

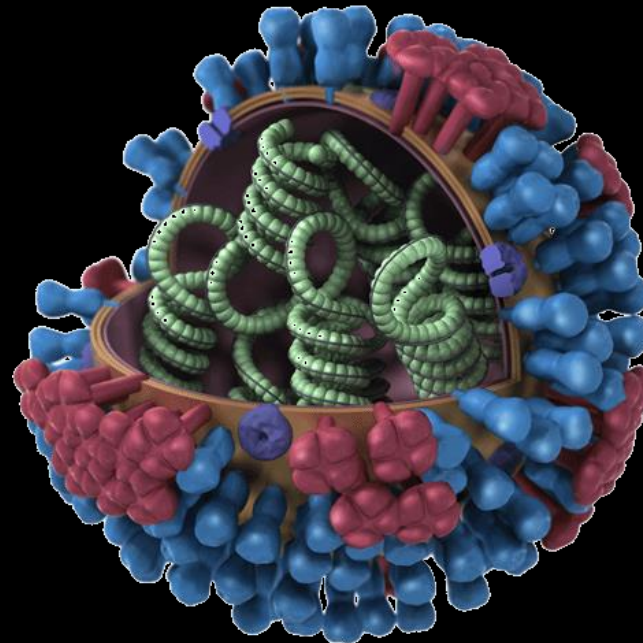
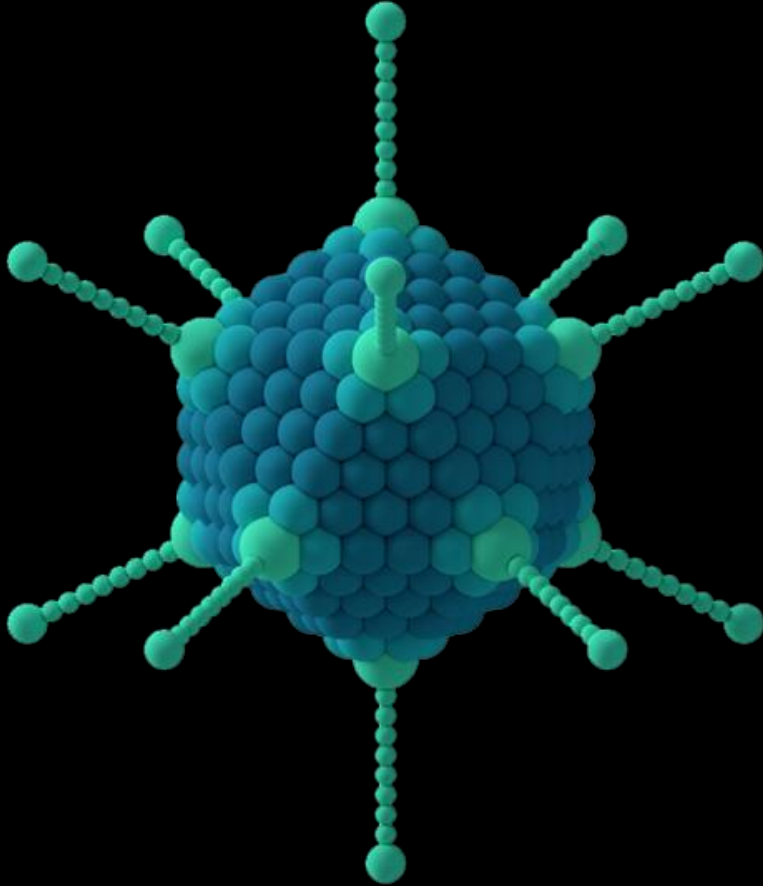
MICROBIOLOGY

**SUB VIRAL AGENTS-
VIROID AND PRION**

VIRUS

- **NUCLEO- PROTEIN**
- **(NUCLEIC ACID= DNA/RNA as genome)**
- **(PROTEIN= CAPSID)**
- **(LIPID ENVELOPE= SOMETIMES PRESENT)**

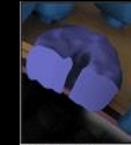
- **MAINLY NUCLEOPROTEIN**



Hemagglutinin



Neuraminidase



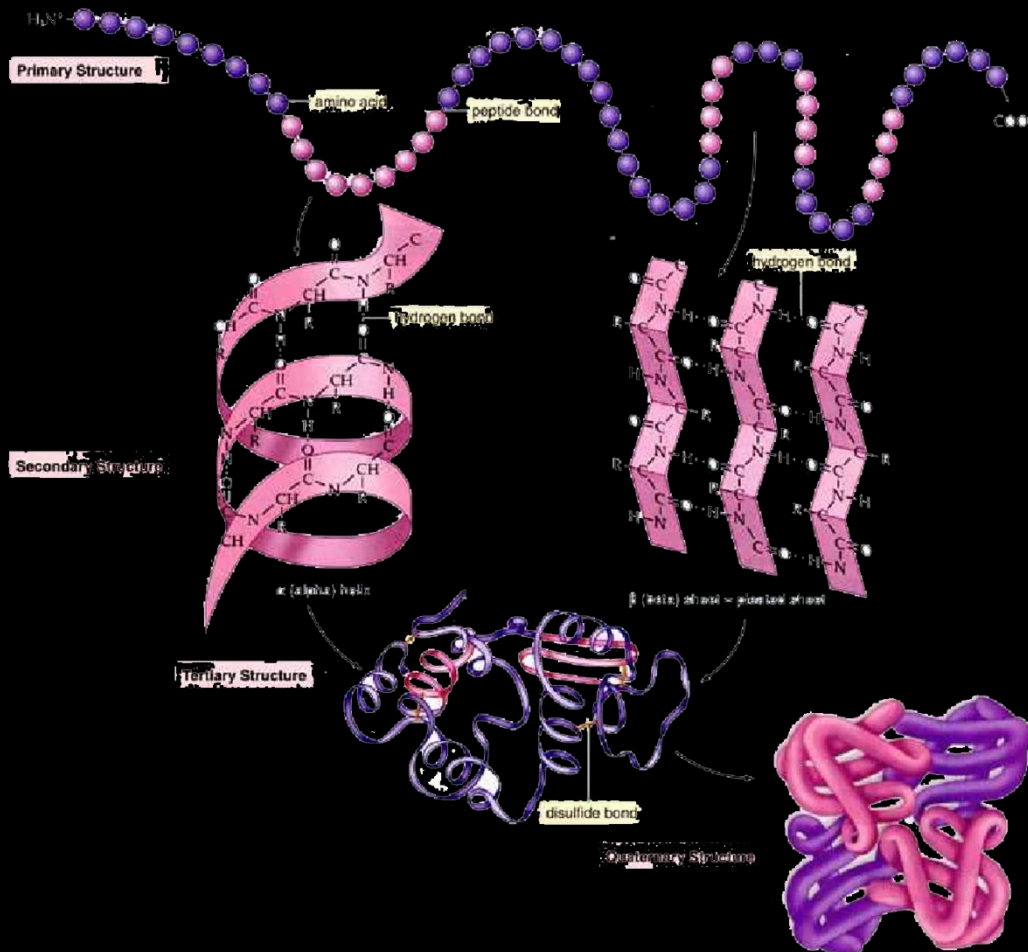
M2 Ion Channel



RNP

PRION

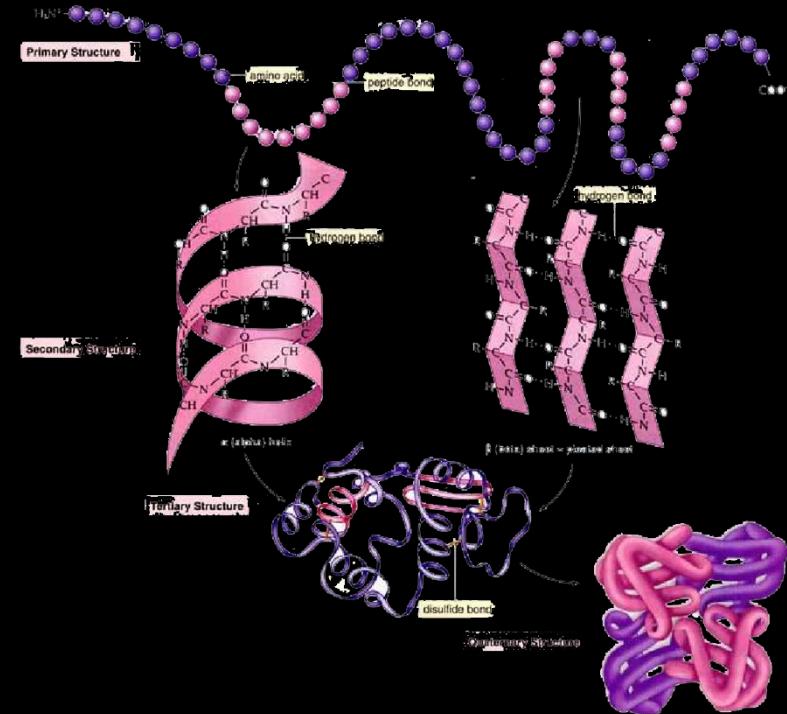
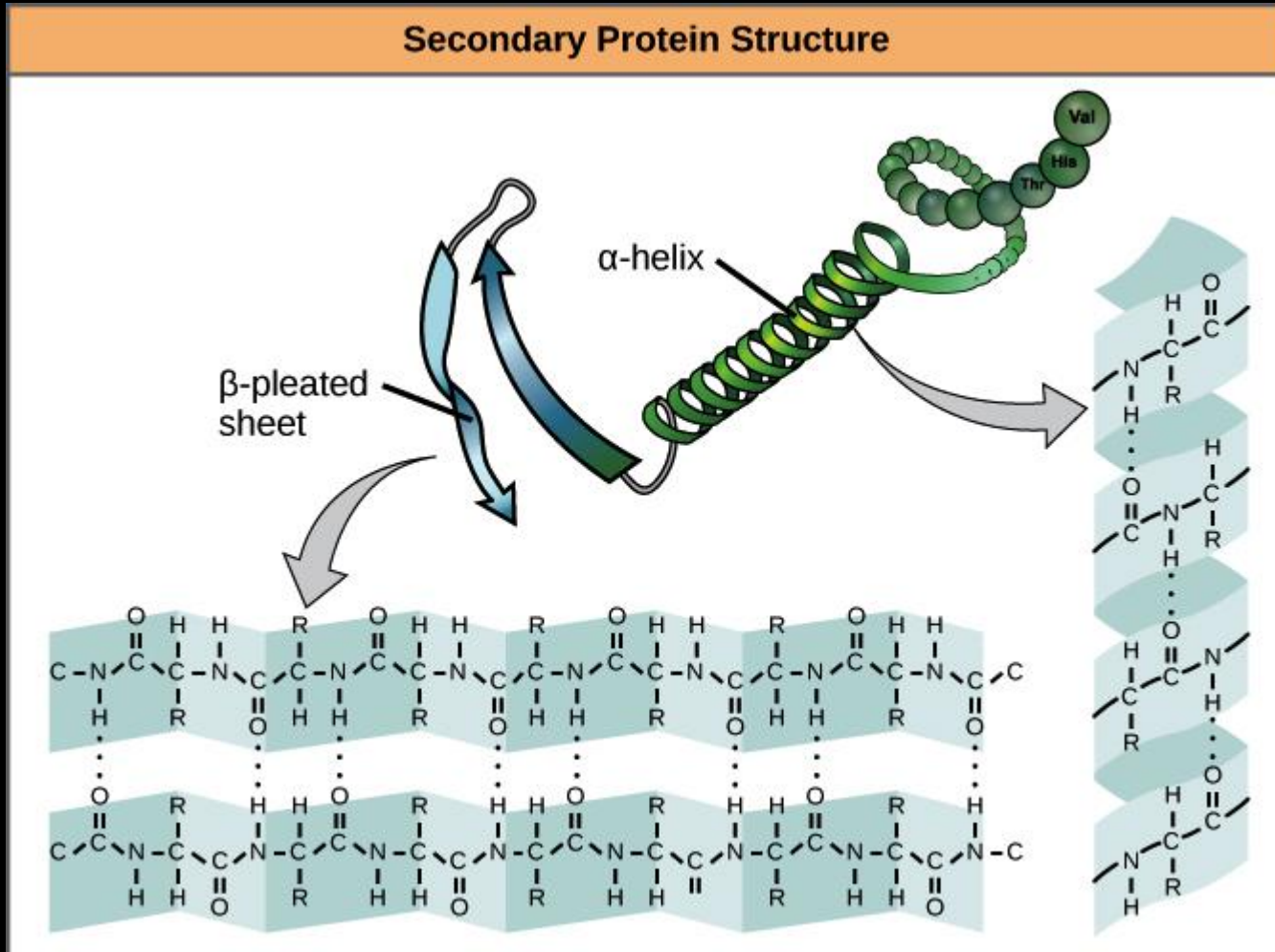
- **PROTEIN (ONLY NO GENOME, JUST MISFOLDED PROTEIN)**
- **PROTEINACEOUS INFECTED PARTICLE** Causing a group of diseases
- **Prion Diseases- Transmissible Spongiform Encephalopathies (TSE)**



- **Diseases-**
- **Scrapie (Sheep)**
- **Bovine Spongiform Encephalopathy (BSE) also called Mad Cow Disease**
- **Kuru**
- **Creutzfeldt Jakob Disease (CJD)- Human disease**
- **Gerstmann-Straussler-Scheinker Disease (GSD)**

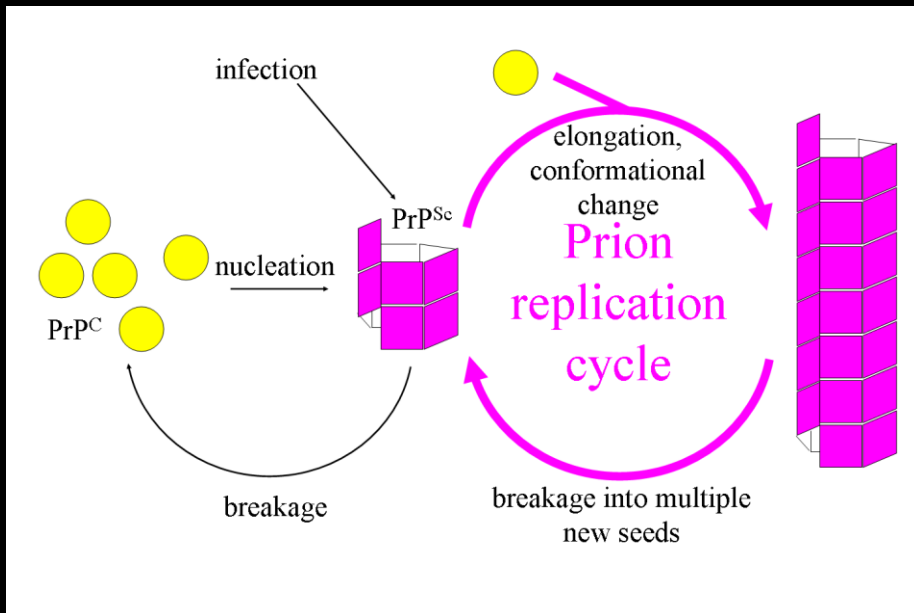
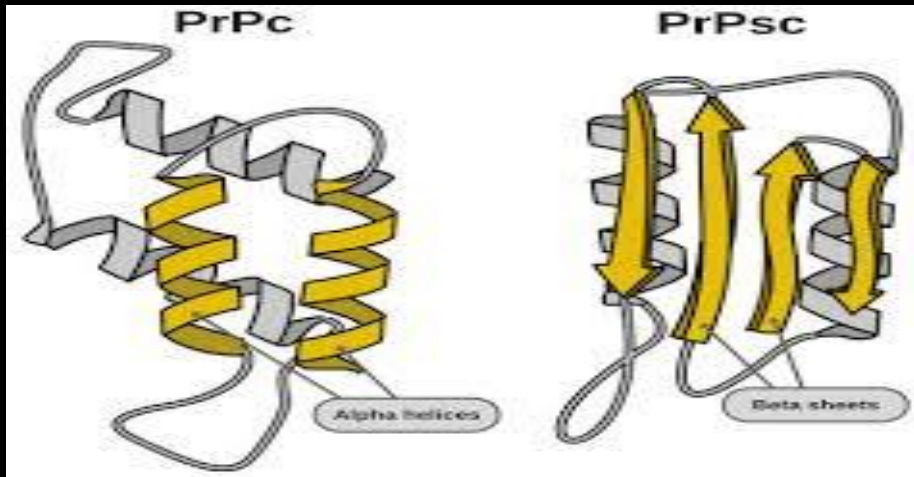
PRION

- PROTEIN (ONLY NO GENOME, JUST MISFOLDED PROTEIN)
- PROTEINACEOUS INFECTED PARTICLE



PRION

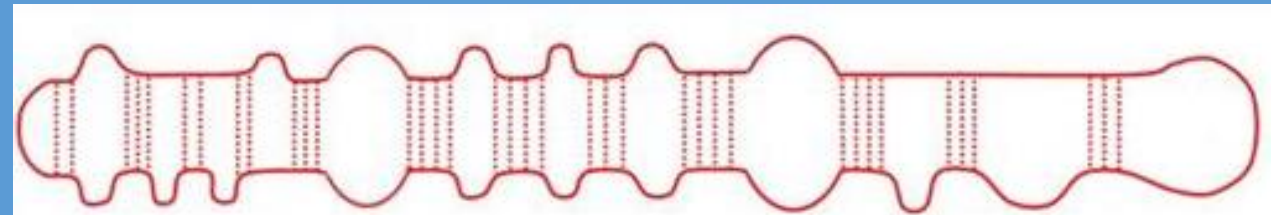
- Neuropathologically produce Spongiform degeneration of Brain, as well as deposition of amyloid plaques.



- In normal Cellular Protein there is a protein called PrP^c here c= cellular
- Genetic mutation cause PrP^c Protein to form PrP^{sc} Protein (Sc- Scrapie)
- These PrP^{sc} Protein induce the normal PrP^c protein to modify into PrP^{sc} Protein
- PrP^{sc} Protein aggregate together in the neuron cell causing the disease.

VIROID

- **INFECTIOUS AGENT CONTAINING ONLY RNA (NO CAPSID)**
- **(NUCLEIC ACID= RNA as genome)**
- **(CAPSID= ABSENT)**
- **Cause over 20 different disease**



Structure of a viroid – circular single-stranded RNA with some pairing between complementary bases and loops where no such pairing occurs

VIROID

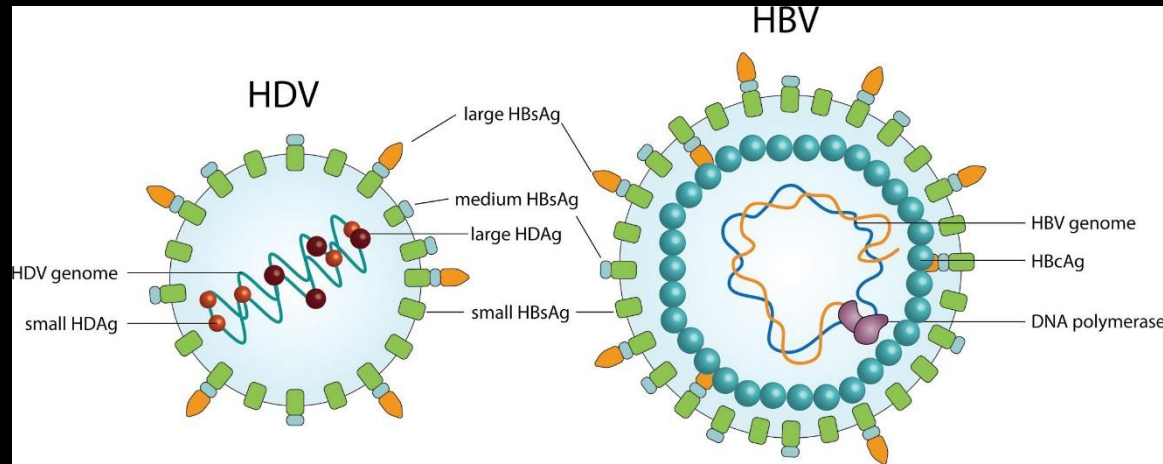
- **INFECTIOUS AGENT CONTAINING ONLY RNA (NO CAPSID)**
- **(NUCLEIC ACID= RNA as genome)**
- **(CAPSID= ABSENT)**
- **Cause over 20 different disease**

- **Diseases-**
- **Potato Spindle Tuber Disease (by PSTVd)**
- **Cocconut Cadang Cadang Disease (by CCVd)**

- **They replicate using DNA dependent RNA Polymerase of the Host**

SATTELITES

- Similar to Viroids as they are only NA (DNA/RNA)
- They may encode one or two gene product
- Need a Helper Virus to encode or Infect the Host



- **TYPES-**
- **SATTELITE VIRUS**
- **SATTELITE DNAs**
- **SATTELITE RNAs**

Thank You

