

# Foodborne viruses and SARS-CoV-2

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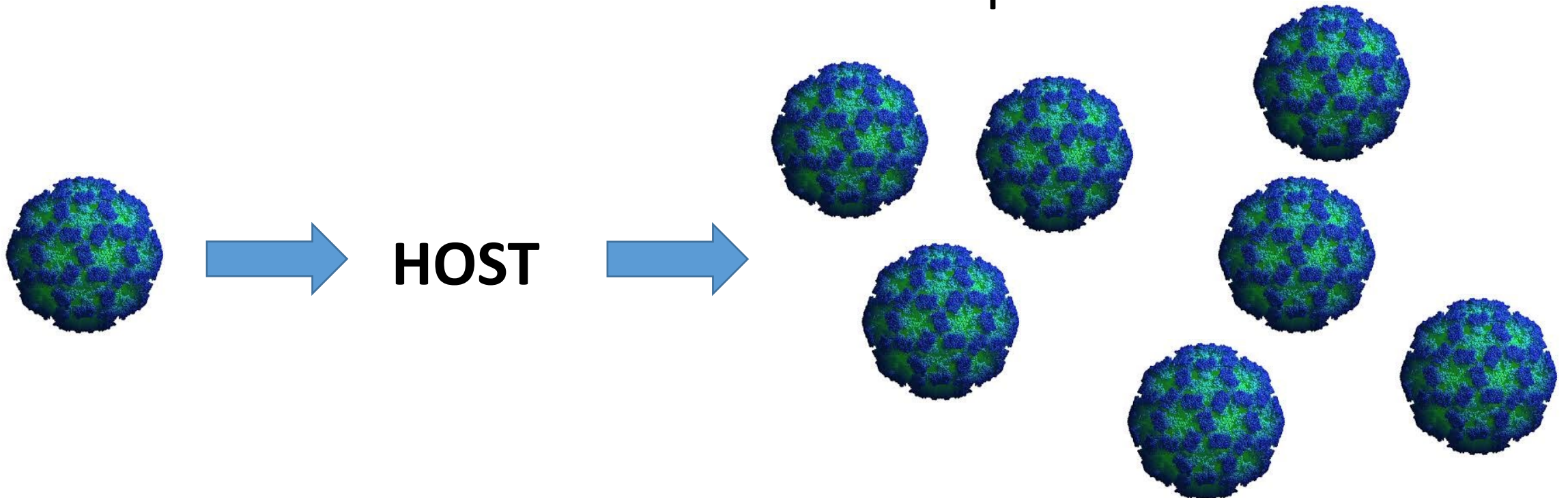
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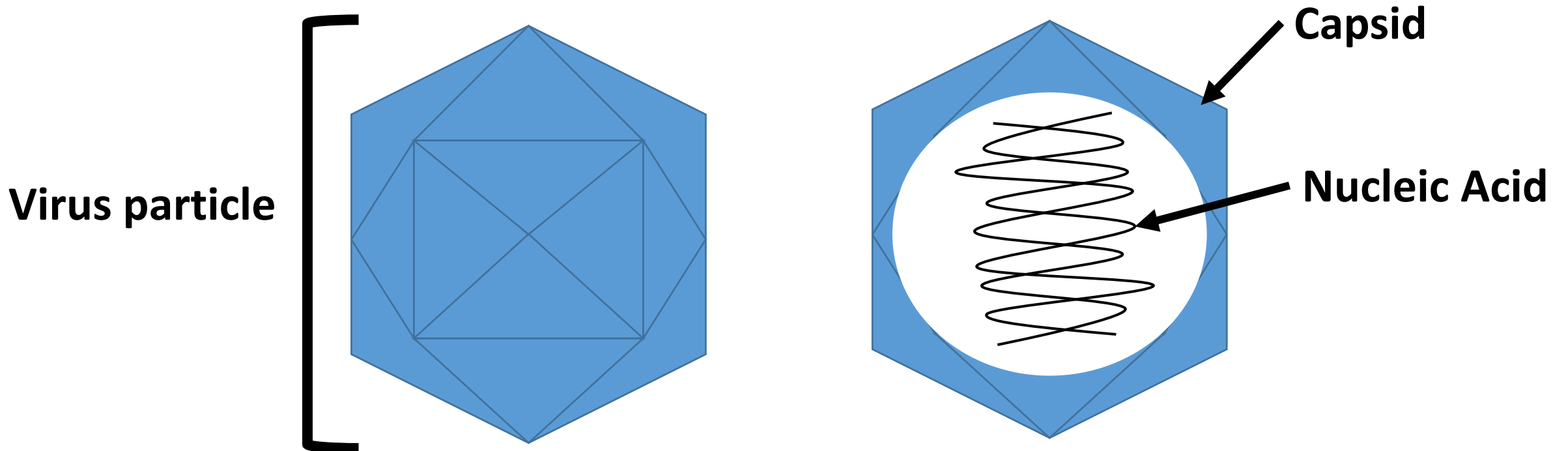
# What is a virus?

- Obligate intra-cellular organism
- Can not replicate and multiply without a host
  - No form of cellular respiration



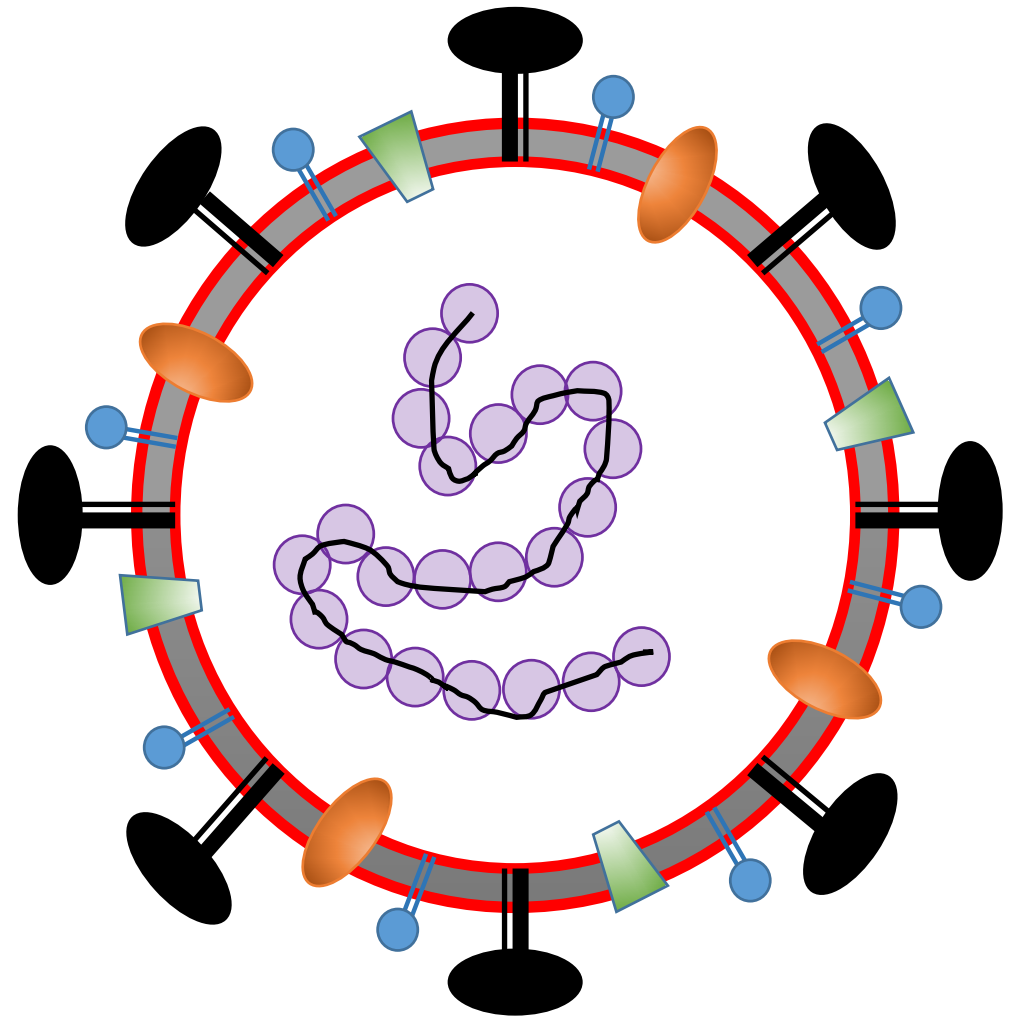
# Simple virus structure: Non-enveloped viruses

- **Capsid:** viral proteins that coat the genetic material
- **Genetic Material:** DNA or RNA



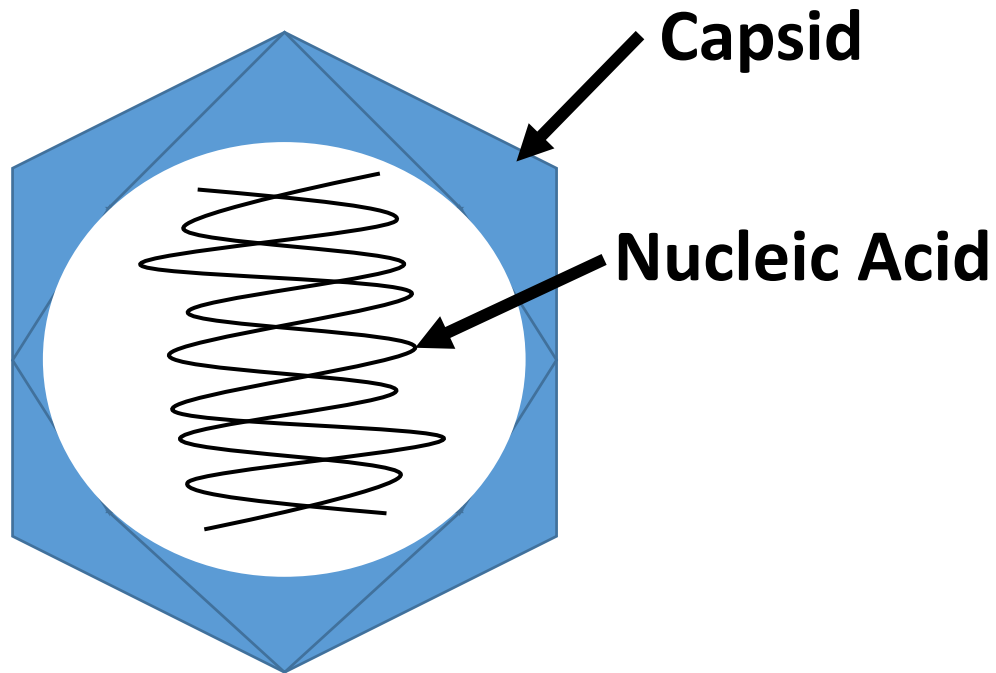
# More complex virus structure: Enveloped Viruses

- Envelop derived from host cell membrane
  - Lipid bilayer
- Embedded viral proteins important for cellular attachment
  - Glycoproteins
  - Proteolytic enzymes

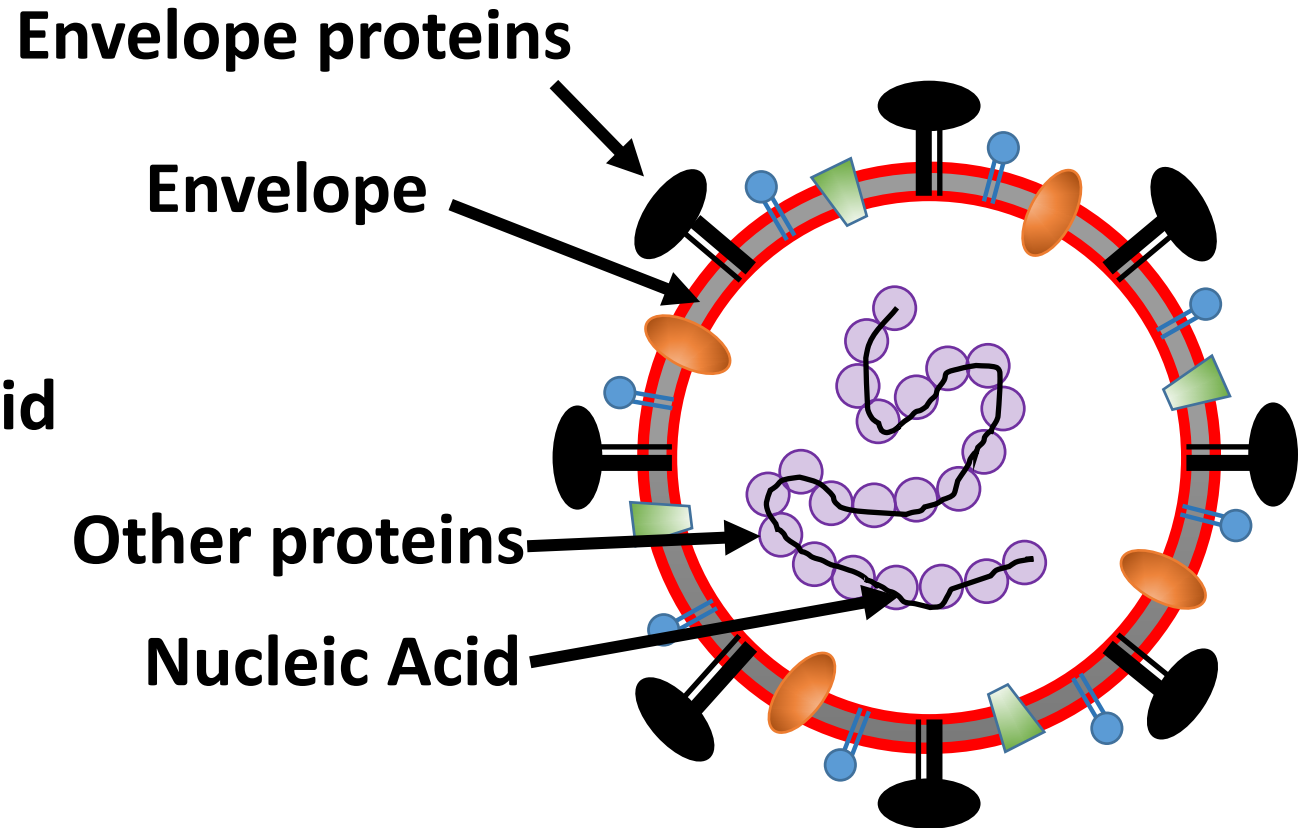


# Which type of virus is more stable?

Non-enveloped

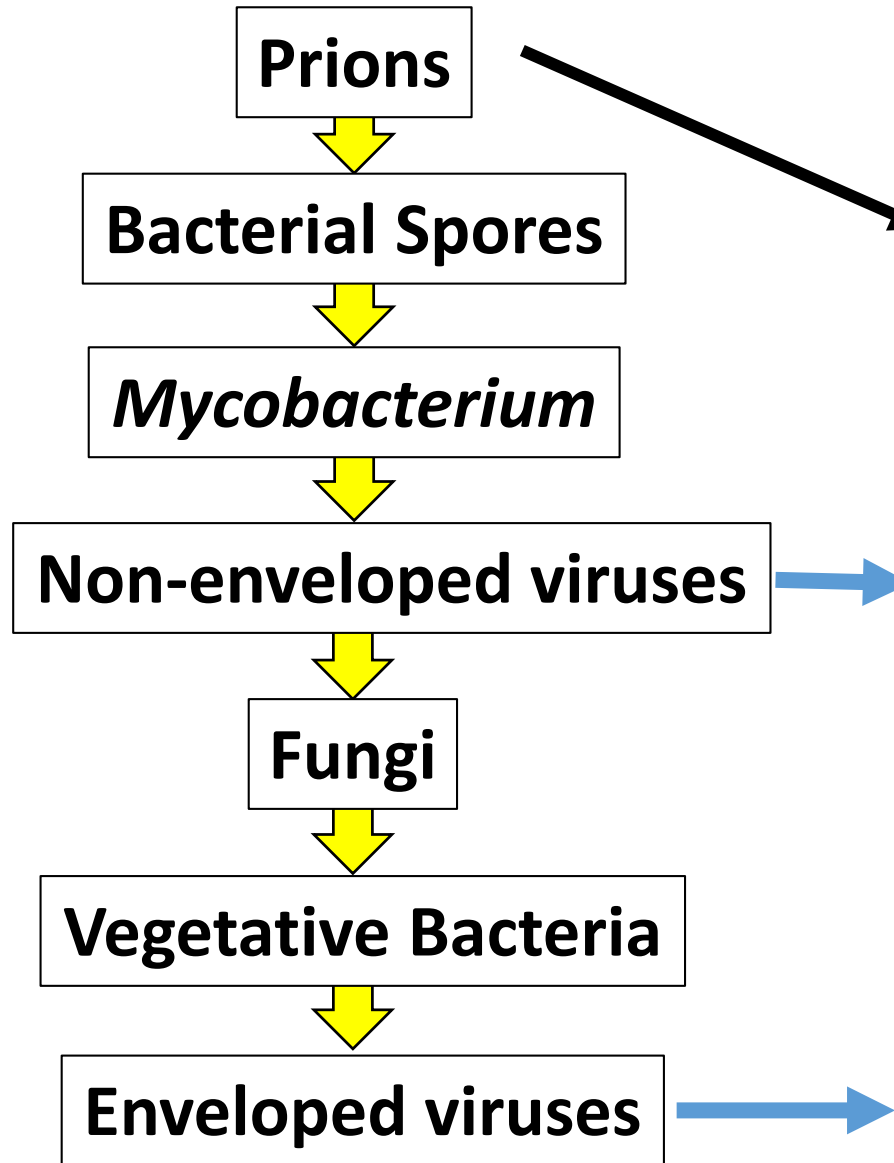


Enveloped



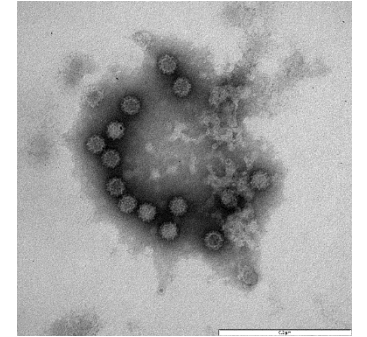
# Relative stability of microorganisms

**Most Stable**



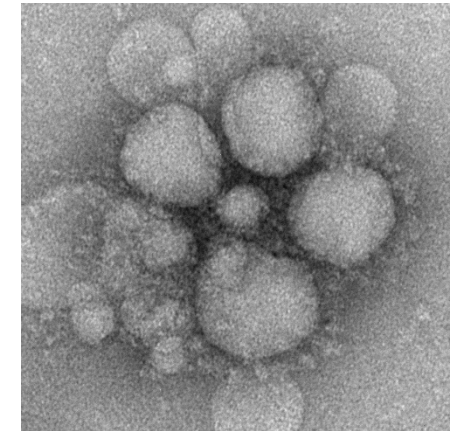
## Non-enveloped viruses:

- Norovirus
- Poliovirus
- Adenovirus
- Papillomavirus



## Enveloped viruses:

- Influenza
- Coronaviruses
- Measles virus
- Ebola virus
- Herpes viruses
- Varicella Zoster
- HIV



**Least Stable**

# Major food- and water-borne viruses

## Gastroenteritis

- Norovirus: ss+RNA
- Sapovirus: ss+RNA
- Astrovirus: ss+RNA
- Aichivirus: ss+RNA
- Adenovirus: ss+RNA
- Rotavirus: dsRNA

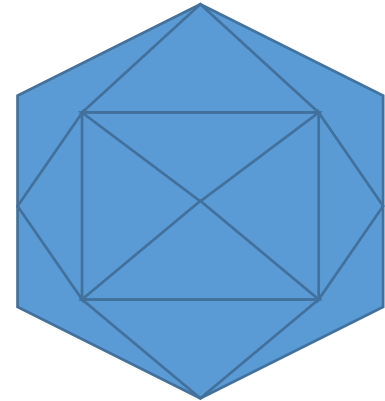
## Hepatitis

- Hepatitis A virus: ss+RNA
- Hepatitis E virus: ss+RNA

## Poliomyelitis

- Polio virus: ss+RNA

**ALL**  
**Non-enveloped**



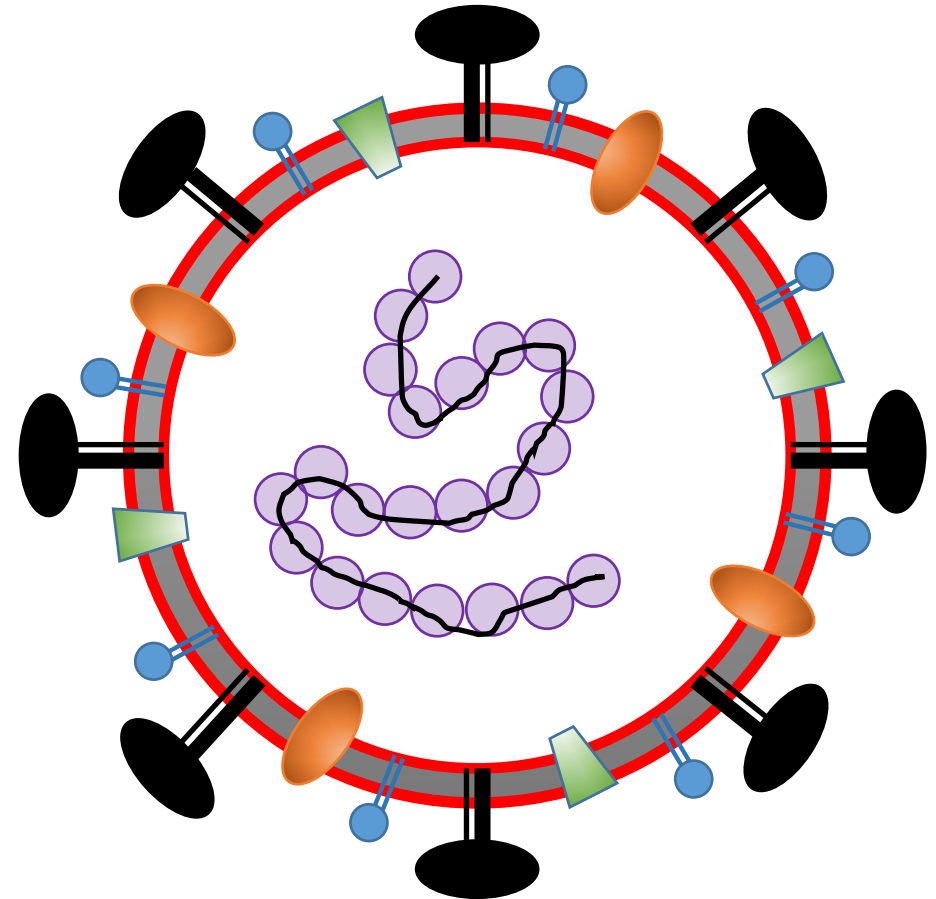
**ALL**  
**Transmission Mode:**  
**Fecal-oral route**

# SARS-CoV-2

**No evidence of transmission via food or food packaging**

**Enveloped virus**

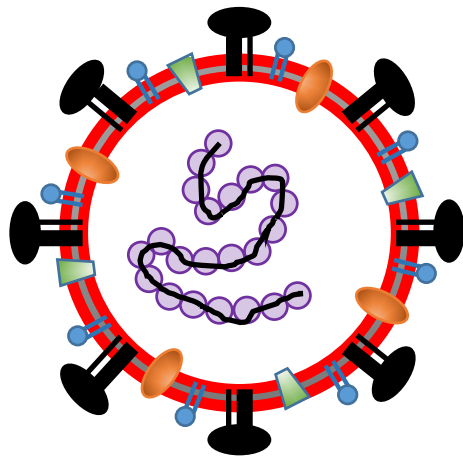
**Transmission Mode:  
Respiratory droplet**





# How to manage risks associated with food and food packaging related to SARS-CoV-2

- There is no such thing as zero risk
- Risk of food or food packaging serving as vehicle for transmission is very low



## What you can do:

- Follow GMPs
  - Wash your hands
  - Do not work if you have or suspect you have COVID-19
- Protect your workforce
  - Implement social distancing
  - Require additional PPE
  - Disinfect high touch surfaces

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