

Chapter 26: Viruses Classification: → Based on the nucleic acid type. Focusing on the viral genome and the process used to synthesize the viral mRNA.

1) Double Stranded DNA Viruses:

* So viruses that have ds DNA don't have issue, because they can use the enzymes that are present & transcribed to 5'-3' mRNA. Have the similar polarity of 5'-3' DNA strand, with exception of T → U. In eukaryotic cell. (RNA Polymerase → that can bind to the 3'-5' strand + dependent DNA Polymerase → replication to the viral genome. Use host enzymes.



2) Single Stranded DNA Viruses: 5' _____ 3'

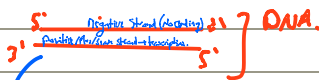
OR
if they are 5'-3' they need DNA Polymerase to convert the 5'-3' (Producing complementary strand 3'-5'). To produce the mRNA → Have a polarity of 5'-3'. and if it's 3'-5' they use it to make mRNA with the polarity of 5'-3'. * But the virus to replicate it may convert the 3'-5' into 5'-3' → Double stranded genome for replicated DNA.

3) Double stranded RNA Viruses:

We know that in eukaryotic cell is single stranded. (3'-5') But some viruses are composed of 5' _____ 3' → ds RNA viruses. This type of viruses face a problem that in viruses they need an enzyme (RNA Polymerase) → So they can't use this enzyme they need RNA-RNA dependent Polymerase. Sometimes they encode the (RNA-RNA Polymerase) → can be encoded on the genome OR they already have it.

4) Plus strand single stranded RNA viruses:

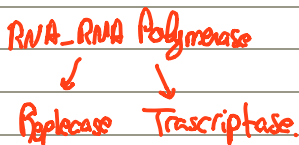
What is a plus strand? 5' _____ 3' } DNA. (mRNA 5'-3') → it can codify for protein



5) Negative strand ss RNA Viruses:

HIV
6) Retroviruses → RNA Genome they can convert the RNA using Reverse transcriptase to ss DNA (cDNA) → Hybrid (RNA is degraded).

7) Reverse transcriptase DNA viruses: A ds DNA viruses → but it can be ss + may have (RNA) in their genome



Hotspot for RT that change RNA to cDNA.