

A series of mammalian expression vectors and characterisation of their expression of a reporter gene in stably and transiently transfected cells

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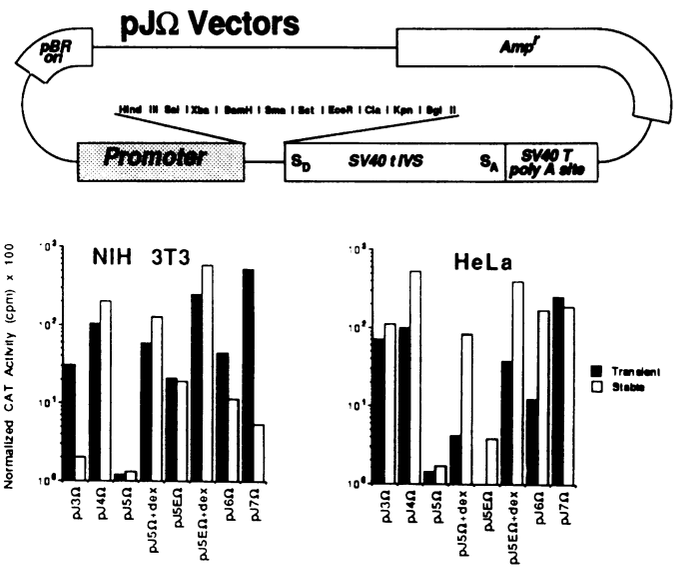
The pJΩ vector series has been designed to allow easy insertion and subsequent expression of exogenous genes in a wide variety of mammalian cells. The vectors share a common structure of a mammalian transcription unit composed of a promoter flanked 3′ by a polylinker, an intron, and a transcriptional termination signal which is linked to a pBR 322 derived backbone as shown. Each of the six vectors possesses a different promoter: pJ3Ω, the SV40 early promoter (1); pJ4Ω: the Mo MuLV LTR (2); pJ5Ω: the MMTV LTR (3); pJ5EΩ: an MSV enhancer linked 5′ to the MMTV LTR (4); pJ6Ω: the rat β actin promoter (5); and pJ7Ω: the SCMV IE94 promoter (6).

To characterise the expression capabilities of these vectors in mammalian cells, the *cat* gene was inserted into each of the vectors and the resultant constructs were introduced transiently and stably (with pSV2 neo as a selection marker) into NIH 3T3 and HeLa cells by calcium phosphate transfection.

All vectors led to high levels of stable and transient cat activity as well as dexamethasone inducibility in the cases of pJ5Ω and pJ5ΩE. Moreover, a striking difference in transient versus stable expression by pJ3Ω*cat* and pJ7Ω*cat* was noted in NIH 3T3 but not in HeLa cells. The actin promoter in pJ6Ω has also been shown to be expressed efficiently in undifferentiated teratocarcinoma cells in which transcription from all other promoters mentioned here is severly repressed. For example, in contrast to drug resistance markers under control of viral promoters pJ6Ω*hygro* can confer hygromycin resistance to these cells.



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