Topic: AIDS

Class: B.Sc Part –III (Hons.)

Paper- VII

Group – A

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4. Transcription and Translation

- The cell will produce HIV RNA if it receives a signal to become active.
- CD4 cells become activated if they encounter an infectious agent.
- When the cell becomes active, HIV uses the host enzyme RNA polymerase to make messenger RNA.
- This messenger RNA provides the instructions for making new viral proteins in long chains.

- The long chains of HIV proteins are cut into smaller chains by HIV's protease enzyme.
- The provirus is permanently integrated into the host cell chromosome
- And, like a cellular gene, is expressed by the host cell transcription, RNA processing, and transcription machinery.

TRANSCRIPTION AND TRANSLATION

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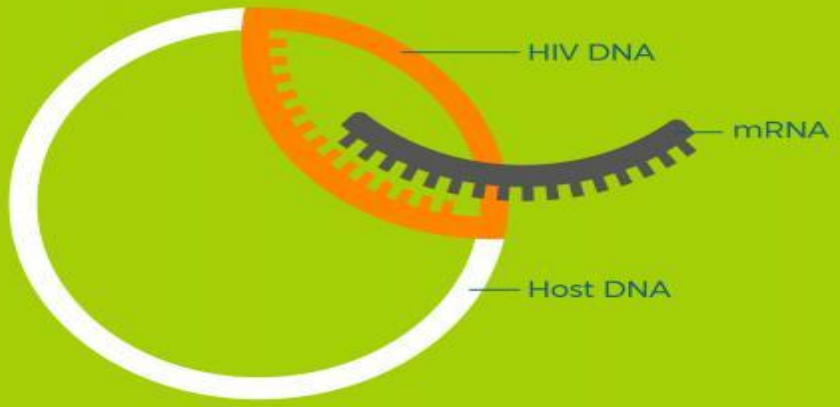
HIV DNA uses the host CD4 cell's enzymes to make mRNA



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From mRNA long chains of HIV proteins are made.

- Upon transcription, the retroviral pre-mRNA is spliced into viral mRNAs as they bear a 5, cap structure and a 3’poly(A) tail.
- In the case of HIV-1, alternative splicing gives rise to over 30 different mRNA species
- That are then exported to the cytoplasm by different pathways.