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Multifunctional facets of retrovirus integrase

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Abstract

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The retrovirus integrase (IN) is responsible for integration of the reverse transcribed linear cDNA into the host DNA genome. First, IN cleaves a dinucleotide from the 3' OH blunt ends of the viral DNA exposing the highly conserved CA sequence in the recessed ends. IN utilizes the 3' OH ends to catalyze the concerted integration of the two ends into opposite strands of the cellular DNA producing 4 to 6 bp staggered insertions, depending on the retrovirus species. The staggered ends are repaired by host cell machinery that results in a permanent copy of the viral DNA in the cellular genome. Besides integration, IN performs other functions in the replication cycle of several studied retroviruses. The proper organization of IN within the viral internal core is essential for the correct maturation of the virus. IN plays a major role in reverse transcription by interacting directly with the reverse transcriptase and by binding to the

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