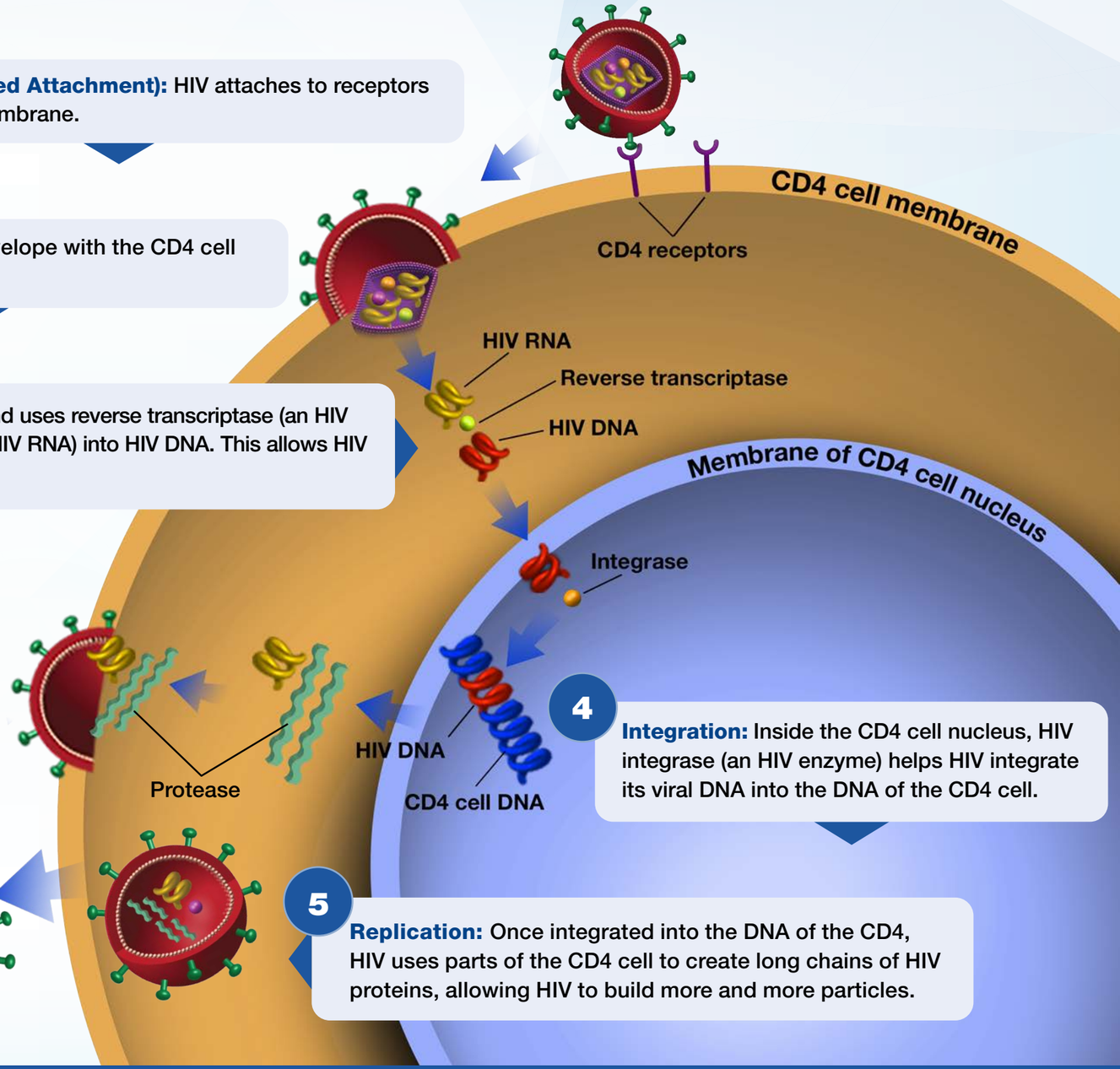
The HIV Life Cycle

HIV uses CD4 cells to multiply and spread through the body in a seven-step process known as the HIV life cycle.

1 **Binding (also called Attachment):** HIV attaches to receptors on the CD4 cell membrane.

2 **Fusion:** HIV joins its outer envelope with the CD4 cell membrane to gain entry.

3 **Reverse Transcription:** HIV releases and uses reverse transcriptase (an HIV enzyme) to convert its genetic material (HIV RNA) into HIV DNA. This allows HIV to enter the CD4 cell nucleus.



4 **Integration:** Inside the CD4 cell nucleus, HIV integrase (an HIV enzyme) helps HIV integrate its viral DNA into the DNA of the CD4 cell.

5 **Replication:** Once integrated into the DNA of the CD4, HIV uses parts of the CD4 cell to create long chains of HIV proteins, allowing HIV to build more and more particles.

6 **Assembly:** New HIV proteins (from the replication stage) and HIV RNA move to the surface of the cell and assemble into immature (noninfectious) HIV.

7 **Budding:** Newly formed immature (noninfectious) HIV pushes itself out of the host CD4 cell. New HIV then releases protease (an HIV enzyme) to break apart protein chains in the immature virus, creating a mature (infectious) virus.

For more information, visit HIVinfo.NIH.gov.

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