

pMXs-IRES-Puro Retroviral Vector

CATALOG NUMBER: RTV-014

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-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).

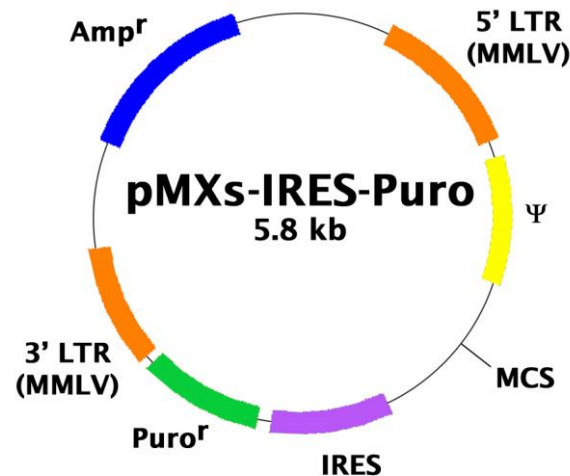


Figure 1. Schematic representation of pMXs-IRES-Puro retroviral vector.

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. Mizuike, A. *et al.* (2023). The C10orf76-PI4KB axis orchestrates CERT-mediated ceramide trafficking to the distal Golgi. *J Cell Biol.* **222**(7):e202111069. doi: 10.1083/jcb.202111069.
2. Jain, P. *et al.* (2022). Discovery and functional characterization of the oncogenicity and targetability of a novel NOTCH1-ROS1 gene fusion in pediatric angiosarcoma. *Cold Spring Harb Mol Case Stud.* **8**(6):a006222. doi: 10.1101/mcs.a006222.
3. Suzuki, Y. *et al.* (2022). Design and lyophilization of lipid nanoparticles for mRNA vaccine and its robust immune response in mice and nonhuman primates. *Mol Ther Nucleic Acids.* doi: 10.1016/j.omtn.2022.09.017.
4. Masuta, Y. *et al.* (2022). Assessment of Fc γ receptor-dependent binding of influenza hemagglutinin vaccine-induced antibodies in a non-human primate model. *iScience.* **25**(10):105085. doi: 10.1016/j.isci.2022.105085.
5. Tsujita, K. *et al.* (2021). Homeostatic membrane tension constrains cancer cell dissemination by counteracting BAR protein assembly. *Nat Commun.* **12**(1):5930. doi: 10.1038/s41467-021-26156-4.
6. Maemura, T. *et al.* (2021). Antibody-Dependent Enhancement of SARS-CoV-2 Infection Is Mediated by the IgG Receptors Fc γ RIIA and Fc γ RIIIA but Does Not Contribute to Aberrant Cytokine Production by Macrophages. *mBio.* doi: 10.1128/mBio.01987-21.
7. Legscha, K.J. *et al.* (2021). Δ 133p53 α enhances metabolic and cellular fitness of TCR-engineered T cells and promotes superior antitumor immunity. *J Immunother Cancer.* **9**(6):e001846. doi: 10.1136/jitc-2020-001846.
8. Yogosawa, S. *et al.* (2021). Carbonic anhydrase 13 suppresses bone metastasis in breast cancer. *Cancer Treat Res Commun.* doi: 10.1016/j.ctarc.2021.100332.
9. Kuroda, M. *et al.* (2020). HER2-mediated enhancement of Ebola virus entry. *PLoS Pathog.* **16**(10):e1008900. doi: 10.1371/journal.ppat.1008900.
10. Kuroda, M. *et al.* (2020). Identification of interferon-stimulated genes that attenuate Ebola virus infection. *Nat Commun.* **11**(1):2953. doi: 10.1038/s41467-020-16768-7.
11. Nakashima, K. *et al.* (2020). Identification of aberrantly expressed long non-coding RNAs in ovarian high-grade serous carcinoma cells. *Reprod Med Biol.* doi: 10.1002/rmb2.12330.
12. Murase, M. *et al.* (2018). Intravesicular Acidification Regulates Lipopolysaccharide Inflammation and Tolerance through TLR4 Trafficking. *J Immunol.* **200**(8):2798-2808. doi: 10.4049/jimmunol.1701390.
13. Li, Q. *et al.* (2018). A robust split-luciferase-based cell fusion screening for discovering myogenesis-promoting molecules. *Analyst.* **143**(14):3472-3480. doi: 10.1039/c8an00285a.
14. Liu, Y. *et al.* (2018). Identification of a Constitutively Active Mutant Mouse IRAK2 by Retroviral Expression Screening. *Mol Biotechnol.* **60**(4):245-250. doi: 10.1007/s12033-018-0064-9.

15. Avbelj, M. et al. (2018). The role of N-terminal segment and membrane association in MyD88-mediated signaling. *Biochem Biophys Res Commun.* **495**(1):878-883. doi: 10.1016/j.bbrc.2017.11.099.
16. 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.
17. 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
18. 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.
19. Jiang, S. et al. (2016). TLR10 is a negative regulator of both MyD88-dependent and-independent TLR signaling. *J Immunol.* doi: 10.4049/jimmunol.1502599.
20. 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.
21. 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.
22. 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.
23. Kageyama-Yahara, N. et al. (2014). Gli regulates MUC5AC transcription in human gastrointestinal cells. **9**:e106106.
24. Koso, H. et al. (2014). Identification of FoxR2 as an oncogene in medulloblastoma. *Cancer Res.* **74**:2351-2361.
25. Sugatani, T. et al. (2011). A microRNA expression signature of osteoclastogenesis. *Blood.* **117**:3648-3657.
26. Sugatani, T. and K. Hruska (2009). Impaired microRNA pathways diminish osteoclast differentiation and function. *J. Biol. Chem.* **284**:4667-4678.

License Information

This product is licensed from the University of Tokyo.

Warranty

These products are warranted to perform as described in their labeling and in Cell Biolabs literature when used in accordance with their instructions. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THIS EXPRESSED WARRANTY AND CELL BIOLABS DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR PARTICULAR PURPOSE. CELL BIOLABS's sole obligation and purchaser's exclusive remedy for breach of this warranty shall be, at the option of CELL BIOLABS, to repair or replace the products. In no event shall CELL BIOLABS be liable for any proximate, incidental or consequential damages in connection with the products.

This product is for RESEARCH USE ONLY; not for use in diagnostic procedures.

Contact Information

Cell Biolabs, Inc.
7758 Arjons Drive
San Diego, CA 92126
Worldwide: +1 858-271-6500
USA Toll-Free: 1-888-CBL-0505
E-mail: tech@cellbiolabs.com
www.cellbiolabs.com

©2008-2023: Cell Biolabs, Inc. - All rights reserved. No part of these works may be reproduced in any form without permissions in writing.