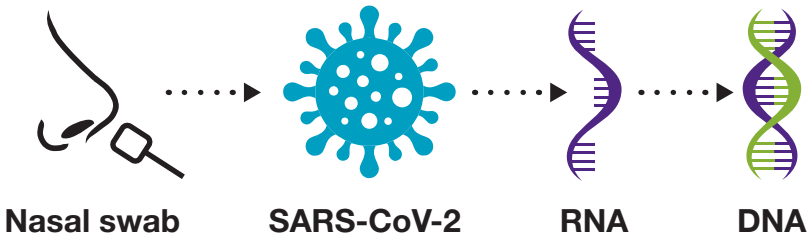
HOW DO CORONAVIRUS DIAGNOSTIC TESTS WORK?

(aka “Do I have / Did I have COVID-19?”)

A Molecular Testing

VIRUS-DERIVED



- DNA derived from patient samples is repeatedly copied and amplified

- Different colored dyes bind to genes for pieces of the virus.
- Another dye detects genes from related virus families.

Pros

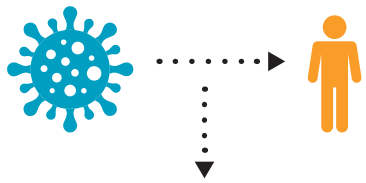
- Early detection
- Quick processing (hours)
- Highly selective and specific

Cons

- Skilled personnel and equipment necessary
- Does not tell you if virus is still active
- Cannot detect those who’ve been infected and later recovered

B Serological Testing

BLOOD-DERIVED

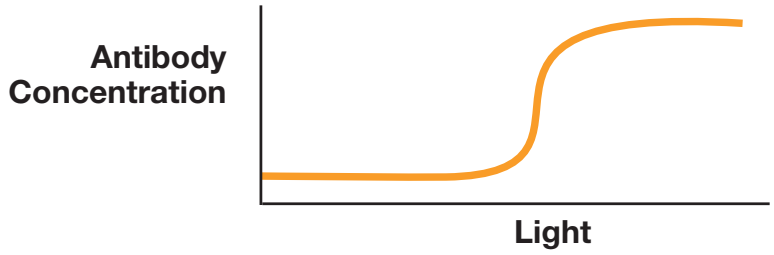


SARS-CoV-2 infects a patient

After 2 days:
Your spleen produces IgM, one of the first antibodies to attack coronavirus

9-11 days:
More tailored antibodies called IgG are produced

As the patient’s immune system kicks in, the antibodies are measured using a technique called **ELISA**:



Pros

- Rapid test available at point-of-care
- Low cost
- Can be used to test large populations
- Reliably detects exposure

Cons

- Cannot detect if patient is contagious or infection is still present
- Prone to false negatives if patient has deferred immune response

Credits: CDC, C&ENews, MedRxiv, Scientific American, Seegene, ThermoFisher, UniProt

slas
Come Transform Research