

New MSCV Retroviral Expression System

Infect pluripotent mammalian cells with optimized vectors

- Achieve high-level expression in hematopoietic, ES, or EC cells
- Versatile—choose from three selectable markers
- Retroviral system provides efficient gene transfer

The MSCV (Murine Stem Cell Virus) Retroviral Expression System is the most advanced retroviral system available. This system contains vectors that are optimized for introducing functional genes into pluripotent cell lines, including murine or human hematopoietic, embryonic stem (ES), and embryonic carcinoma (EC) cells. They can be used effectively with any mammalian cell line (1–3). This highly efficient system is ideal for analyzing gene function in development, embryogenesis, or immune response, in both cell culture and transgenic assays.

Constitutive expression in pluripotent cell lines

Studying gene expression in pluripotent cell lines is essential for gaining a full understanding of early developmental and regulatory processes in mammals. These cell types are especially useful for studying the effects of the expression of a particular gene on cellular differentiation in culture. However, there is one major disadvantage: stable, high-level gene expression in hematopoietic and embryonic stem cells is often difficult to achieve, regardless of the method used to introduce the gene of interest. Our MSCV Vectors overcome the resistance to sustained gene expression by employing a specially designed long terminal repeat (LTR) from the murine stem cell PCMV virus. This LTR differs from the MoMuLV LTR used in other retroviral vectors by introducing several point mutations and a deletion that enhance transcriptional activation and prevent transcriptional suppression in ES and EC cells. As a result, the PCMV LTR drives high-level, constitutive expression of your target gene in stem cells or other mammalian cell lines.

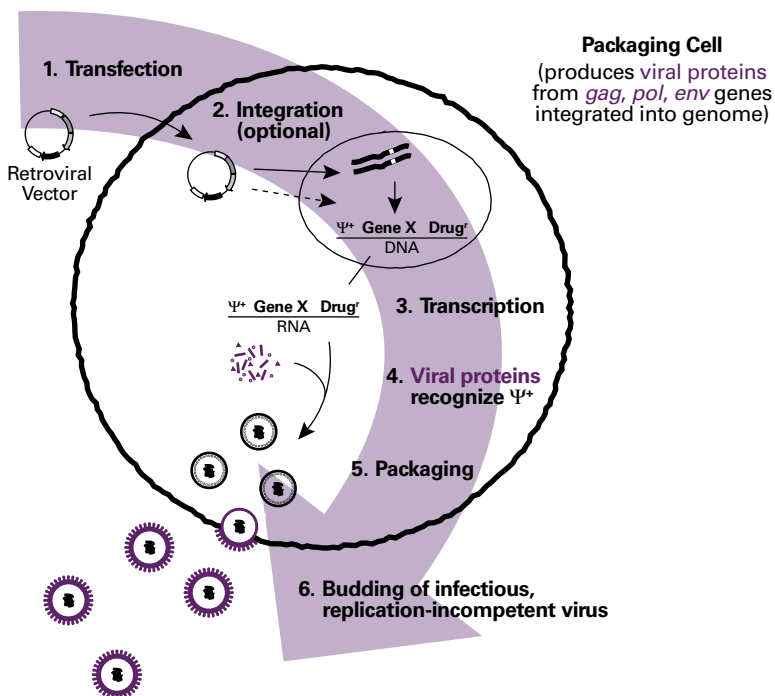


Figure 1. Virus production in the RetroPack™ PT67 or EcoPack™-293 Packaging Cell Lines. Both the MSCV Vectors and the LRCX Vectors (facing page) can be packaged using these cell lines. The RetroPack Cell Line provides integration of the appropriate vector elements (Ψ^+ packaging signal, gene of interest, and drug-resistance marker) for packaging into amphotropic virus, and the EcoPack-293 Cell Line provides transient transcription of these elements for packaging into ecotropic virus. Mature virions bud off into the culture supernatant, which can be collected for infection of a cell line of choice.

Simple and safe to use

The MSCV Vectors are as simple and safe to use as our other retroviral vectors. After cloning a gene into the multiple cloning site (MCS), you transfect the vector into a packaging cell line for production of replication-incompetent virus (Figure 1). Then infect target cells with the viral supernatant; efficient integration ensures that up to 100% of your cells constitutively express your gene of interest.

The MSCV vector backbone has been modified by other researchers for potential use in human gene therapy (4, 5). Therefore, you can be confident about the safety and effectiveness of the MSCV Vectors for general laboratory research.

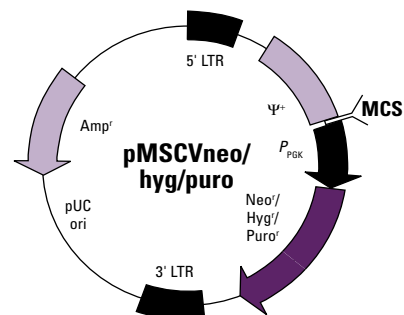


Figure 2. Map of the MSCV Vectors. MCS: EcoR I, Hpa I, Xho I, Bgl II.

New MSCV Retroviral Expression System...continued

Choice of three selectable markers

The MSCV System contains three vectors with several unique features (Figure 2). First, because different cell lines tolerate some antibiotics better than others, the vectors come with one of three selectable markers: neomycin (for selection with G418), hygromycin, or puromycin, giving you added flexibility to design an optimal infection scheme for your particular cell line. You can infect cells with two vectors containing different drug-selection markers to select for two specific genes simultaneously. In addition, a convenient MCS makes it easy to clone your gene of interest. Finally, because the vectors are modular, you can cut and paste certain elements into another cloning or expression vector to tailor your expression system to your specific needs.

Complete kit for your convenience

The MSCV System comes with our RetroPack PT67 Cell Line, a specially designed packaging cell line that produces virus with a broad host range. You can also use our new EcoPack-293 Cell Line for generating high-titer, ecotropic virus by transient transfection. The kit also provides primers for PCR or sequencing inserts cloned into the MCS, vector sequence information, and a complete User Manual.

References

1. Hawley, R. G., *et al.* (1996) *Proc. Natl. Acad. Sci. USA* **93**:10297–10302.
2. Keller, G., *et al.* (1998) *Blood* **92**:877–887.
3. Hawley, R. G., *et al.* (1994) *Gene Ther.* **1**:136–138.
4. Cheng, L., *et al.* (1997) *Gene Ther.* **4**:1013–1022.
5. Cheng, L., *et al.* (1998) *Blood* **92**:83–92.

Product	Size	Cat. No.	Price
MSCV Retroviral Expression System			
each		634401	\$761.00

Price is subject to change without notice.

Components

- pMSCVneo Vector
- pMSCVhyg Vector
- pMSCVpuro Vector
- RetroPack PT67 Cell Line
- 5' & 3' MSCV Primers
- Vector Information Packets
- Complete User Manual (PT3300-1)

For complete vector information, visit www.clontech.com.

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