SVpoly: a versatile mammalian expression vector

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Expression vectors derived from pSV2gpt (1) are commonly used to direct abundant expression of genes from the simian virus 40 (SV40) early promoter. However, use of this type of vector is complicated by the paucity of restriction enzyme sites available for insertion of fragments. SVpoly is a simple vector designed to provide convenient restriction sites to facilitate the generation and manipulation of constructs for expression in mammalian cell culture, or transgenic animals.

SVpoly consists of a polylinker flanked by the SV40 early promoter and the SV40 late polyadenylation signal in a small plasmid which grows to high copy number in a bacterial host. Seven unique restriction sites are available in the polylinker for insertion of the sequence to be expressed. Unique restriction enzyme sites 5′ of the promoter and 3′ of the polyadenylation site make it simple to exchange either of these for others if desired. We have used SVpoly and derivatives carrying different promoters to express selectable marker genes, antisense RNA and protein coding sequences in a wide variety of cell types. We find that the amount of expression by SVpoly is comparable to that by pSV2.

SVpoly was constructed as follows: The SV40 promoter was derived from pLJ (2) as a BamHI HindIII fragment and corresponds to a PvuII HindIII fragment (positions 270 and 5171) of SV40. The polylinker is a HindIII BamHI fragment (positions 78 and 29) of pPolyIII (3), see sequence below. The SV40 late polyadenylation signal was derived from pSVL (4) as a BamHI SalI fragment and corresponds to a BamHI BclI fragment (positions 2533 and 2770) of SV40 coupled to a BamHI SalI fragment (positions 375 and 651) of pBR322. The beta lactamase gene and bacterial origin of replication are provided by pPolyIII (3) from XhoI to BglII (positions 19 and 131).

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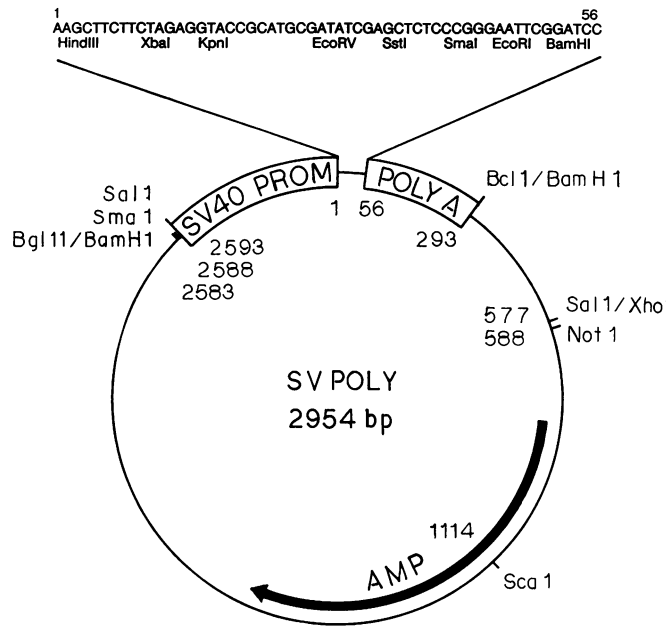

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