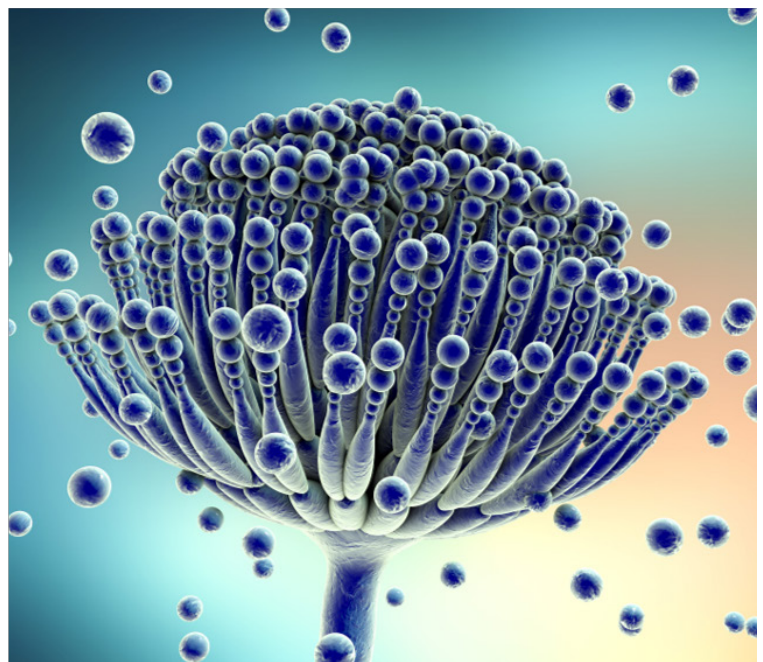
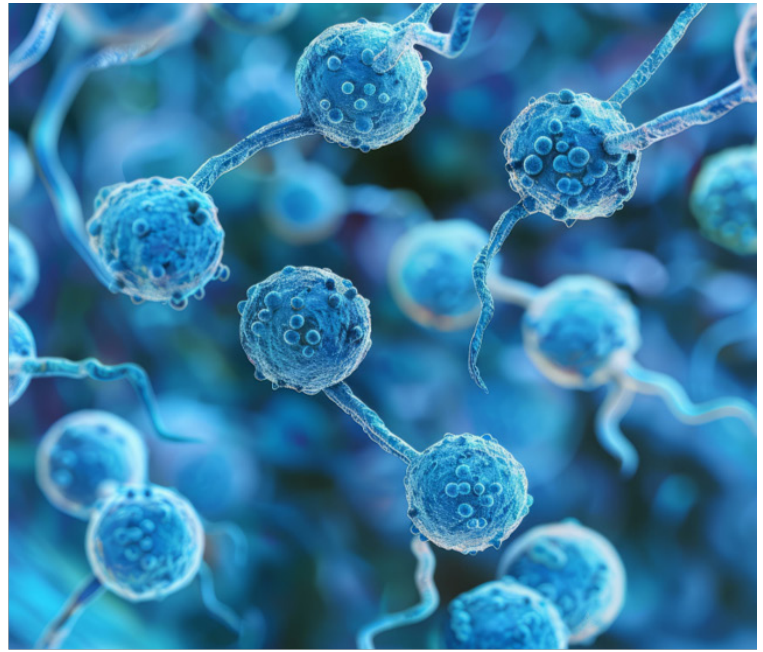
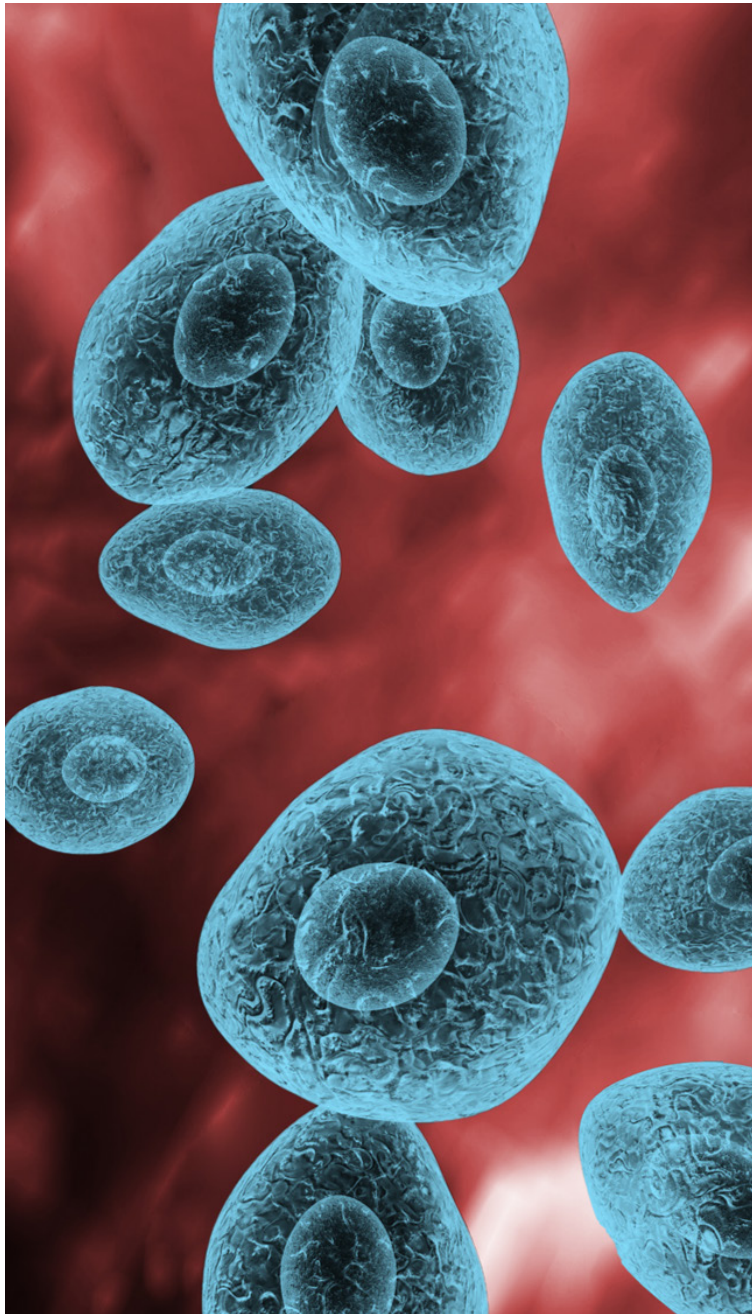
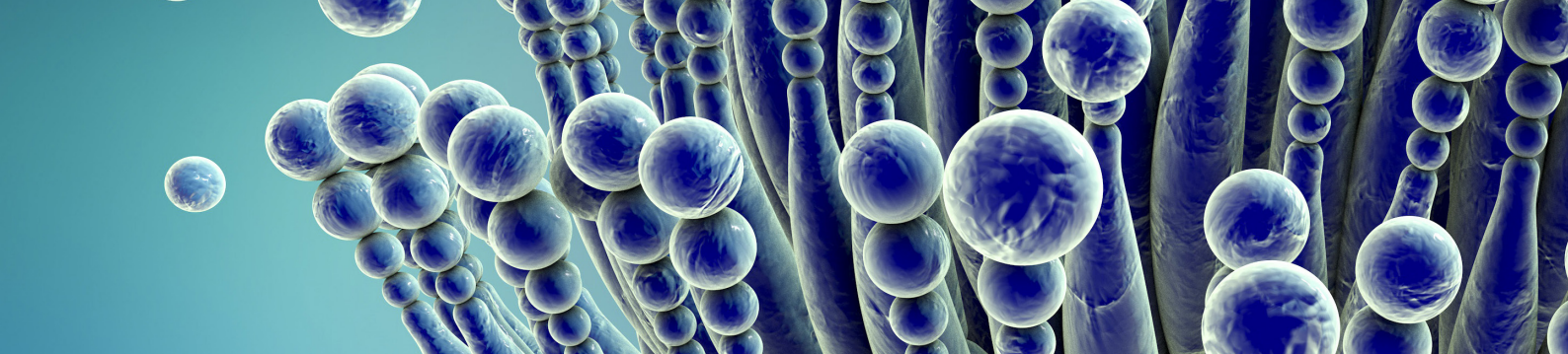


# FUNGAL INFECTION



**Think** Fungi.  
Fight **Fungi**.  
**Protect Patients.**

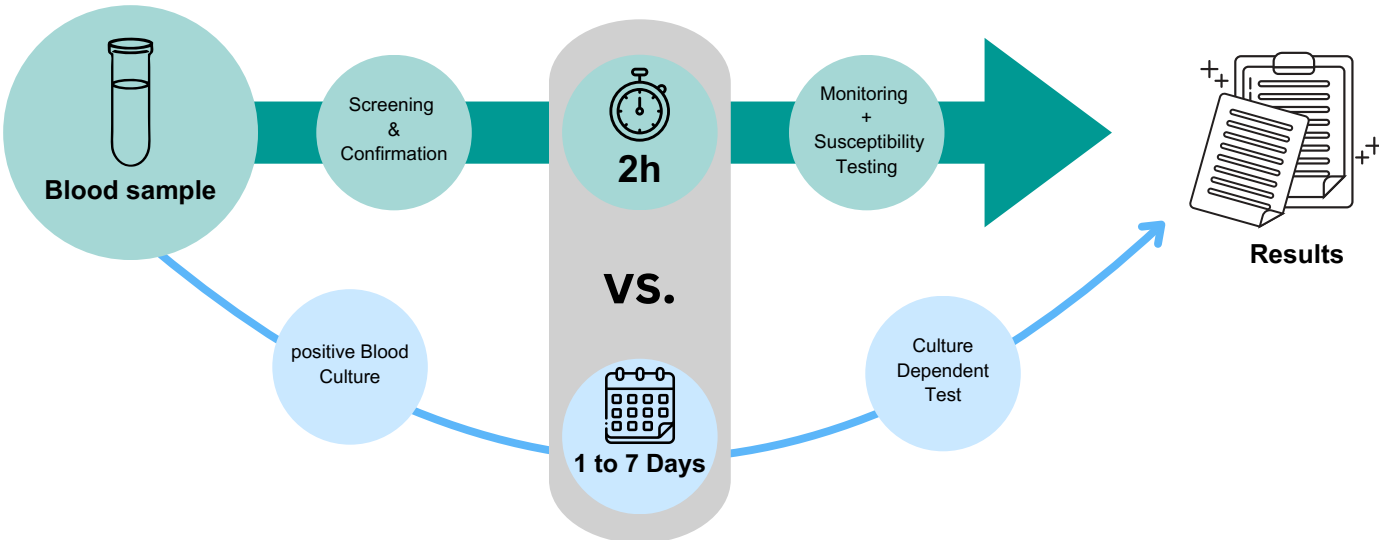


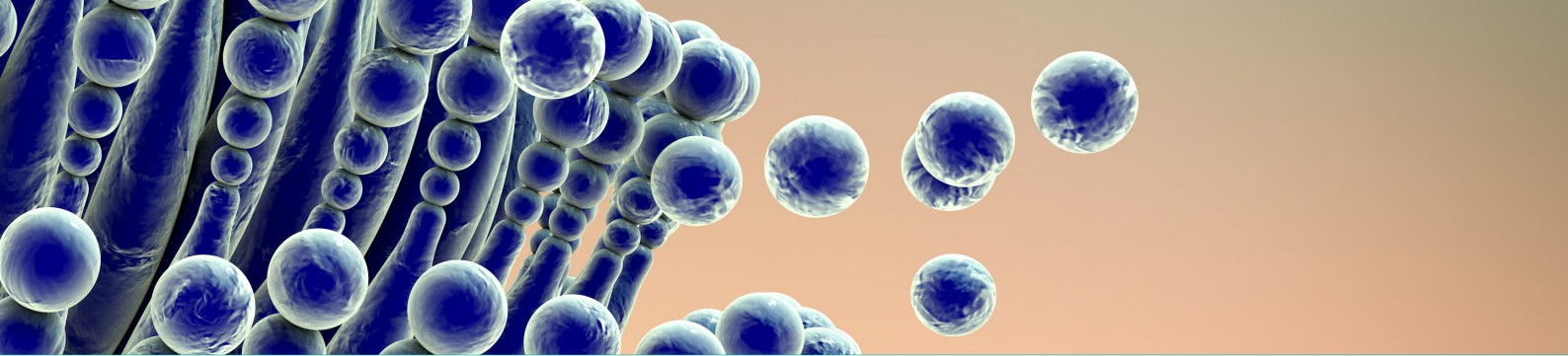
# BIOMEDICA - YOUR PARTNER IN MYCOLOGY

**Fungal infections** affect approximately one quarter of the global population. They **kill** at least **1,350,000** patients with or following AIDS, cancer, TB and asthma globally each year. An observed increase in incidence of **drug resistant** and previously rare fungal species is additional public health concern. Despite high clinical and economic burden public awareness of invasive fungal diseases is still low.

An **early diagnosis** and correct treatment have direct impact of patient survival. Therefore, there is an urgent need for improved diagnostic options to provide a rational basis for antifungal therapy. The introduction of **non-culture tests for early detection** of infection with a rapid assessment of drug susceptibility is an important step in this direction.

Biomedica has a comprehensive portfolio of diagnostics, including molecular assays, dedicated to rapid detection and differentiation of fungal pathogens and assessment of potential drug resistance.





## Aspergillus

Over 30 million people are at risk of invasive aspergillosis each year because of corticosteroid use or other therapies, and over 300,000 patients develop it annually.

The disease is common in high risk patients with:

- Hematological malignancies
- Chemotherapy-induced neutropenia
- Allogeneic HSCT (stem cell transplant)
- Solid organ transplant (primarily lung)

*Aspergillus* as a pathogen plays a big role in terms of post-transplant infections. In solid organ transplantation, invasive aspergillosis occurs mainly from week 2-5 after transplantation, whereas for hematopoietic stem cells transplantation infections with *Aspergillus* have a broader time-range of 1-6 weeks after transplantation.

## Candida

Invasive candidiasis is a disease of fungal etiology with an increasing incidence, especially in immunosuppressed patients (graft receivers, neutropenic and AIDS patients, etc), long-stay hospitalized and catheterized patients, as well as those subjected to extensive surgery or receiving broad spectrum antibiotic therapy. The diagnosis of invasive candidiasis is especially difficult due to the absence of pathognomonic symptoms specific of the disease and the low recovery of the microorganism in culture.

## Cryptococci

Cryptococcosis, a fungal disease caused by both species of the *Cryptococcus* species complex (*Cryptococcus neoformans* and *Cryptococcus gattii*). Individuals with impaired cell-mediated immunity are at greatest risk of infection. Cryptococcosis is one of the most common opportunistic infections in AIDS patients. Every year, approximately 1,000,000 cases of cryptococcal meningitis occur globally resulting in more than 1,700 deaths every day.

Cryptococcosis is most commonly diagnosed by detection of cryptococcal antigen (CrAg) using one of several methods.

## Pneumocystis

*Pneumocystis jiroveci* is a yeast-like fungus which can be found worldwide. While it does not affect healthy people, *P. jiroveci* can cause an interstitial *Pneumocystis*-pneumonia (PCP) in HIV-patients, persons with primary immune deficiencies, including hypogammaglobulinemia and severe combined immunodeficiency (SCID), patients receiving long-term immunosuppressive regimens for connective-tissue disorders, vasculitides, or solid-organ transplantation, patients with hematologic and nonhematologic malignancies, including solid tumors and lymphomas, and persons with severe malnutrition.

Currently sputum sample, lung tissue or blood samples are used for diagnosis. Polymerase chain reaction (PCR) can be used to detect PCP DNA and a blood test to detect  $\beta$ -D-glucan, which is a part of the cell wall of many different types of fungi.

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