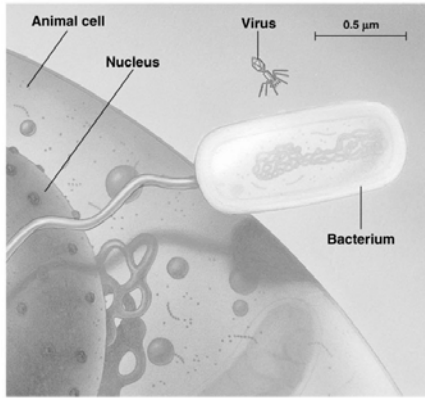
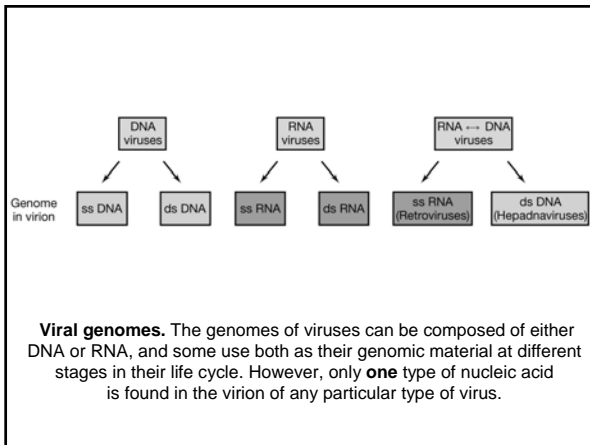


Comparing the size of a virus, a bacterium, and a eukaryotic cell

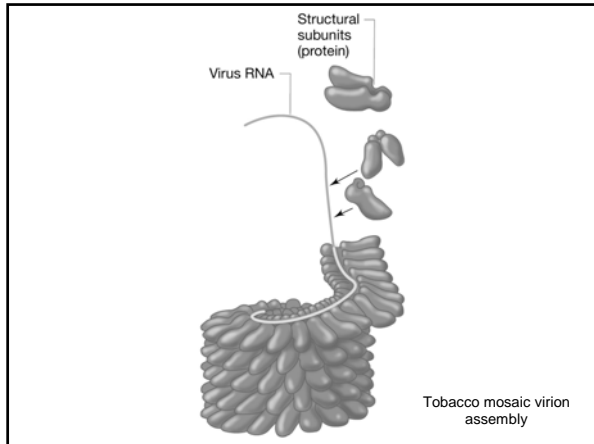


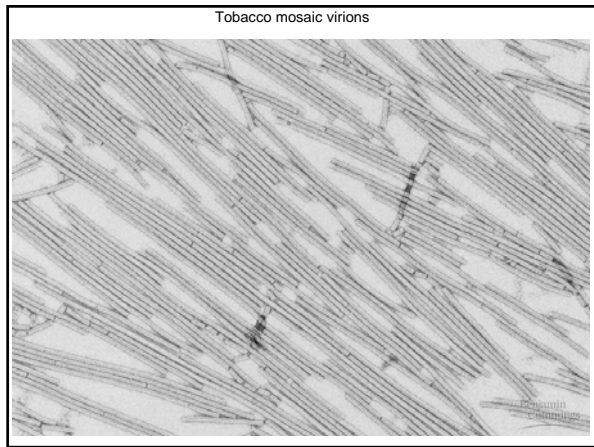


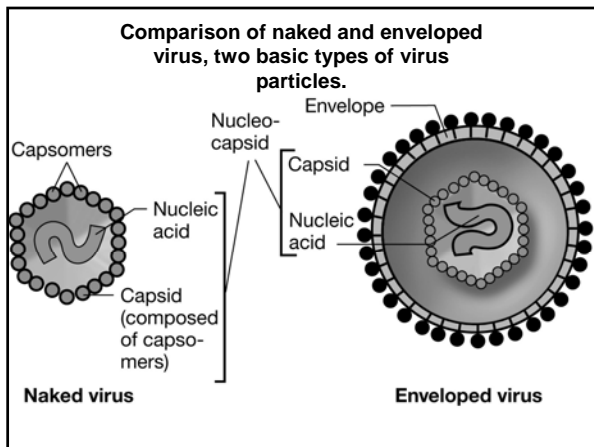
Classes of Animal Viruses, Grouped by Type of Nucleic Acid

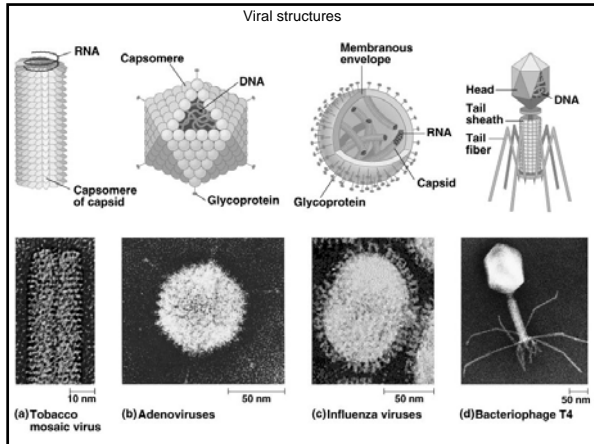
Class*	Examples/Diseases
I. dsDNA**	
Papillomavirus	Papillomas (warts), cervical cancer, polyoma (tumors in certain animals)
Adenovirus	Respiratory diseases, some cause tumors in certain animals
Herpesvirus	Herpes simplex I (cold sores), herpes simplex II (genital sores), varicella zoster (chicken pox, shingles), Epstein-Barr virus (mononucleosis, Burkitt's lymphoma)
Poxvirus	Smallpox, vaccinia, cowpox
II. ssDNA	
Parvovirus	Rarely, most parvoviruses depend on co-infection with adenoviruses for growth
III. dsRNA	
Reovirus	Diarrhea, mild respiratory diseases
IV. ssRNA that can serve as mRNA	
Picornavirus	Poliovirus, rhinovirus (common cold), coxsackievirus (meningitis)
Togavirus	Rubella virus, yellow fever virus, encephalitis viruses
V. ssRNA that is a template for mRNA	
Flavivirus	Killifish
Paramyxovirus	Measles, mumps
Orthomyxovirus	Influenza viruses
VI. ssRNA that is a template for DNA synthesis	
Retrovirus	RNA tumor viruses (e.g., leukemia viruses), HIV (AIDS virus)

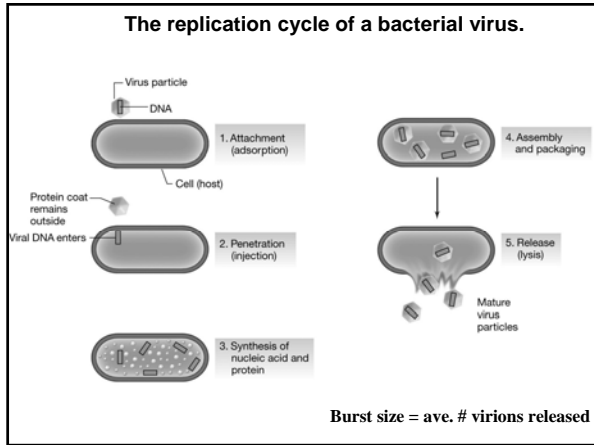
*The subclasses within each class differ mainly in capsid structure and in the presence or absence of a membrane envelope.
**ds = double-stranded; ss = single-stranded.

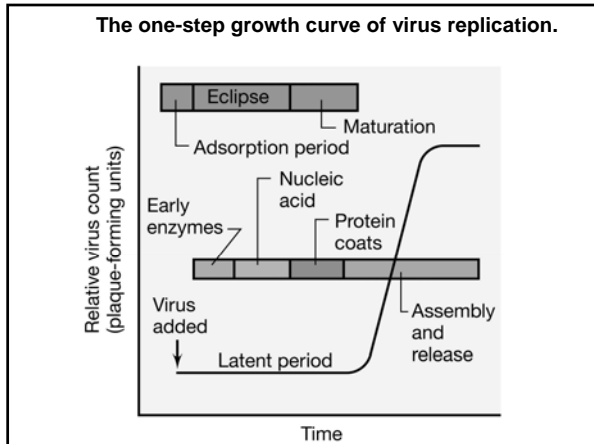




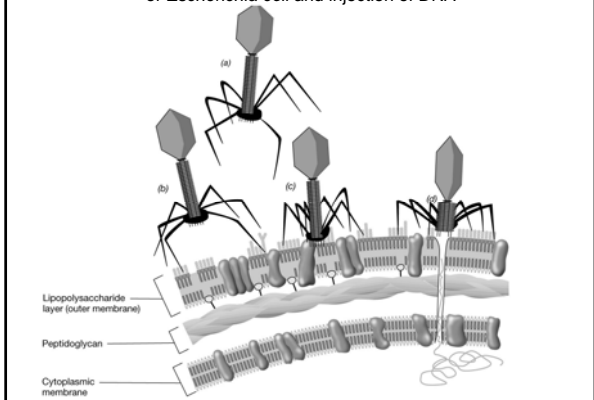




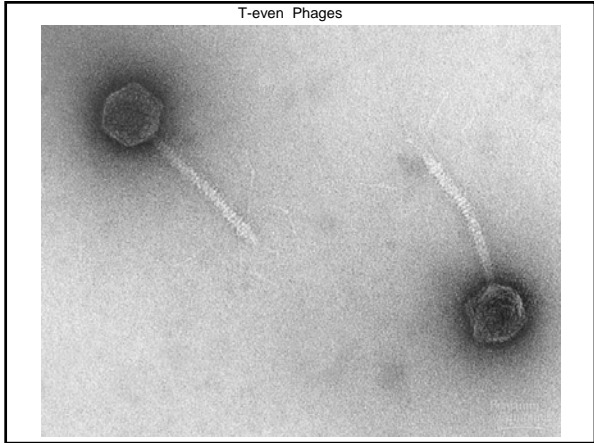




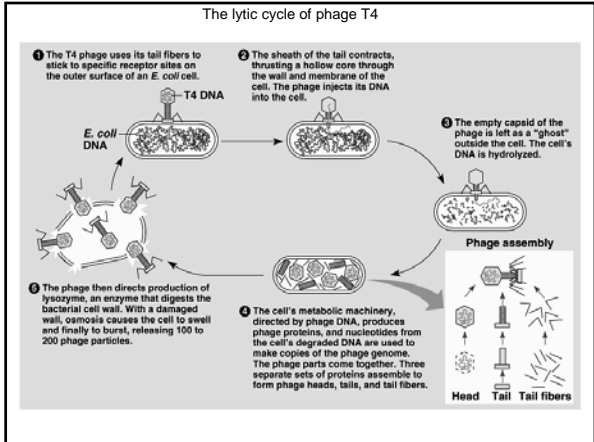
Attachment of T4 bacteriophage virion to the cell wall of *Escherichia coli* and injection of DNA



T-even Phages



The lytic cycle of phage T4

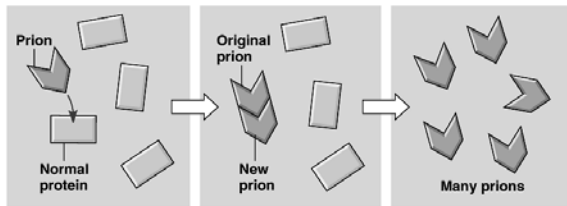


Structure of **viroids**, showing how single-stranded circular RNA can form a seemingly double-stranded structure by intrastrand base-pairing.

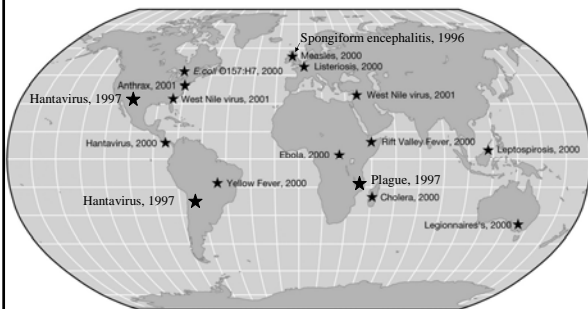


Hold-overs from an RNA world???

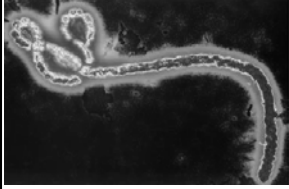
A hypothesis to explain how prions propagate



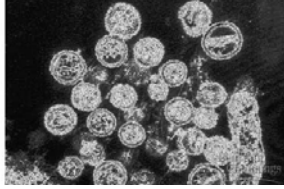
Recent outbreaks of emerging and reemerging infectious diseases.



Emerging viruses

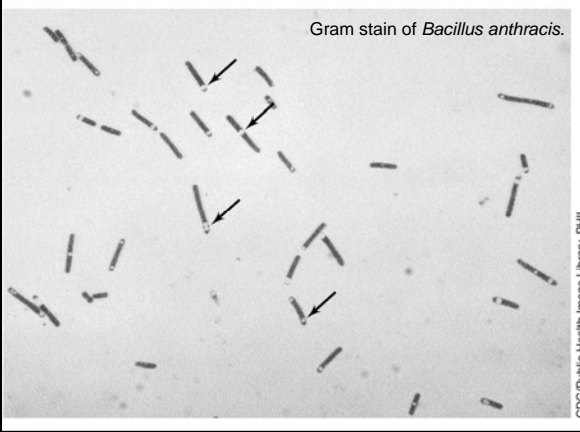


Ebola virus: SS RNA



Hantavirus: SS RNA

Gram stain of *Bacillus anthracis*.



CDC/Public Health Image Library, PHIL

Table 30.1 Major bacterial diseases of humans, sources of infection, and potential control (Part 1)

Disease	Primary Reservoir	Potential Means for Control
Human Contact and Respiratorily Contracted		
Streptococcal infections	Humans	Antibiotics; vaccine for pneumonia
Staphylococcal infections	Humans	Antibiotics; antiseptics
Meningitis	Humans	Specific antibiotics
Tuberculosis	Humans	Test and treat infected persons
Whooping cough	Humans	Vaccinate infants
Diphtheria	Humans	Vaccinate infants
Leprosy	Humans	Obtain proper treatment; vaccinate in endemic areas
Pneumonic plague	Humans	Eliminate rats and fleas

MICROBIAL LIFE, Table 30.1 (Part 1) © 2010 Sinauer Associates, Inc.

Table 30.4 The recommended immunization schedule for infants and young children in the United States

Age	Vaccine Employed
Birth	Hepatitis B
2 months	Diphtheria; pertussis; tetanus (DPT) Hemophilus B (Hib) Poliomyelitis (OPV)
4 months	DPT; OPV; Hib Hepatitis B
6 months	Hepatitis B DPT; OPV; Hib
12–15 months	DPT; Hib; chicken pox, measles, mumps, rubella (MMR)
4–6 years	OPV; DTP; MMR

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