pMYs-IRES-GFP Retroviral Vector

CATALOG NUMBER: RTV-021 **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-IRES-GFP retroviral vector (also known as pMYs-IG) 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).

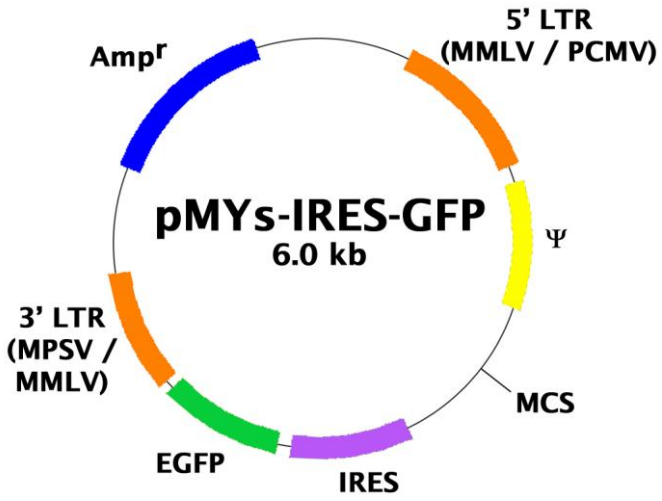

Figure 1. Schematic representation of pMYs-IRES-GFP retroviral vector.

MCS:

- Enzyme Sites: 5'-BamHI, EcoRI, XhoI, NotI, SnaBI-3'
- MCS Sequence:
  TTAAGGATCCCAGTGTGGTGGTACGGGAATTCCTGCAGGCCTCGAGGGCCGGCGCGC
  CGCGGCCGCTACGTAAATT---IRES---GFP---

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. Liu, D. et al. (2016). Retrogenic ICOS expression increases differentiation of KLRG-1hiCD127loCD8+ T cells during Listeria infection and diminishes recall responses. *J Immunol.* doi:10.4049/jimmunol.1500218.
2. Xiao, X. et al. (2015). GITR subverts Foxp3+ Tregs to boost Th9 immunity through regulation of histone acetylation. *Nat Commun.* **6**:8266.
3. Chen, X. et al. (2015). OP9-Lhx2 stromal cells facilitate derivation of hematopoietic progenitors both in vitro and in vivo. *Stem Cell Res.* **15**:395-402.
4. Ogawara, Y. et al. (2015). IDH2 and NPM1 mutations cooperate to activate Hoxa9/Meis1 and hypoxia pathways in acute myeloid leukemia. *Cancer Res.* **75**:2005-2016.
5. Amin, S. et al. (2015). Hoxa2 selectively enhances meis binding to change a branchial arch ground state. *Dev Cell.* **9**:265-277.
6. Yang, D. et al. (2015). Enforced expression of hoxa5 in hematopoietic stem cells leads to aberrant erythropoiesis in vivo. *Cell Cycle.* doi:10.4161/15384101.2014.992191.
7. Zvezdova, E. et al. (2014). In vivo functional mapping of the conserved protein domains within murine Themis1. *Immunol Cell Biol.* **92**:721-728.
8. Ye, B. et al. (2014). Cytosolic carboxypeptidase CCP6 is required for megakaryopoiesis by modulating Mad2 polyglutamylation. *J Exp Med*. **11**:2439-2454.

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Warranty

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