

SfPV1 (CRPV)

Cottontail rabbit papillomavirus (CRPV) or sylvilagus floridanus papillomavirus 1 (SfPV1) naturally infects cottontail rabbits (*Sylvilagus floridanus*), jack rabbits (*Lepus californicus*) and snowshoe hares (*Lepus americanus*). Experimentally, domestic rabbits (*Oryctolagus cuniculus*) can be infected, but in contrast to cottontail rabbits, no or only very little infectious virus is produced. Transcript analyses have been performed with RNA from cottontail rabbit tumors, domestic rabbit tumors and cell lines. These identified four major start sites: PL, P1, P2 and P3. L1 and L2 encoding transcripts have only been identified in RNA from cottontail rabbit tumors.

Northern blotting of RNA from domestic rabbit tumors revealed two major spliced transcripts of about 1.3 and 2.0kb (1,2). S1 mapping and primer extension analyses revealed two slightly different 2.0-kb transcripts, where the minor one starts at nt. 95 (P1), which encodes the full-length E6 protein, and the major one starts at nt. 165 (P2), which can only initiate translation of E6 at a second ATG codon giving rise to the sE6 protein (2, 3, 4). The E7 mRNA is transcribed from the promoter P3 at nt. 908 (3, 5). The full-length transactivating E2 protein is mainly translated from transcripts starting at P2 or P3 which are spliced from nt. 1371 to nt. 3065 (4, 6, 7). Two unspliced rare species were found colinear with E1 (3, 4, 5). Two minor RNAs were identified in tumors from domestic rabbits in which the E8 exon within the E1 gene is linked either to the splice acceptor in front of E2 or within E2 (7, 8). The start sites of these transcripts have not been identified. The transcript linking SD1751 to splice acceptor 3714 could give rise to the E8^{E2C} gene product which is a repressor for HPV. Initially this gene was designated E9 (8) as CRPV contains an E8 ORF within E6 and the E8 gene product appears to be more similar to the HPV and BPV1 E5 proteins (9, 10, 11). In 2016, the papillomavirus community decided to designate hydrophobic ORFs that overlap with the E6 gene, E10 (12), and this change was made in the PaVE database in September 2016. So, for SfPV1, the ORF that was originally named E8 is now E10. Messenger RNAs encoding the L1 and L2 capsid proteins are only found in virus-producing cottontail rabbit papillomas and are transcribed from the PL promoter localized in the 3' region of the long control region (2, 4). These transcripts contain an internal exon whose 5'-end has not been mapped (4). The exact position of the 5'-end of the L1 exon has also not been determined (2, 4). The PL promoter displays also weak activity in domestic rabbit tumors and generates a single message in which the URR exon is linked to the splice acceptor at nt. 3712 within E2 (7).

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