

Chapter 26: Viruses Classification: → Based on the nucleic Acid type. Focusing on the viral Genome and the process used to synthesis 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.

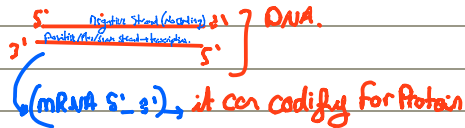
3) Double stranded RNA Viruses:

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) Negative Strand ss RNA Viruses:

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

RNA-RNA Polymerase
↓
RNase H
↓
Reverse Transcriptase

Hotspot for RT that change RNA to cDNA.