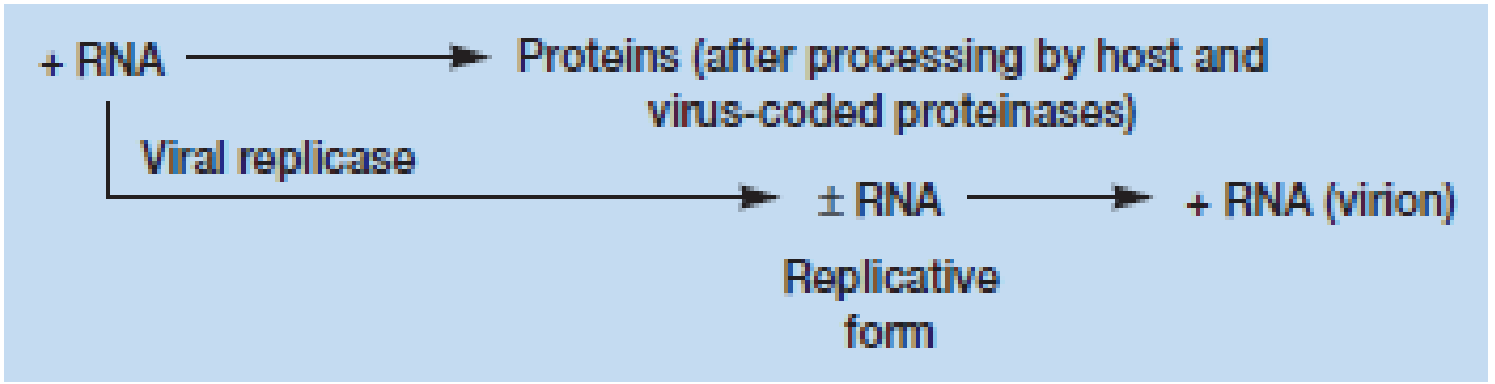
Picorna Virus Replication

By- Dr. Ekta Khare

Picorna Virus

- Transcription in RNA viruses other than the retroviruses (retroviruses are considered shortly) varies with the nature of the virus genome.
- The picornaviruses such as poliovirus are the best studied positive strand ssRNA viruses.
- They use their RNA genome as a giant mRNA, and host ribosomes synthesize an enormous peptide that is then cleaved or processed by both host and viral encoded enzymes to form the proper polypeptides (figure 18.6*a).*

(a) Positive single-stranded RNA viruses (picornaviruses)



Overview of the picornavirus replication cycle. Virus binds to a cellular receptor **(1)** and the genome is uncoated **(2)**. VPg (virion protein, genome linked) is removed from the viral RNA, which is then translated **(3)**. The polyprotein is cleaved nascently to produce individual viral proteins **(4)**. RNA synthesis occurs on membrane vesicles induced by viral proteins (not drawn to scale). Viral (+) strand RNA is copied by the viral RNA polymerase to form full-length (–) strand RNAs **(5)**, which are then copied to produce additional (+) strand RNA **(6)**. Early in infection, newly synthesized (+) strand RNA is translated to produce additional viral proteins **(7)**. Later in infection, the (+) strands enter the morphogenetic pathway **(8)**. Newly synthesized virus particles are released from the cell by lysis **(9)**.