Retroviral Vector

CATALOG NUMBER: RTV-014 **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-IRES-Puro retroviral vector (also known as pMXs-IP) 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 your gene of interest (Figure 1).

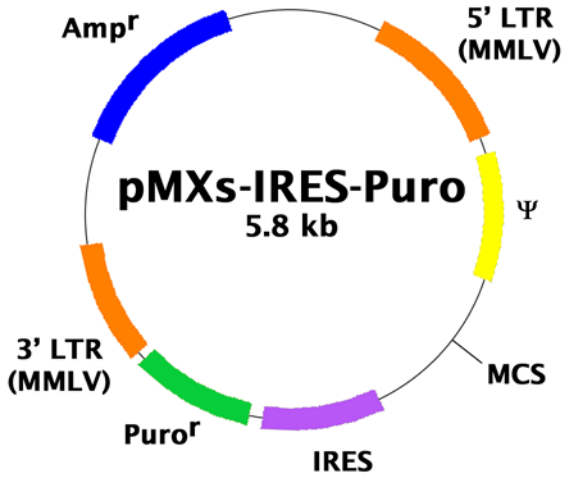

Figure 1. Schematic representation of pMXs-IRES-Puro retroviral vector.

MCS:

- Enzyme Sites: 5'-BamHI, EcoRI, XhoI, NotI, SnaBI-3'
- MCS Sequence:
  TTAATTAAGGATCCCAGTGTGGTGGTACGGGAATTCCTGCAGGCCTCGAGGGCCGGC
  GCGCCGCGGCCGCTACGTAAATT---IRES---puro---

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. Honda, M. et al. (2017). A novel near-infrared fluorescent protein, iRFP720, facilitates transcriptional profiling of prostate cancer bone metastasis in mice. *Anticancer Res.* **37(6)**:3009-3013.
2. Tamamura, Y., et al. (2017). Irx3 and Bmp2 Regulate Mouse Mesenchymal Cell Chondrogenic Differentiation in Both a Sox9-Dependent and -Independent Manner. *J. Cell. Physiol.* doi:10.1002/jcp.25776
3. Takizawa, F. et al. (2016). Novel teleost CD4-bearing cell populations provide insights into the evolutionary origins and primordial roles of CD4+ lymphocytes and CD4+ macrophages. *J Immunol*. doi:10.4049/jimmunol.1600222.
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5. Maxson, J. E. et al. (2015). Identification and characterization of tyrosine kinase nonreceptor 2 mutations in leukemia through integration of kinase inhibitor screening and genomic analysis. *Cancer Res.* doi:10.1158/0008-5472.
6. Agarwal, A. et al. (2015). Functional RNAi screen targeting cytokine and growth factor receptors reveals oncorequisite role for interleukin-2 gamma receptor in JAK3-mutation-positive leukemia. *Oncogene.* **34**:2991-2999.
7. Werner, S. et al. (2015). Suppression of early hematogenous dissemination of human breast cancer cells to bone marrow by retinoic acid–induced 2. *Cancer Discov.* **5**:506-519.
8. Kageyama-Yahara, N. et al. (2014). Gli regulates MUC5AC transcription in human gastrointestinal cells. **9**:e106106.
9. Koso, H. et al. (2014). Identification of FoxR2 as an oncogene in medulloblastoma. *Cancer Res.* **74**:2351-2361.
10. Sugatani, T. et al. (2011). A microRNA expression signature of osteoclastogenesis. *Blood.* **117**:3648-3657.
11. Sugatani, T. and K. Hruska (2009). Impaired microRNA pathways diminish osteoclast differentiation and function. *J. Biol. Chem.* **284**:4667-4678.

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