

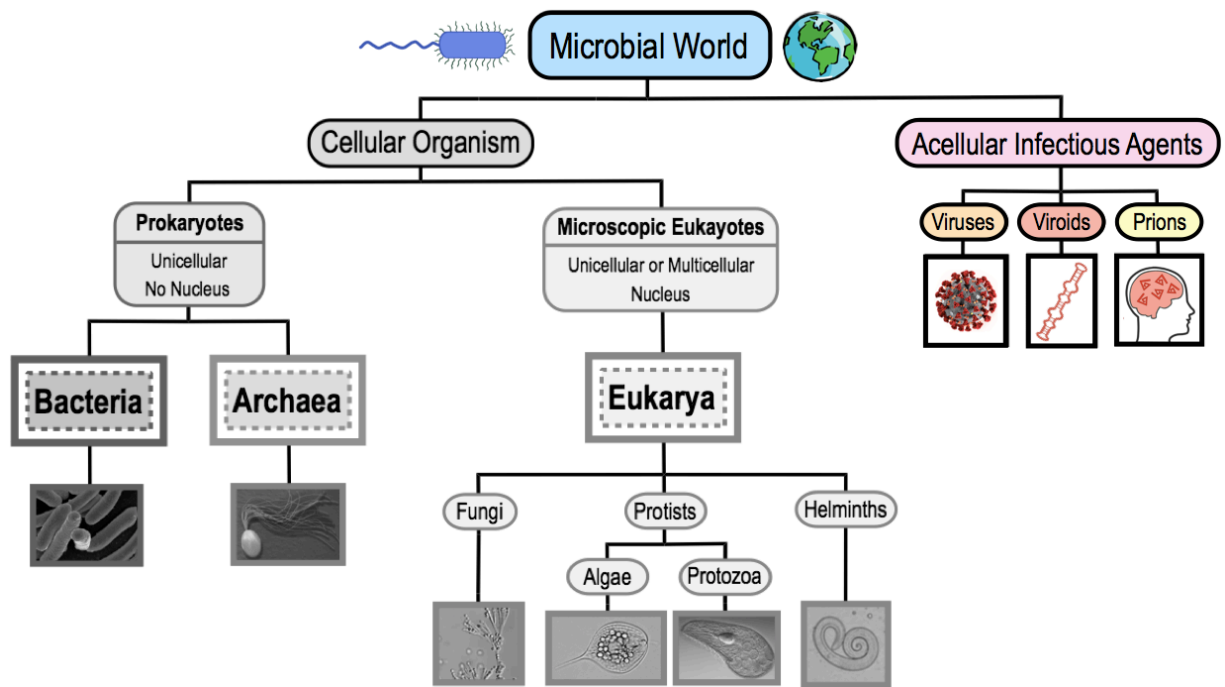
## CONCEPT: ACELLULAR INFECTIOUS AGENTS: VIRUSES, VIROIDS & PRIONS

● **Acellular** (or non-cellular): \_\_\_\_\_ consisting of or containing cells or cellular structures.

□ Anything acellular is \_\_\_\_\_ considered living.

● **Acellular Infectious Agents**: non-cellular objects that contaminate & affect living cells (includes viruses, viroids & prions).

**EXAMPLE:** Introduction to Acellular Infectious Agents.



## Viruses

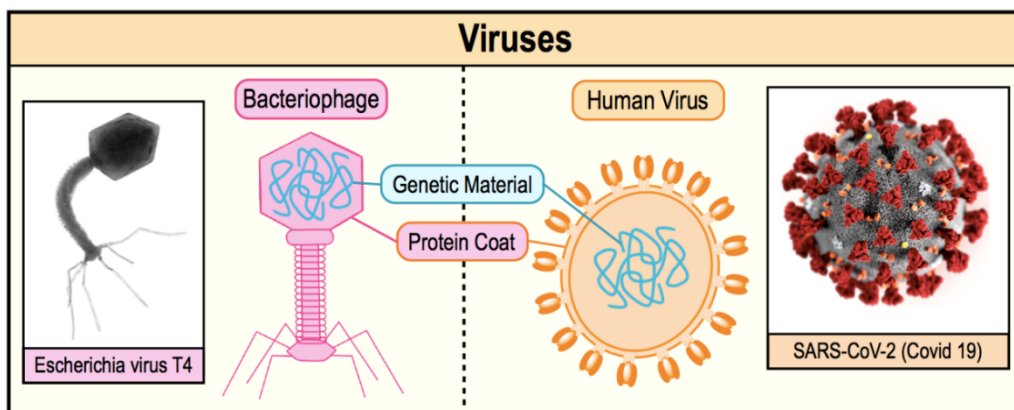
● \_\_\_\_\_: *obligate intracellular parasite* made of DNA or RNA packed into a protein coat (& sometimes a lipid envelope).

□ **Obligate Intracellular Parasites**: substances that can only replicate \_\_\_\_\_ a host cell they infect/harm.

□ \_\_\_\_\_ forms of life (bacteria, archaea & eukarya) can be infected by different types of viruses.

□ Frequently kill the cells they infect, but can also “silently” remain inside the host.

**EXAMPLE:** Introduction to Viruses.



## CONCEPT: ACELLULAR INFECTIOUS AGENTS: VIRUSES, VIROIDS & PRIONS

### **PRACTICE:** Viruses:

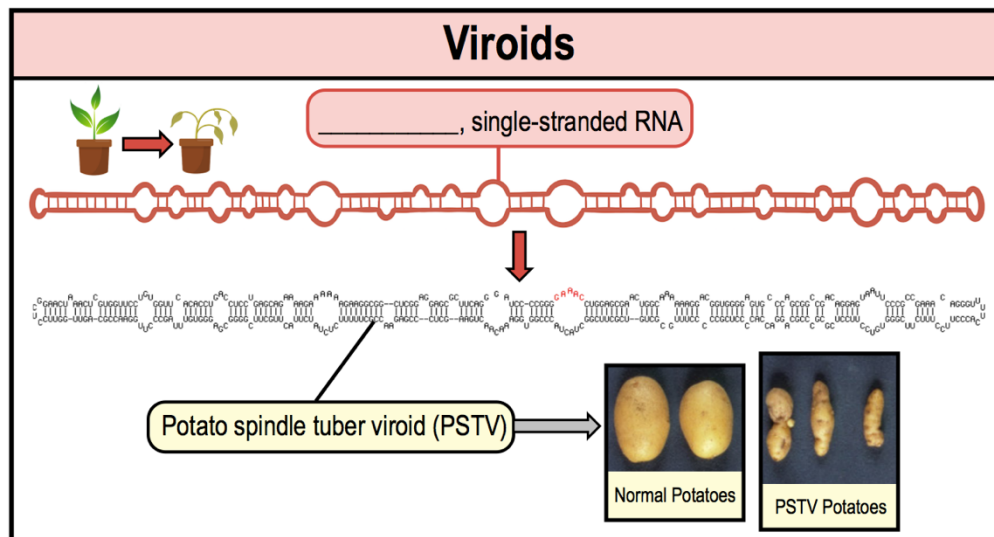
- a) Contain both protein and nucleic acids.
- b) Infect only eukaryotic cells.
- c) Can grow in the absence of living cells.
- d) Are generally the same size as prokaryotes.
- e) Always kill the cells they infect.

### Viroids

● **Viroids:** *obligate intracellular parasites* made of only of a single, short strand of \_\_\_\_\_ that forms a closed ring.

- Viroids are only known to infect \_\_\_\_\_ & cause plant diseases.
- Not much is known about how viroids originated & how they cause disease.

### **EXAMPLE:** Introduction to Viroids.

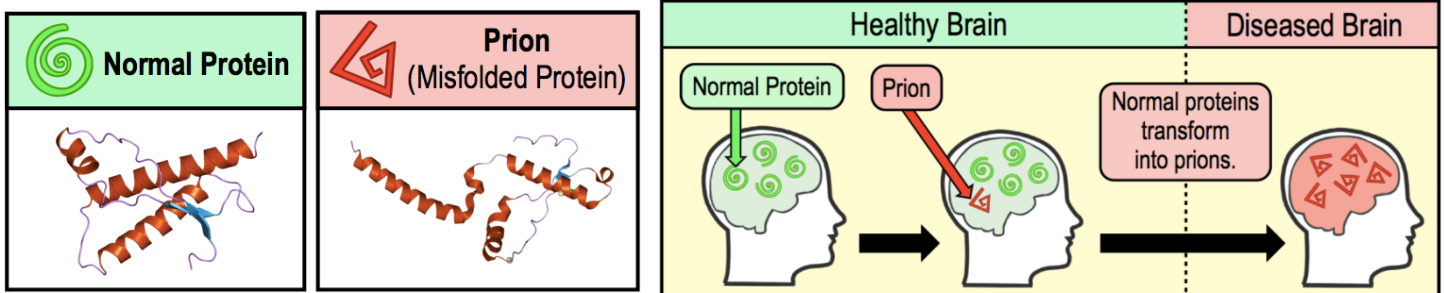


### Prions

● **Prions (Proteinaceous Infectious Agents):** *obligate intracellular parasites* made of only *misfolded* \_\_\_\_\_.

- Prions cause normal proteins to \_\_\_\_\_ & lose their function, which can cause disease.
- Prions are linked to several slow, degenerative diseases (ex. scrapie & "mad cow disease").

### **EXAMPLE:** Introduction to Prions.



**CONCEPT: ACELLULAR INFECTIOUS AGENTS: VIRUSES, VIROIDS & PRIONS**

**PRACTICE:** This type of acellular infectious agent is only known to infect plants and is a small, circular, single-stranded nucleic acid molecule.

- a) Archaea.
- b) Prion.
- c) Virus.
- d) Viroid.

**PRACTICE:** An infectious protein is known to cause neurodegenerative diseases in humans such as Creutzfeldt-Jakob disease ("mad cow disease"). This type of acellular infectious agent is known as a \_\_\_\_\_.

- a) Viroid.
- b) Prion.
- c) Virus.
- d) Protozoan.

**PRACTICE:** Which of the following statements about acellular infectious agents is FALSE?

- a) Acellular infectious agents are non-cellular objects that contaminate and negatively affect living things.
- b) Acellular infectious agents are obligate intracellular parasites and they cannot reproduce on their own.
- c) Acellular infectious agents are considered the smallest forms of parasitic life.
- d) Acellular infectious agents are known to infect all forms of life.