Acid-Fast Bacteria Culture

Does this test have other names?

Acid-fast bacillus smear and culture, AFB smear and culture, TB culture and sensitivity, mycobacterial culture

What is this test?

An acid-fast bacteria (AFB) culture is done to find out if you have tuberculosis (TB) or another mycobacterial infection. Besides TB, the other main mycobacterial infections are leprosy and a TB-like disease that affects people with HIV/AIDS.

To do an AFB culture, healthcare providers take a sample of phlegm or sputum you're coughing up or a tiny bit of your tissue. They "culture" it by putting it in a special container with food the bacteria needs to grow. They then check it over a few weeks' time to see whether the bacteria grow. If they do, you have a mycobacterial infection.

Why do I need this test?

These are reasons you might need this test:

- You have symptoms of a lung infection, such as chronic cough, coughing up blood, weight loss, fever, chills, and tiredness.
- You have a positive TB skin or blood test and you are at high risk for exposure to TB or its progression to active disease. This includes those with HIV/AIDS or another condition that weakens your immune system. People who have been in hospitals, nursing homes, or prisons are also at high risk.
- You have symptoms of TB outside the lungs, a condition called extrapulmonary TB. These symptoms vary based on the site of infection. Most people think of TB as only a lung disease. But it can show up in other parts of the body. If it infects the spinal cord, for example, it can cause back pain and paralysis. In the kidneys, it often causes blood in the urine.
- You have a condition like HIV/AIDS that puts you at increased risk of getting TB. If you have also been in close contact with someone who has TB, healthcare providers will want to test you for the disease.

Your healthcare providers may also give you this test from time to time if you are being treated for TB. This is to see if the treatment is working and to find out whether you are still infectious.

What other tests might I have along with this test?

You will likely have a chest X-ray if healthcare providers suspect you have TB in the lungs (pulmonary TB). The X-ray can help your healthcare provider decide whether it's likely you have TB. The X-ray doesn't give a definitive diagnosis though.

The results of a culture usually take 2 to 6 weeks. You may be treated for TB during this time if your healthcare provider suspects pulmonary TB. More rapid but less definite tests are usually first done on phlegm coughed up from deep inside your lungs. These help your healthcare provider decide whether to isolate and treat you before the culture results are available. The most common of these tests are an AFB smear and a nucleic acid amplification (NAA) test. Both of these also need a sample of your phlegm.

The AFB smear will show whether acid-fast bacteria are present. But it can't tell the species of bacteria or tell you which treatment it will respond to. The NAA is a relatively new test that detects the genetic material of the bacteria. The CDC now recommends that the NAA be done on at least one sputum sample when your healthcare provider suspects TB and when the test result may affect treatment decisions.

If the AFB culture is positive, the lab will do what is known as a susceptibility test. This finds out which antibiotic will work best to treat the disease. The TB germ is often resistant to one or more of the medicines commonly

used to treat it. For this reason, susceptibility testing raises the chances that the right antibiotic will be used.

What do my test results mean?

Test results may vary depending on your age, gender, health history, and other things. Your test results may be different depending on the lab used. They may not mean you have a problem. Ask your healthcare provider what your test results mean for you.

A negative result means you likely don't have active TB or another mycobacterial infection.

A positive AFB culture for M. tuberculosis means you do have TB. A separate susceptibility report will tell you which antibiotics should best treat it.

If you are being treated for TB, you will usually have the AFB culture done monthly until it comes back negative 2 months in a row. This means the treatment is working. A positive AFB culture several weeks after medicine treatment has started may mean the antibiotic is not working and needs to be changed. It also means you are still likely to be infectious and can pass the infection to others through coughing or sneezing.

How is this test done?

If you are being tested for pulmonary TB, the AFB culture is done on phlegm (sputum) coughed up from deep inside your lungs. You will provide sputum in a sterile cup at least 2 days in a row, preferably early in the morning. A healthcare provider may help you get a good sputum sample. You will need to cough deeply several times to make sure you aren't just coughing up saliva or postnasal drip.

If you are unable to cough up enough sputum on your own, you may need to inhale a special warm, sterile saline solution to trigger a cough that will make enough sputum. If that doesn't work, you may need gastric aspiration. This is a procedure in which a tube is put through your nose or mouth into your stomach to collect sputum that has been coughed up and swallowed. This method may also be done to get a sample on a child who may not be able to cough up sputum.

As a last resort, healthcare providers may do a bronchoscopy. This involves putting a bronchoscope through your mouth or nose right into your lung to remove sputum or tissue. You will need to have this procedure with anesthesia and in an outpatient surgery center or the hospital.

If healthcare providers suspect you have TB outside your lungs or another mycobacterial infection, you may need tests on urine, cerebrospinal fluid, or tissue samples. Tests may also be done on other body fluids.

Does this test pose any risks?

A phlegm culture doesn't pose any risks. A blood sample may be needed. Taking a blood sample with a needle carries risks that include bleeding, infection, bruising, or feeling dizzy. When the needle pricks your arm, you may feel a slight stinging sensation or pain. Afterward, the site may be slightly sore.

What might affect my test results?

AFB cultures are quite accurate. Rarely an AFB smear will be positive when the culture is negative. In these cases, the smear results are usually wrong because the sputum was contaminated. An AFB smear could also be falsely positive if you are taking antibiotics for a mycobacterial infection.

How do I get ready for this test?

Prepare to take the test early in the morning, before breakfast if possible. Rinse your mouth out with water before coughing up the phlegm. Talk with your healthcare provider about specific instructions to follow.