

pBABEpuro-K-Ras Retroviral Vector

CATALOG NUMBER: RTV-220

STORAGE: -80°C

QUANTITY AND CONCENTRATION: 100 µL of bacterial glycerol stock

Background

Retroviruses are efficient tools for delivering heritable genes into the genome of dividing cells. Cell Biolabs' retrovirus vector is based on the pBABE vector system, which is derived from Moloney murine leukemia virus (MMLV). The vector provides the viral package signal, transcription and processing elements, and a target gene. The viral *env* gene, produced by the package cell line, encodes the envelop 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 are used to express silencing RNAs (siRNA) to decrease the expression of target genes both *in vitro* and *in vivo*.

Ras genes encode 21 kDa guanine nucleotide-binding proteins, including H-, K- and N-Ras. H-Ras was first identified as an oncogene, and mutated Ras genes have been found in many human tumors. Like all GTPases, Ras acts as a molecular switch to control downstream cellular events. The interconversion of the inactive GDP-bound form into the active GTP-bound form is regulated by guanine nucleotide exchange factors, whereas inactivation of the GTP-bound form is stimulated by GTPase-activating proteins (GAPs). Ras in its active GTP bound form binds to Raf, resulting in activation of the MAP kinase cascade. Mutation of K-Ras is one of the most common abnormal genetic events in human cancer, with the highest incidence in pancreatic carcinomas (90%) and colorectal tumors (50%). A human K-Ras is cloned into the retroviral vector pBABEpuro at the *Sna*B I site.

The vector contains the bacterial origin of replication, ampicillin-resistance gene, and puromycin-resistance gene for the growth of infected mammalian cells to select stable cell lines (Figure 1).

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. Morgenstern, J. P. and H Land. (1990) *Nuc. Acid Res.* 18, 3587-3596.
2. Coffin, J. M. and H. E. Varmus, *Retroviruses*, Cold Spring Harbor Press, NY.
3. Schuck S, Manninen A, Honsho M, Fullekrug J and Simons K. (2004) *Proc Natl Acad Sci U S A.* 101, 4912-4917.
4. Marshall C. J., Lloyd A. C., Morris J. D., Paterson H., Price B and Hall A. (1989) *Int J Cancer Suppl.* 4:29-31.

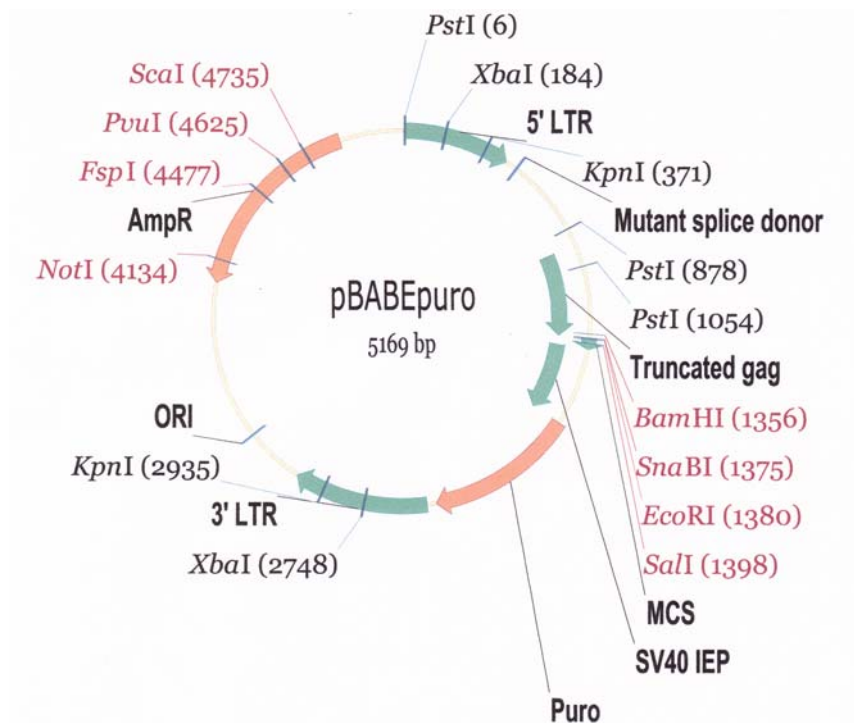


Figure 1. Retroviral Vector Map

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