Fungal PCR

Molecular techniques such as PCR can help to make a diagnosis of fungal infection. For some infections such as Pneumocystis, PCR is a very specific and established diagnostic tool when used on deep respiratory samples such as BAL or induced sputum.. The result has to be interpreted in conjunction with clinical signs and symptoms and radiological imaging as PCP can also be 'just' colonising the upper airways without causing infection. Combining PCP PCR with serum BDG can often be a very useful way to distinguish colonisation versus infection (serum BDG is very high in PCP compared to colonization). Similarly Aspergillus PCR can be used on BAL of high risk patients but as the PCR is very sensitive it may also indicate colonisation and combining the test with GM would help to affirm the diagnosis of IPA. Some centres screen immunocompromised patients (neutropenic patients with haematological malignancies) for early detection of invasive aspergillosis using
Aspergillus PCR combined with GM from the blood. The combination of a fungal PCR with a fungal biomarker often increases the sensitivity to detect infection.
The detection of Aspergillus by PCR in blood is however dependent on a number of parameters including the methodology of the fungal DNA extraction as fungal elements may be difficult to extract and may be there in low numbers.
An additional benefit of some commercial Aspergillus PCR assays is the ability to detect some common azole resistance genes. This is particularly useful when cultures remain negative and patients are not responding to mould active azole treatment.

All in all a Pan fungal PCR methods including 18s based methodologies can be helpful when cultures remain negative and or fungal elements may be seen in histological samples from tissues or fluids.