BioSpeedia
A spin-off from Institut Pasteur

SARS-CoV-02 Antibody Test

BioSpeedia is a spin-off from Institut Pasteur, the premier non-profit foundation that was founded in 1887 and has since originated 10 Nobel Prizes.

Launched in 2011, the French-based company specializes in rapid tests across various infectious diseases.

What is the difference between an antibody test and an antigen test?

PCR/Antigen test

PCR and antigen tests use nasal or throat swabs to detect **active COVID-19 infection**.

PCR tests detect virus's genetic material while antigen tests detect specific proteins on the surface of the virus. Antigen tests are similar to PCR tests but are quicker and less expensive than a PCR test, though not as accurate as a PCR test.

Antibody test

Serology (blood-based) antibody tests detect presence of antibodies for **an active or past COVID-19 infection.**

Antibody tests show that you might still be infected (IgM) or were previously infected (IgG) by the virus, even if you never showed any signs or symptoms (asymptomatic).

Why use antibody testing?

Conduct epidemiological studies; plan for social distancing

Find good candidates for convalescent plasma therapy

Identify children with MIS

Reassess medication for immune compromised patients

Identify *first-in-line* candidates for vaccination

Identify high-risk patients among asymptomatic populations

Why antibody testing is relevant to your organization?

In communities with lower prevalence (5 – 25%), infection risk is very high. **Antibody tests** allow governments and organizations to remain alert on that potential risk and adjust measures and resources to **prevent** significant **loss of lives and businesses**.

~25% (approx. 1.8 billion people) of the world's population has **underlying medical conditions** including old-age, obesity, severe cardiac, liver, lung, asthma, diabetes, kidney. Antibody tests allow **high-risk asymptomatic** patients to know if they've been previously infected by COVID-19 and whether their underlying conditions have been adversely impacted and/or if any change is required in their prescription medications.

Periodic anti-body testing allows organizations to address their exposure to COVID-19 and assess whether additional distancing measures should be taken.

BioSpeedia Rapid Antibody Test C E

Fast: Results in 5 – 15 minutes; some results in 3 minutes.
Easy: no additional lab instruments or readers needed.
Stable: stored at room temperature.

Detects the presence of both **IgM** (still carrier of the virus) and **IgG** antibodies (have developed an immune response) with 92% sensitivity & up to 99% specificity.

Clinically validated with 564 patients in 5 hospitals across France, Italy and Germany. Leverages a unique gold-labelled conjugate amplification system to enhance sensitivity.

With individual QR codes **connected** to a cloud-based platform for a better tracking of the virus, BioSpeedia offers the capacity to better plan for mass vaccination and the ability to scale to **40 million tests per month.**
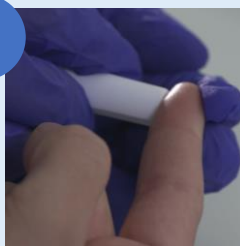
BioSpeedia Rapid Antibody Testing Procedure
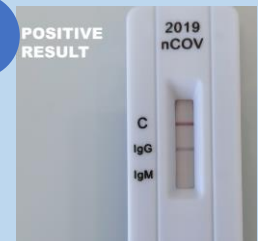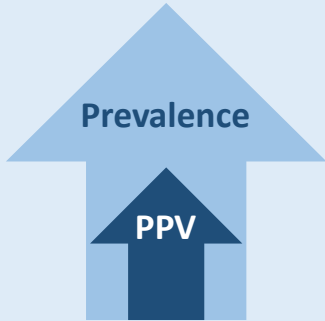
1 Clean

2 Prick

3 Extract

4 Deposit

5 Mix Buffer

6 Read Result

Importance of Positive Predictive Value (PPV) for Antibody Testing

Prevalence

PPV

In a high-prevalence setting, the positive predictive value (PPV) increases—meaning it is more likely that persons who test positive are truly antibody positive—than if the test is performed in a population with low prevalence.

95%

49%
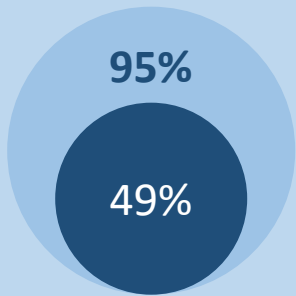
In the current pandemic, maximizing specificity and thus PPV in a serologic algorithm is preferred in most instances, since the overall prevalence of antibodies in most populations is likely low (5% – 25%).

For example, in a population where the prevalence is 5%, a test with 90% sensitivity and 95% specificity will yield a positive predictive value of 49% where a prevalence exceeding 52% will yield a PPV > 95%.

We recommend orthogonal testing to maximize benefit of antibody testing

In orthogonal testing, persons who initially test positive are tested with a second test few days later. This helps maximize overall specificity while retaining maximum sensitivity.

Population Prevalence	PPV for one test (SE=90%, SP=95%)	PPV for two orthogonal tests (SE=90%, SP=95%)
2%	26.9%	**86.9%**
5%	48.6%	**94.5%**
10%	66.7%	**97.3%**
30%	88.5%	**99.3%**

SE = Sensitivity; SP = Specificity