

Exploring Antibody Testing (Student Guide)

When highly infectious pathogens emerge in a population, it is important to find ways to help people identify when they are infected without relying on clinics. This helps citizens to make decisions to stay home and avoid public spaces when they are infected. One test that became readily accessible during the COVID-19 pandemic was the Lateral Flow Assay, which detected the antigens found on the SARS-CoV-2 virus.

In this experiment, you explore the scientific principles that allow a Lateral Flow Assay to work.

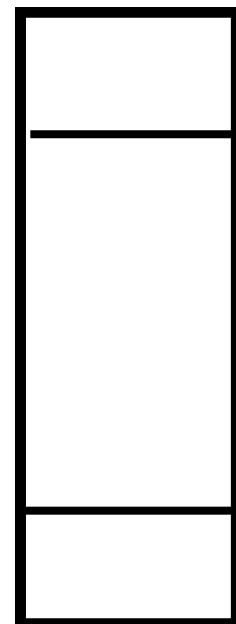
Materials

Each pair of students will need:

- Filter Paper- Length 3 inches
- 1 Cotton swab
- 1 Transfer pipette
- 1mL basic solution
- 1mL pH indicator

Procedure

1. Dip a cotton swab in the pH indicator. Draw a line across the filter paper 1 inch from the end using the cotton swab. Press gently.
2. Allow the paper to dry for 2 minutes. (Lying flat on a table)
3. Use the transfer pipette to drop 3 drops of basic solution 1 inch from the other end.
4. Watch what happens to the paper and record your observations.



Observations

Describe what happened to the filter paper.

Analysis

1. What process allows the liquid to be pulled through the filter paper?

2. If the basic solution were a patient sample, what do you think should be on the paper to help diagnose the presence of an antigen?

3. All commercially available antigen tests have a test line and a control line. What is the purpose of the control line?

4. Antigen tests can produce false negatives, which means an antibody is not detected even though the person is infected. What are the consequences of a false negative?



PROMISE