pMX-STAT5B Retroviral Vector

CATALOG NUMBER: RTV-334 **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' pMX-STAT5B retroviral vector is based on Moloney murine leukemia virus (MMLV). 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*.

STAT5A and STAT5B are encoded by different genes; however, they share >90% amino acid identity. While initially referred to as mammary gland factor because of the role in mediating the effects of prolactin on the expression of β-casein in the mammary gland, mammary gland factor was renamed STAT5 when the cDNA was cloned and shown to be a member of the STAT family of transcription factors. Subsequently, two separate genes were identified and shown to be expressed in a wide range of tissues. STAT5A and STAT5B are now known to be differentially expressed in various tissues, and to have independent and distinct as well as common functions. STAT5B accounts for ~90% of the STAT5 in the liver; however, STAT5B and STAT5A are both required for the constitutive expression of certain GH-regulated liver cytochrome P450 enzymes.

The vector contains the ampicillin-resistance gene, MMLV LTRs, package signal and mouse STAT5B (Figure 1).

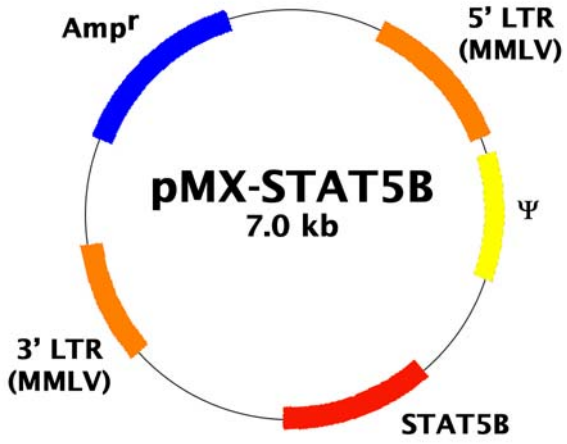

Figure 1. Schematic representation of pMX-STAT5B retroviral vector.

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. Onishi, M., *et al.,* (1998) *Mol. Cell. Biol.* **18**, 3871-3879.
2. Morgenstern, J. P. and H Land. (1990) *Nuc. Acid Res.* **18**, 3587-3596.
3. Coffin, J. M. and H. E. Varmus, *Retroviruses*, Cold Spring Harbor Press, NY.
4. Onishi, M., Kinoshita, S., Morikawa, Y., *et al*., (1996) *Exp. Hematol.* **24**, 324-327.
5. Kitamura T., *et al*., (2003) *Exp. Hematol.* **31**, 1007-1014.

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