

TESTING PLATFORM	PRINCIPLE	ADVANTAGES	DISADVANTAGES
Lateral flow immunoassays: SARS-CoV-2 antigen assays	<ol style="list-style-type: none"> 1. The individual's sample is placed in a reagent tube, which contains a lysis buffer that disrupts the cells to expose the nucleocapsid protein inside. 2. When this solution containing patient specimen and reagent is added to the testing cassette, the sample moves along a test strip. 3. A colour change is occurs when a positive sample reaches the part of the strip where the antibody against the N protein is located. 	<ul style="list-style-type: none"> • Low cost. • Fast, the results are obtained in less than 30 minutes. • Easy to perform. • Doesn't require complex equipment. 	<ul style="list-style-type: none"> • The sensitivity and specificity depends on the brand used. • They are used as screening tests and PCR may be needed to confirm the results.
Lateral flow immunoassays: SARS-CoV-2 antibody assays	<ol style="list-style-type: none"> 1. The test principle is based on the receptor-binding domain (RBD) of the spike and nucleocapsid proteins (antigens). 2. The cassette has dye pad sections containing Recombinant 2019-novel coronavirus nucleocapsid protein and or Recombinant 2019-novel coronavirus Spike Protein (S1 Subunit). 3. The blood/serum/plasma sample is placed in the testing cassette, the sample moves along a test strip. 4. A colour change occurs when a positive sample (a positive sample is one containing antibodies against SARS-COV-2 virus) reaches the part of the strip where the SARS-CoV-2 antigen is located. 	<ul style="list-style-type: none"> • Low cost. • Fast, the results are obtained in less than 30 minutes • Doesn't require complex equipment 	<ul style="list-style-type: none"> • Determines exposure but does not predict the current infection. • The sensitivity and specificity depends on the brand used.
Reverse transcriptase Real- time PCR assays	<ol style="list-style-type: none"> 1. RNA is extracted from the sample usually using a kit based method. 2. Reverse transcriptase Real-time PCR is then performed on the extracted nucleic acids. 3. SARS-CoV-2 gene targets commonly used: 4. nucleocapsid, envelope protein, RNA dependent RNA polymerase, the viral open reading frames. 5. The Taqman, FRET and LAMP chemistries are usually used. 6. Automated and manual PCR methods are available. 	<ul style="list-style-type: none"> • Gold standard for SARS-CoV-2 testing therefore it serves as a confirmatory test for other tests. • High specificity and sensitivity. 	<ul style="list-style-type: none"> • Requires expensive material and equipment. • Needs expertise and training • Long turn around (1-4hours). • Higher cost. • Requires a functional laboratory.