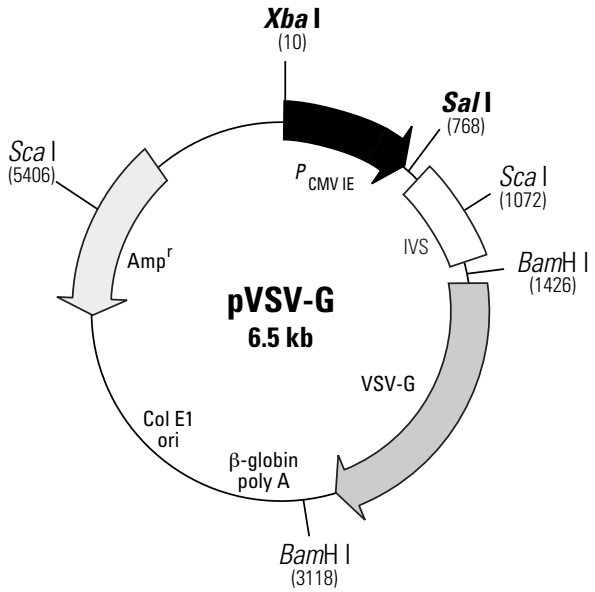
Vector Information

pVSV-G Vector Information PT3343-5

Sold as part of Cat. No. 631530



Restriction Map of pVSV-G Retroviral Vector. Unique restriction sites are in bold.

Description

pVSV-G expresses the G glycoprotein of the vesicular stomatitis virus (VSV-G) under the control of the CMV immediate-early promoter (1). VSV-G is used in pseudotyping of Moloney Murine Leukenia Virus (MMLV)-based retroviral vectors by mediating viral entry. VSV-G interacts with phospholipid components of the target cell membrane and fosters the fusion of viral and cellular membranes (2). VSV-G does not require a cell surface receptor and can serve as a surrogate viral envelope protein. pVSV-G Vector includes IVS, a synthetic intron known to enhance the stability of the mRNA (3), the Col E1 origin of replication and bacterial ampicillin rsistance (Amp^{r}) gene for propagation and antibiotic selection in bacteria.

Use

As part of the Retro-X™ Universal Retroviral Expression System (Cat. No. 631530), pVSV-G is co-transfected with a retroviral expression vector into the GP2-293 Packaging Cell Line (4) to produce infectious, replication-incompetent retrovirus. The genes encoding the viral *gag* and *pol* proteins are stably integrated into GP2-293. Because the VSV-G envelope protein causes toxicity by fusing cellular membranes, it must be expressed transiently from pVSV-G during packaging (5). Although the resulting virus can infect target cell lines and transmit a gene-of-interest, it cannot replicate because target cell lines lack the viral structural and polymerase/integrase genes. The separate introduction and integration of the viral genes into the packaging cell line and the use of minimal viral sequences in the vector minimize the chance of producing replication-competent virus due to recombination events.

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Location of Features

- CMV promoter: 1–768
- Rabbit β-globin IVS: 768–1432
- VSV-G envelope gene:
  Start codon: 1450–1452; stop codon: 2983–2985
- β-globin poly A: 3288–3293
- Col E1 origin of replication
  Site of replication initiation: 4087
- Ampicillin resistance gene (β-lactamase):
  Start codon: 5712–5710; stop codon: 4853–4851

Propagation in *E. coli*

- Suitable host strains: DH5α, HB101, and other general purpose strains.
- Selectable marker: plasmid confers resistance to ampicillin (100 µg/ml) to *E. coli* hosts.
- *E. coli* replication origin: Col E1
- Copy number: low

References

1. Yee, J. K., *et al.* (1994) *Proc. Natl. Acad. Sci. USA* 91:9564–9568.
2. Emi, N., *et al.* (1991) *J. Virol.* **65**:1202–1207.
3. Huang, M. T. F. & Gorman, C. M. (1990) Nucleic Acids Res. **18**(4):937–947.
4. Witte, O. N. & Baltimore, D. (1977) *Cell* **11**:505–511.
5. Burns, J. C., *et al.* (1993) *Proc. Natl. Acad. Sci. USA* **90:**8033–8037.

Notes: Due caution must be exercised in the production and handling of recombinant retrovirus. Appropriate NIH, regional, and institutional guidelines apply.

The attached sequence file has been compiled from information in the sequence databases, published literature, and other sources, together with partial sequences obtained by Clontech. This vector has not been completely sequenced.