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## **pBABEneo-hTERT Retroviral Vector**

**CATALOG NUMBER:** RTV-005 **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. The 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 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 are 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 Neomycin resistance gene for the growth of infected mammalian cells to select stable cell lines (Figure 1). hTERT, or "human Telomerase Reverse Transcriptase," is a ribonucleoprotein that maintains telomere ends by addition of the telomere repeat sequence TTAGGG. These TTAGGG repeats (with their various protein binding partners) are called telomeres.

Telomerase expression plays a role in cellular senescence, as it is normally repressed in postnatal somatic cells resulting in progressive shortening of telomeres.

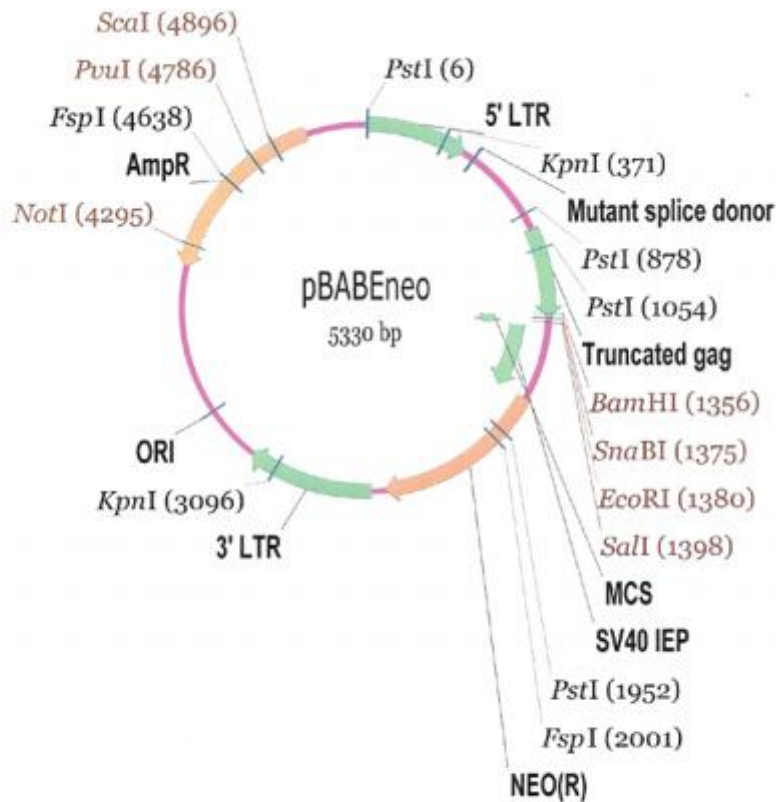
Deregulation of telomerase expression in somatic cells may be involved in oncogenesis. A hTERT gene with an HA tag at its C-terminal is cloned into the retroviral vector pBABEneo between EcoRI and Sall sites.

### **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.



**Figure 1.** pBABE-Neo Retroviral Vector Map

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