

Different Diagnostic Tests for Covid-19

- What is a Coronavirus
- What is Covid-19
- What are the different diagnostic tests?
- Difference between the Tests
- Limitations of different Tests

What is coronavirus?

- Coronaviruses are a large family of viruses which may cause illness in animals or humans.
- In humans it can cause infections ranging from common cold to more severe forms such as **MERS** & **SARS**.

What is COVID -19?

- Covid 19 is a disease that caused by severe acute respiratory syndrome coronavirus 2 (SARS-COV-2)

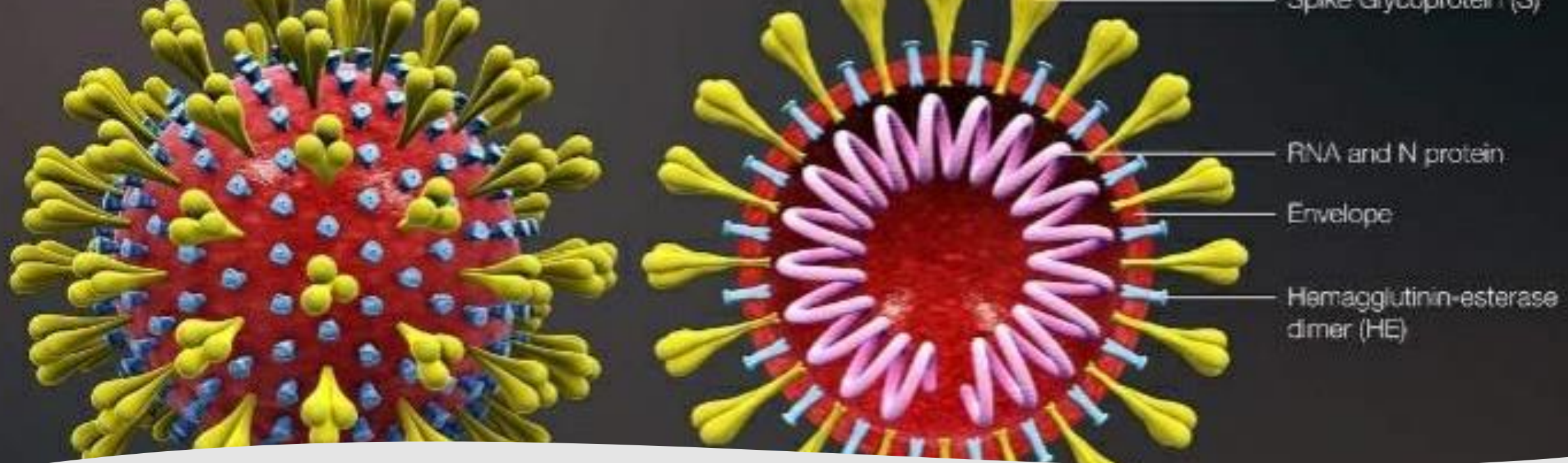
- **Antibody testing**
- In this two specific types of antibodies will be identified
- **IgM Antibodies**
- **IgG Antibodies**





Antibody testing



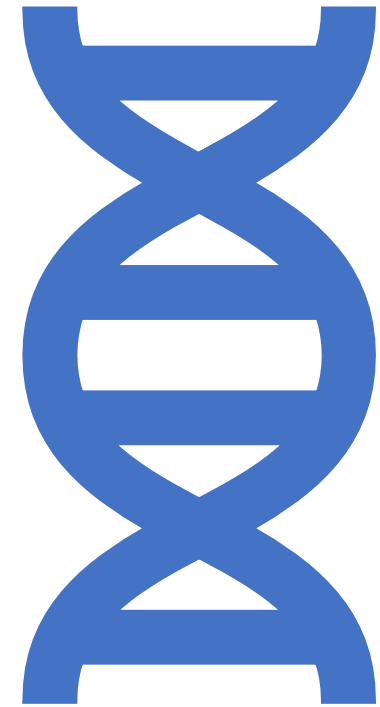


Antigen testing

- These test finds out a specific protein of the virus
- Body produces specific antibodies against these particular protein
- Body immune response recognize these proteins as a foreign particles
- In covid 19 antigen tests targets *spike protein* of SARS-CoV-2 which present on the surface of the virus

RT-PCR

- It identify the Genetic material from pathogens
- Multiple the genetic materials through a chemical process
- More reliable than serological tests since it can detect even a single virus present in sample



Difference Between The Tests

Serology

- **Sample:** Blood for Ab
Swab sample for Ag
- **Time:** With in 30 min
- **Purpose:**
 1. Diagnosis
 2. Epidemiological purpose
 3. To Identify convalescent plasma donors
 4. Vaccine development

RT-PCR

- **Sample:** Nasopharyngeal or Oropharyngeal swabs, sputum etc.
- **Time:** upto 8 hrs
- **Purpose:** Qualitative and Quantitative detection of Covid-19

Limitations of the Tests

Serology

- **Antibodies**
- Accuracy depends on Antigen specificity and type of antibody detected
- Cross reactivity concerns
- **Antigen testing**
- Only reveal whether a person is currently infected
- False negative results

RT-PCR

- Only detects on going infection
- Requires specialized equipment and training
- Quality control is not guaranteed

TrueNat test

- It's a chip based , portable RT-PCR
- Latest version of detect an enzyme (called RdRp) found in the RNA of the coronavirus SARS-CoV-2.