THE ANATOMY AND PATHOPHYSIOLOGY OF HIV

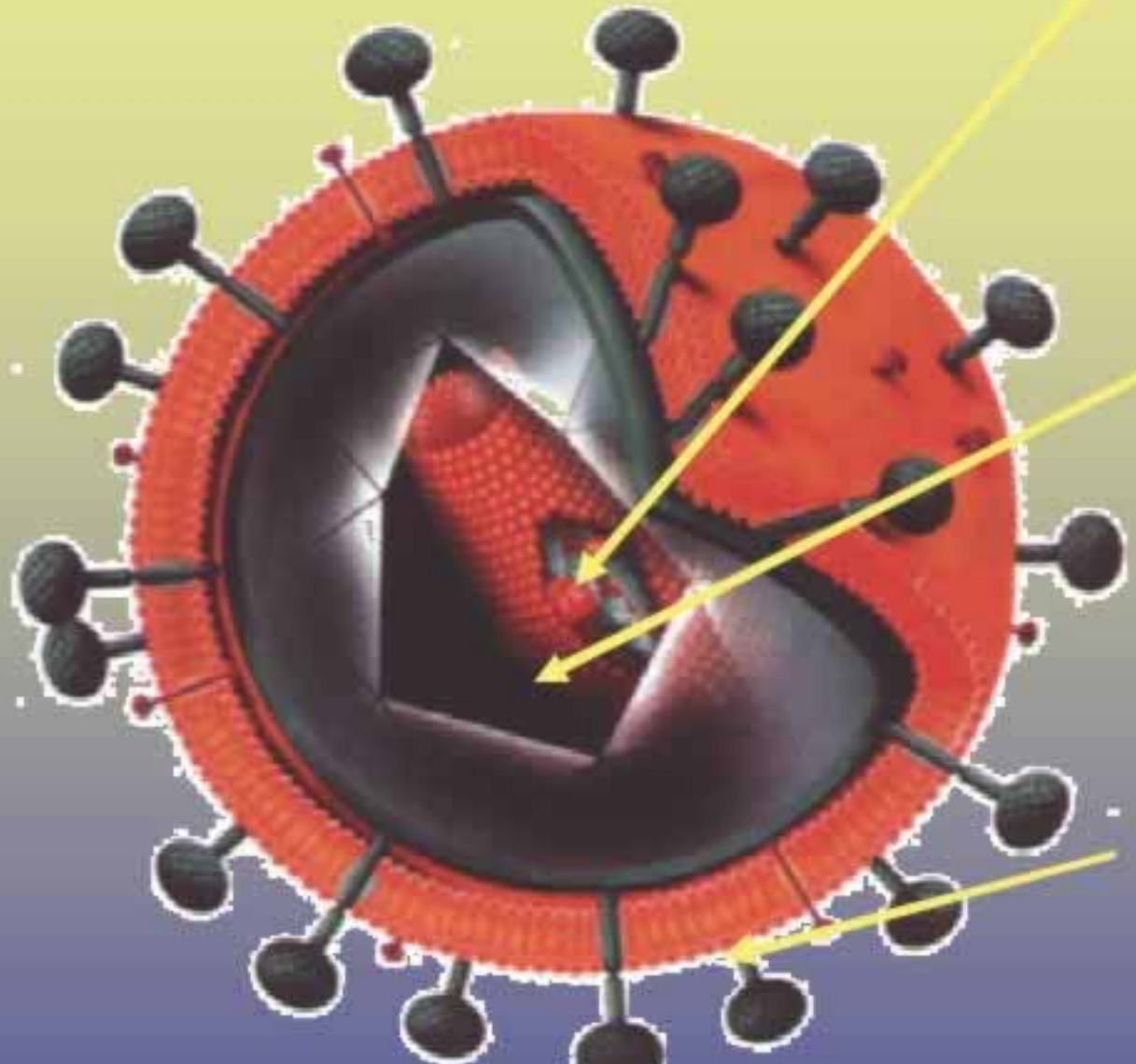
HIV

- It is an RNA virus and belongs to the
  - Family: *Retroviridae*
  - Subfamily: *Lentiviridae*
- Its hallmark characteristic is the reverse transcription of viral RNA to DNA by the enzyme **reverse transcriptase**
- Reverse transcription is a unique feature of retroviruses

HIV

- Two types of HIV viruses
  - HIV type 1 (HIV-1) and
  - HIV type 2 (HIV-2)
- HIV-1 is the predominant type worldwide

HIV - The Virus



Core

Single stranded viral RI
genome
Nucleoprotein
Reverse Transcriptase

Major core (gag) proteins

p24 (capsid)
p17 (matrix)
Internal structural protein
Gag-pol precursor protei

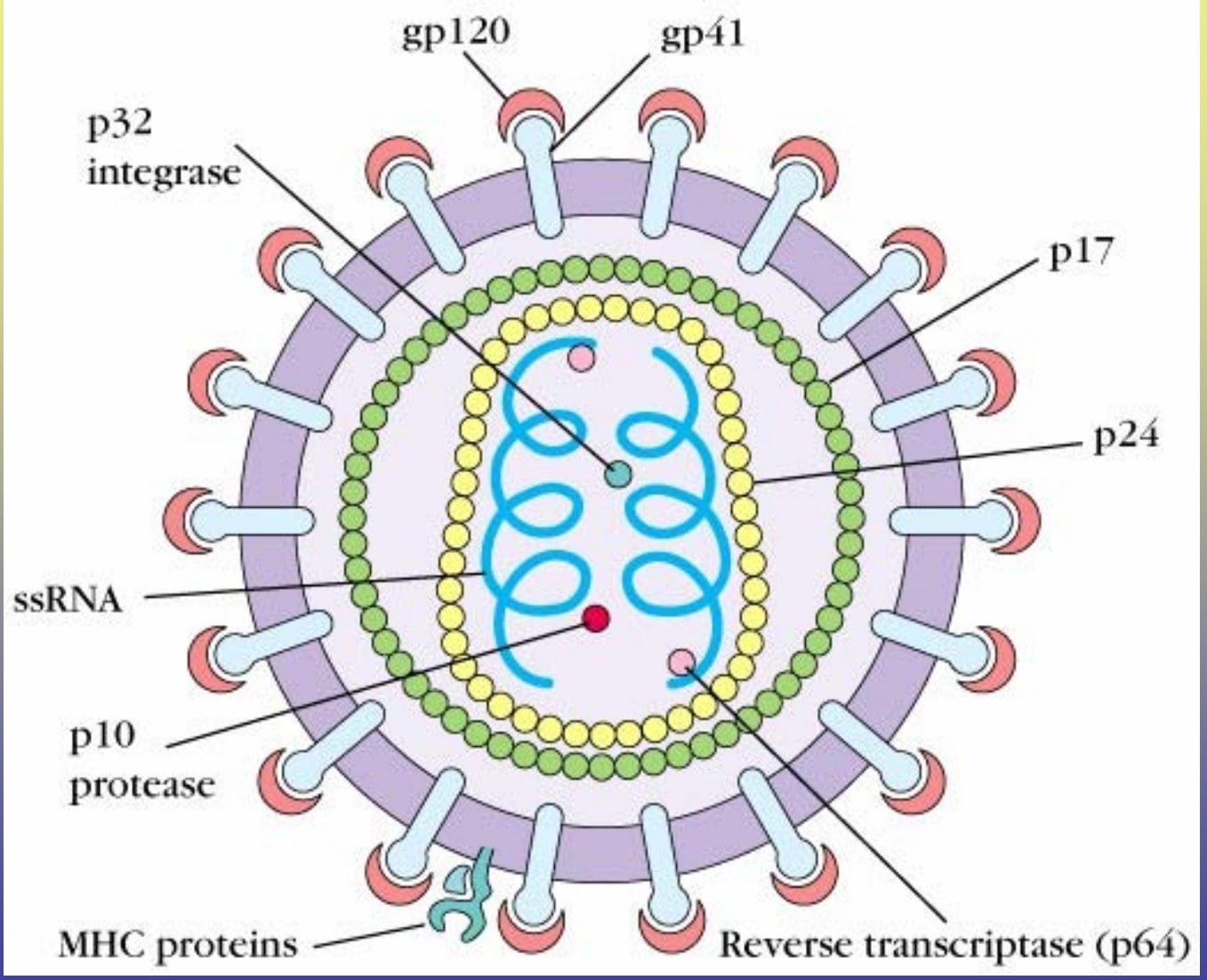
Viral capsid

lipid bilayer (from infec
envelope glycoproteins

HIV envelope

- Mature HIV virion is spherical in shape and detaches from the surface of infected cell by a process called budding.
- The viral envelope is therefore derived from the **host cell membrane**.
- **Lipid bi-layer** and is studded by envelope glycoproteins, **gp120** and **gp41**.
- Lining the lipid envelope is a structural protein, p17 also referred to as the **matrix protein**.

HIV morphology



HIV budding