pBABEpuro-JNK1 Retroviral Vector (Dominant Negative)

CATALOG NUMBER: RTV-110 **STORAGE:** -80ºC

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 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 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).

Mitogen-activated protein kinases (MAPK), including ERK1/2, p38, and JNK1/2, are important regulators of cell function. The ERK MAPKs are most frequently activated by mitogens, whereas the JNK and p38 MAPKs are strongly responsive to inflammatory signals. The stress-activated protein kinases have also been termed JNK protein kinases because they were identified as the principal c-Jun N-terminal kinases. The JNK family kinases are activated by cell stress-inducing stimuli such as heat shock, UV irradiation, hyperosmolarity, and ischemia/reperfusion injury, and by activation of specific cell surface receptors. The JNK family includes 1, 2, and 3 and their splice isoforms. A dominant negative form (AF) of human JNK1 sequence is cloned into the retroviral vector pBABEpuro at the *Sna*B I site. The JNK1 (AF) mutant cannot be phosphorylated, since the dual phosphorylation site T183/Y185 has been changed to A183/F185.

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

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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. Davis R. J. (1999) *Biochem. Soc. Symp.* 64:1-12.

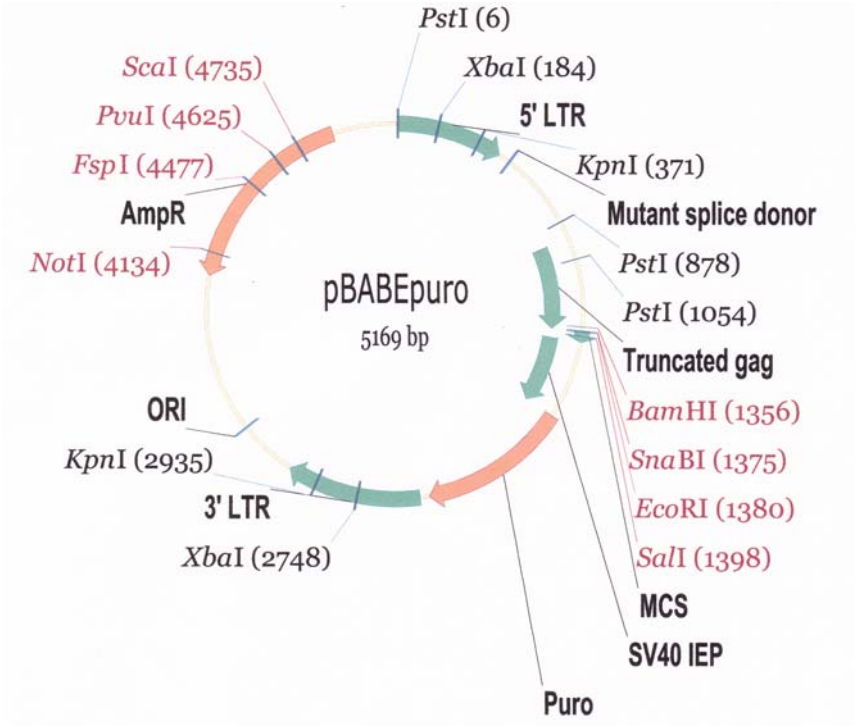

Figure 1. Retroviral Vector Map

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