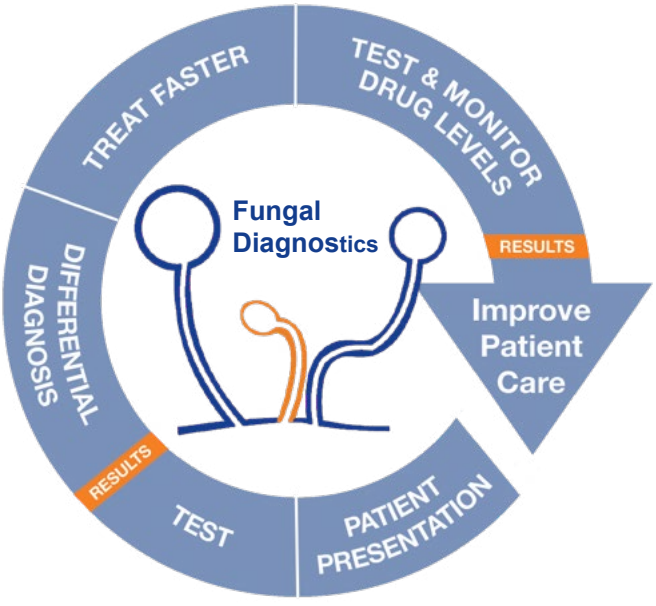
eurofins | Viracor

FIGHTING FUNGALS

Results in Time to Make a Difference

With a robust fungal menu, differential testing, faster results, and anti-fungal therapy monitoring. Eurofins Viracor can help you better support your patients continuum of care.

Invasive fungal diseases (IFDs) comprise a serious and often life-threatening group of infections caused by fungi that affect tissues and organs. These diseases are becoming increasingly common, especially in people with weakened immune systems due to complications of organ transplantation and other comorbidities such as HIV/AIDS and cancer. IFDs can be serious and life threatening, especially in those who are immunocompromised. Early diagnosis and appropriate treatment are essential in managing these infections and improving patient outcomes.



"Fungal pathogens are a major threat to public health as they are becoming increasingly common and resistant to treatment with only four classes of antifungal medicines currently available, and few candidates in the clinical pipeline. Most fungal pathogens lack rapid and sensitive diagnostics and those that exist are not widely available or affordable globally.

The invasive forms of these fungal infections often affect severely ill patients and those with significant underlying immune system related conditions. Populations at greatest risk of invasive fungal infections include those with cancer, HIV/AIDS, organ transplants, chronic respiratory disease, and post-primary tuberculosis infection.

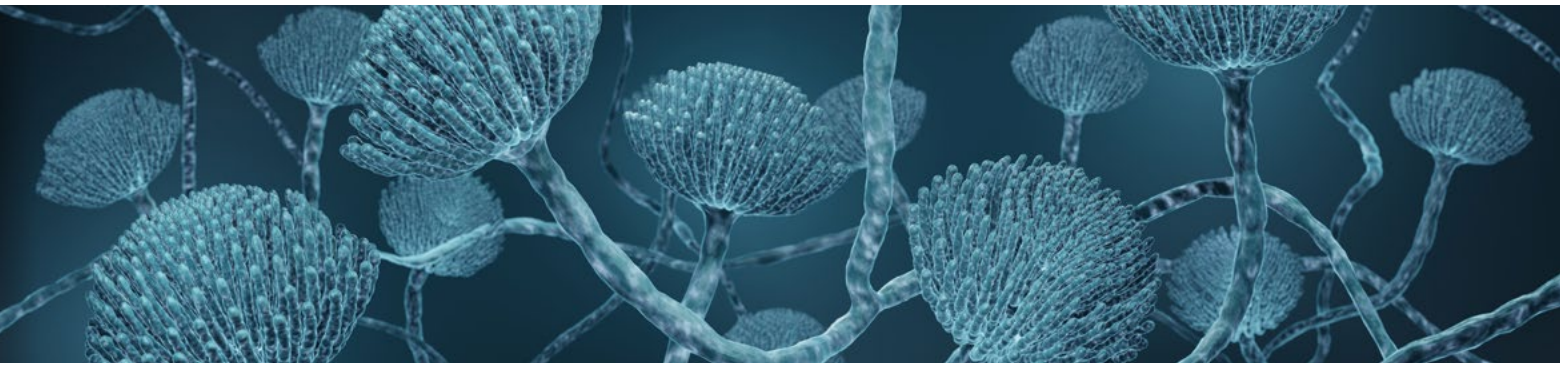
Emerging evidence indicates that the incidence and geographic range of fungal diseases are both expanding worldwide due to global warming and the increase of international travel and trade.[1]"

~ The World Health Organization

INVASIVE FUNGAL DISEASE

1. The World Health Organization fungal 'priority pathogens' document https://www.who.int/publications/i/item/9789240060241

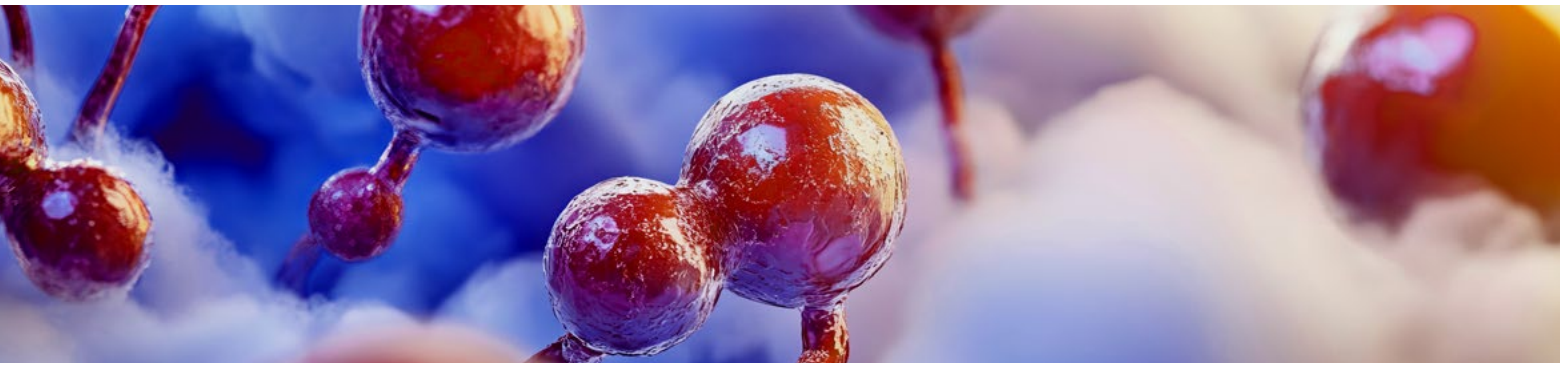
Testing to individualize your approach for IFD patients



Aspergillosis:

Aspergillus is a common fungus that is found in the environment and can cause a variety of infections in the lungs, sinuses, and other organs. Aspergillosis is the term used to describe the different infections caused by this fungus. The most common form of aspergillosis is allergic bronchopulmonary aspergillosis, which affects people with asthma or cystic fibrosis. Invasive aspergillosis is a more serious infection that can occur in people with weakened immune systems. Symptoms of invasive aspergillosis include fever, cough, chest pain, and shortness of breath.
Panel includes: *A. fumigatus, A. terreus, and Pan-Aspergillus*

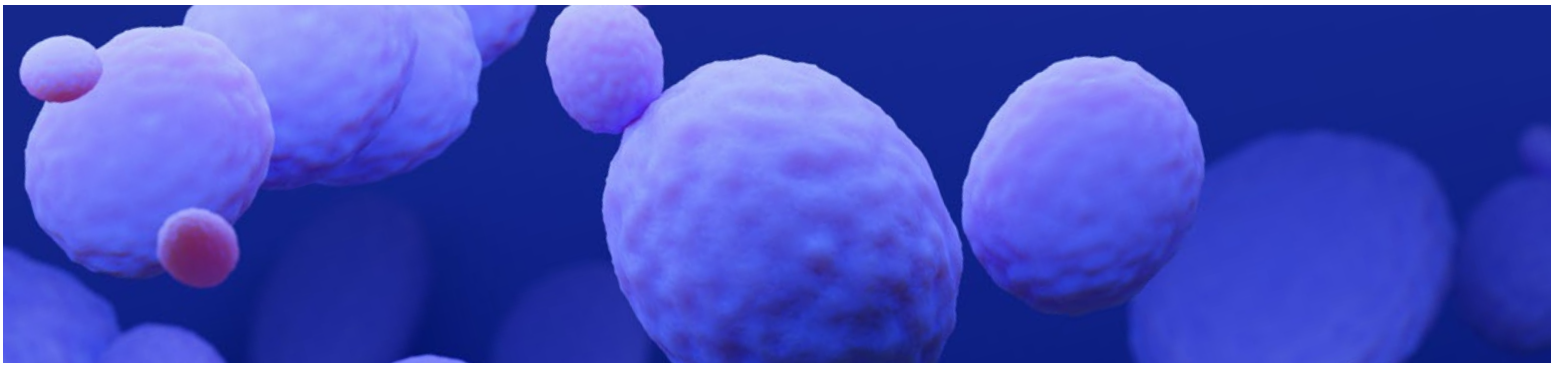
8900 - Aspergillus Real-time PCR Panel



Blastomycosis:

Blastomyces is a dimorphic fungus found in soil and decaying organic matter, particularly in moist environments. Infections occur when spores of *Blastomyces dermatitidis* or *Blastomyces gilchristii* are inhaled, primarily affecting the lungs but potentially spreading to other organs. *B. dermatitidis* is more common in the central and eastern United States, while *B. gilchristii* has been identified in the western regions. However, cases are now reported nationwide, likely due to climate change and increased travel. The disease, known as blastomycosis, can mimic bacterial or viral pneumonia, making it difficult to diagnose. Alongside histoplasmosis and coccidioidomycosis, it remains underrecognized.
Panel includes: *B. dermatitidis* and *B. gilchristii*

33469/33521 - Blastomyces qPCR



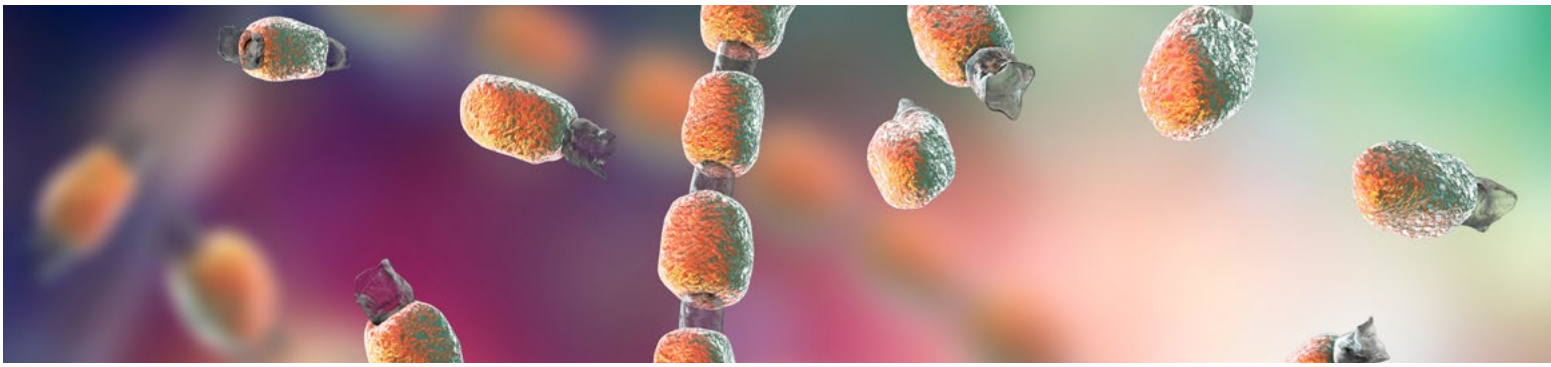
Candidiasis:

This yeast is a normal part of the human body, but it can cause infections in people who are immunocompromised. Candida is a type of fungus that lives on the skin and in the mouth, throat, and genital area. However, it can sometimes overgrow and cause infections in the body. Candidiasis is the term used to describe these infections. The most common form of candidiasis is thrush, which is an infection of the mouth and throat. Invasive candidiasis is a more serious infection that can occur in people with weakened immune systems. Symptoms of invasive candidiasis include fever and chills, and the infection can spread to the blood and other organs. Swab sampling of skin for C. auris is available by Real-time PCR.

Panel includes: *Candida albicans, C. glabrata, C. tropicalis, C. krusei, C. parapsilosis & C. auris*

33306 - Candida Real-time PCR Panel

33330 - Candida auris Real-time PCR
(axilla/groin or nares)

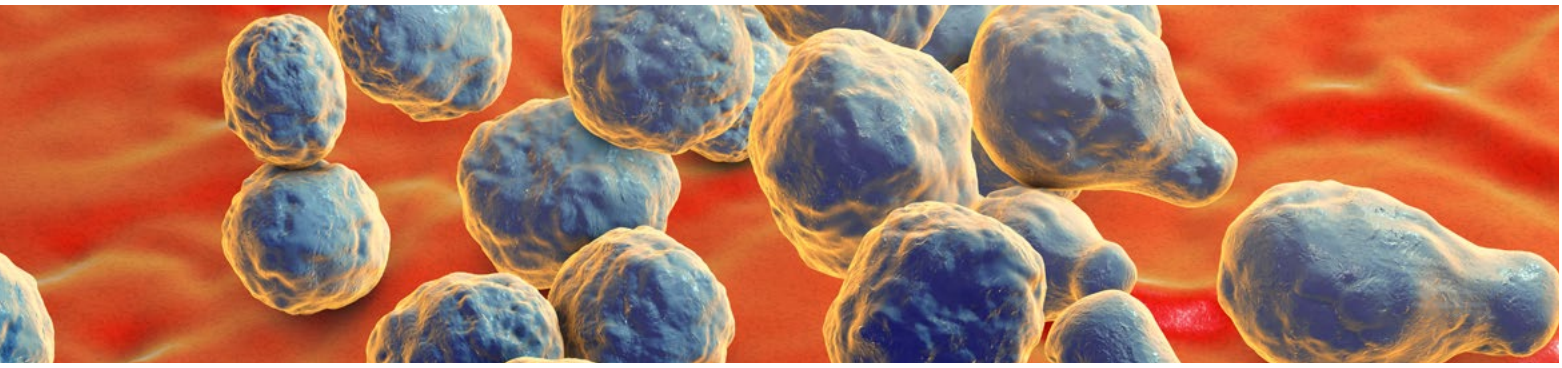


Coccidiomycosis: (aka: Valley Fever)

Coccidioides immitis can cause a lung infection called Valley Fever. Coccidiomycosis is caused by inhaling spores of the fungus Coccidioides immitis, commonly found in the soil of certain parts of the southwestern United States, Mexico, and Central and South America. Most people who inhale these spores do not get sick, but some can develop flu-like symptoms, and in rare cases, the infection can spread to other parts of the body and become life-threatening.

3400 - OMEGA Coccidioides Antibody EIA

33470/33523 - Coccidioides qPCR

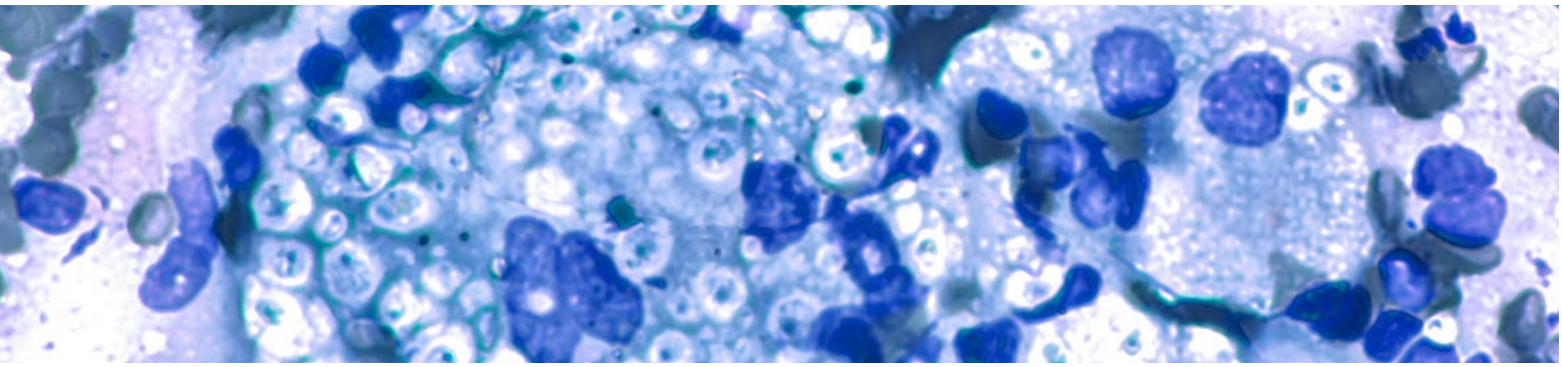


Cryptococcosis:

Cryptococcus is typically found in the soil and in bird droppings. It can cause infections in people with weakened immune systems, such as those with HIV/AIDS. Cryptococcal meningitis is a serious infection that can occur when the fungus enters the brain and spinal cord. Symptoms of cryptococcal meningitis include headache, fever, and confusion.

1700 - Fungitell® ß-D-Glucan Assay

33471/33524 - Cryptococcus qPCR

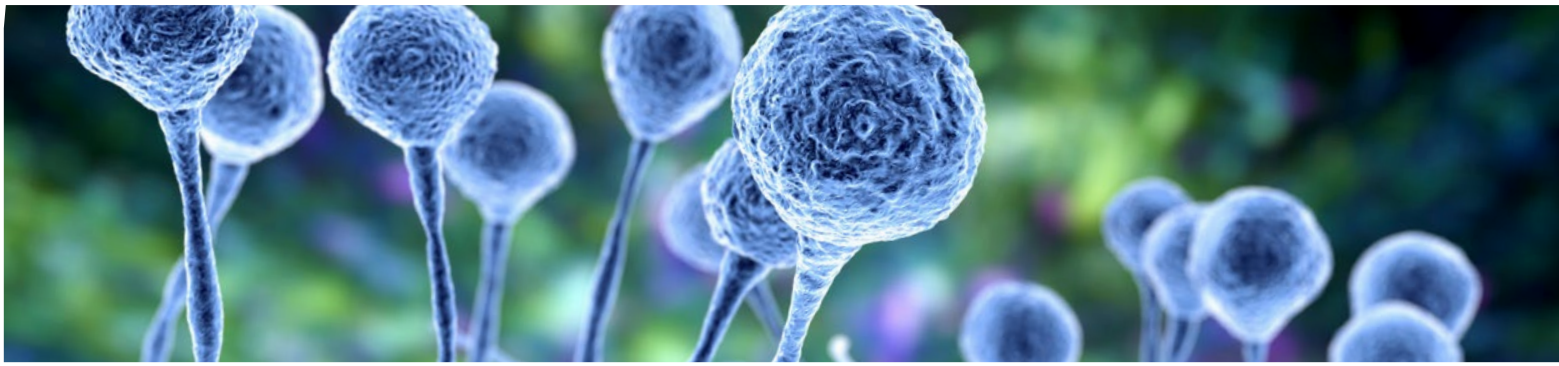


Histoplasmosis:

Histoplasma capsulatum is a fungus found in soil contaminated with bird or bat droppings. Histoplasmosis is caused by inhaling spores of the fungus. Most people who inhale these spores do not get sick, yet some will develop flu-like symptoms. In rare cases, the infection can spread to other parts of the body and become life-threatening.

30881/30882/33222/33251 - Histoplasma Galactomannan EIA

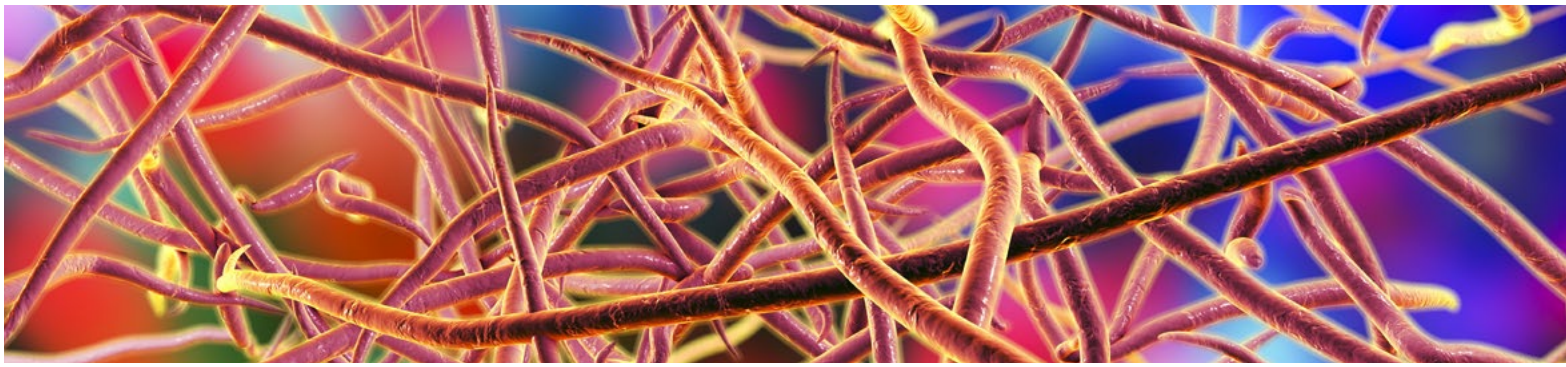
33468/33519 - Histoplasma qPCR



Mucormycosis:

Mucormycosis, also known as zygomycosis, is a rare but serious fungal infection caused by fungi of the order Mucorales. It is commonly observed in patients with uncontrolled diabetes, those undergoing chemotherapy, and those with immunosuppression. The fungus can invade blood vessels, leading to tissue ischemia and necrosis. Common clinical manifestations include fever, headache, facial pain, and swelling. Diagnosis is typically made by histopathology and culture of affected tissues. Treatment involves aggressive surgical debridement of affected tissues, along with antifungal therapy such as amphotericin B.

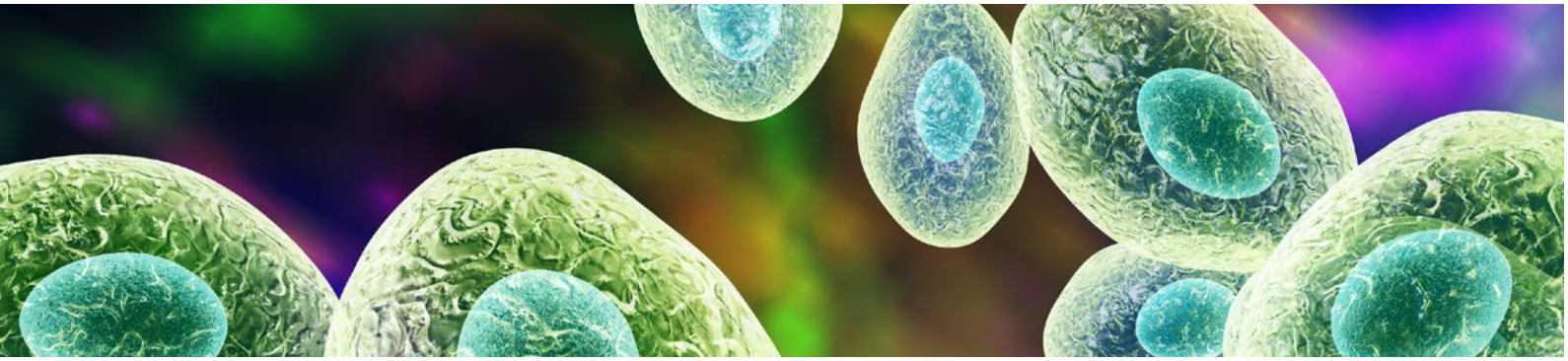
3200 - Mucorales Real-time PCR



Nocardiosis:

Nocardia is a genus of aerobic, gram-positive bacteria that can cause a variety of infections, including pulmonary infections, brain abscesses, and cutaneous infections. In immunocompromised patients, disseminated nocardiosis can occur. Diagnosis can be challenging, as the clinical presentation can be non-specific, and the organism may not be readily visible on Gram stain. Culture and molecular techniques are often necessary for definitive diagnosis. Treatment typically involves a combination of sulfonamides and other antimicrobial agents, depending on the severity and location of the infection.

6800 - Nocardia Real-time PCR Panel



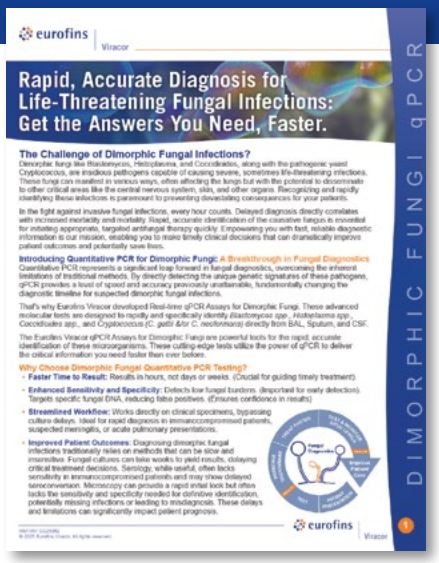
Pneumocystis pneumonia:

Pneumocystis pneumonia (PCP) is a serious infection caused by the fungus Pneumocystis jirovecii. This fungus is found in the lungs and can cause pneumonia. This fungus can cause severe pneumonia, especially in immunosuppressed individuals such as those with HIV/AIDS. Diagnosis is typically made by identifying the organism in respiratory secretions or by histopathology. Treatment involves a combination of sulfamethoxazole and trimethoprim. Pneumocystis jirovecii was formerly classified as a protozoan but is now considered a fungus.

2000 - Pneumocystis jiroveci Real-time PCR Panel

Learn About our Next Generation Sequencing Assays for Medically Relevant Fungi and AFB Microorganisms

NeXGen™ Fungal / AFB NGS BAL



FIGHTING FUNGALS

Results in Time to Make a Difference

View Our Fungal Test Menu

33356 - NeXGen™ Fungal / AFB NGS

33457- NeXGen™ Fungal / AFB NGS (BAL)

IFD Individual Assays from Eurofins Viracor

Individual Assays	Order Code(s)	Turnaround Time	Assay Range	Available Sample Types	Days Performed	NY State
Aspergillus Galactomannan	2009 - BAL	Same day (within 8-12 hours from receipt of specimen)	<0.500 - Negative <0.500- Positive	BAL, Bronch Wash, CSF, Serum	Mon - Sat	NY State Approved
Blastomyces qPCR	33469 - Blastomyces qPCR (Lower respiratory) 33521 - Blastomyces qPCR (CSF)	< 24 hours of sample receipt	Lower Respiratory & CSF: 250 copies/mL to 1.25E+09 copies/mL	Lower Respiratory [BAL, Sputum], CSF (B. dermatitidis & B. gilchristii)	Mon - Sat	NY State Approved
Coccidiodes EIA	3410 - Serum	3 days from sample receipt	Positive, Intermediate, Negative	Serum	Mon - Fri	NY State Approved Testing performed by Eurofins DPT
Coccidiodes qPCR	33470 - Coccidioides qPCR (Lower respiratory) 33523 - Coccidioides qPCR (CSF)	< 24 hours of sample receipt	Lower Respiratory & CSF: 250 copies/mL to 1.25E+09 copies/mL	Lower Respiratory BAL, Sputum], CSF (C. immitis & C. posadassii)	Mon - Sat	NY State Approved
Cryptococcus qPCR	33471 - Cryptococcus qPCR (Lower respiratory) 33524 - Cryptococcus qPCR (CSF)	< 24 hours of sample receipt	Lower Respiratory: Assay Range for C. neoformans is 250 copies/mL to 1.25E+09 copies/mL, Assay Range for C. gattii is 400 copies/mL to 1.25E+09 copies/mL CSF: Assay Range for C. neoformans is 276 copies/mL to 1.25E+09 copies/mL, Assay Range for C. gattii is 250 copies/mL to 1.25E+09 copies/mL	Lower Respiratory [BAL, Sputum], CSF (Speciating C. gattii &/or C. neoformans)	Mon - Sat	NY State Approved
Fungitell [(1,3)-β-D-glucan]	1703 - CSF 1709 - BAL 1710 - Serum 1726 - Bronch Wash	Same day (within 8-12 hours from receipt of specimen)	Semi-Quant: <60 pg/mL Negative, 60-79 pg/mL Intermediate ≥0 pg/mL Positive Assay range Varies by Specimen Type	CSF, BAL, Serum, Bronch Wash	Mon - Sat	NY State Approved
Fungitell w/reflex to titer [(1,3)-β-D-glucan]	351703 - CSF 351709 - BAL 351710 - Serum 351726 - Bronch Wash	Same Day (within 8-12 hours from receipt of specimen)	Semi-Quant: <60 pg/mL Negative, 60-79 pg/mL Intermediate ≥0 pg/mL Positive Assay range Varies by Specimen Type	CSF, BAL, Serum, Bronch Wash	Mon - Sat	Urine - NY State Approved
Histoplasma Galactomannan	30881 - Serum 30882 - Urine 33222 - BAL 33251 - CSF	Same day (within 8-12 hours from receipt of specimen)	Urine/Serum: < 0.3 ng/mL - Negative, ≥ 0.3 ng/mL - Positive BAL: <0.73 ng/mL - Negative, ≥ 0.73 ng/mL are considered positive CSF: < 0.2 ng/ml are considered negative, ≥ 0.2 but <0.8 ng/mL are considered positive but below the limit of quantitation (LOQ), ≥ 0.8 ng/mL are considered positive	Serum, Urine, BAL, CSF	Mon - Sat	NY State Approved
Histoplasma qPCR	33468 - Histoplasma qPCR (Lower respiratory) 33519 - Histoplasma qPCR (CSF)	< 24 hours of sample receipt	Lower respiratory: 1000 copies/mL to 1.25E+09 copies/mL CSF: 250 copies/mL to 1.25E+09 copies/mL	Lower Respiratory [BAL, Sputum], CSF (H. capsulatum)	Mon - Sat	NY State Approved
Mucorales by Real-time PCR	3205 - Tissue 3209 - BAL 3210 - Serum	Same day (within 8-12 hours from receipt of specimen)	Detected/Not Detected	BAL, Tissue, Serum	Mon - Fri	NY State Approved
Nocardia by Real-time PCR	6809 - BAL	Same day (within 8-12 hours from receipt of specimen)	BAL: Detected/Not Detected	BAL	Mon - Sat	NY State Approved
Pneumocystis by Real-time PCR	2009 - BAL 2016 - Whole Blood 2019 - Trach Asp 2029 - Bronch Wash 2048 - Trach Wash	8-12 hours from receipt of specimen (Same day)	Whole blood 213 - 1x108 copies/mL BAL, Trach Asp, Bronch Wash, & Trach Wash 84 - 1x108 copies/mL	BAL, Whole Blood, Trach Asp, Bronch Wash, Trach Wash	Mon - Sat	NY State Approved
C. auris (Swab)	33330	Target 24 hours - after specimen receipt	Detected/Not Detected The LOD for C. auris was determined to be 600 cfu/mL	Skin swab	Mon - Sat	

IFD Fungal Panels from Eurofins Viracor

Panels	Order Code(s)	Turnaround Time	Assay Range	Available Sample Types	Days Performed	NY State
Aspergillus Real-time PCR Panel	8909 - BAL 8926 - Bronch Wash 8909 - Fresh frozen tissue 8906 - FFPE tissue	BAL & Bronch Wash Same day (within 12 - 24 hours from receipt of specimen) Tissue: 2-5 business days (from receipt of specimen)	Detected/Not Detected: Pan-Aspergillus, with speciation for A. fumigatus and A. terreus	BAL, Bronch Wash, Fresh frozen tissue, FFPE tissue	Mon - Sat	NY State Approved
Candida Real-time PCR Panel	33306 - Whole Blood	Whole blood same day (Within 24 hours from receipt of specimen)	Detected/Not Detected: Candida albicans, C. glabrata, C. tropicalis, C. krusei, & C. parapsiloisis, C. auris	Whole blood	Mon - Sat	NY State Approved
Fungal Plus Real-time PCR Profile	PFL8066 - BAL	12 - 24 hours from receipt of specimen (same day)	See individual Panels/Assays for ranges. Consists of Aspergillus Real-time PCR Panel, Mucorales Real-time PCR, and Nocardia Real-time PCR assays.	BAL	Mon - Fri	NY State Approved
Fungal Plus II Real-time PCR Profile	PFL8006 - BAL	12 - 24 hours from receipt of specimen (same day)	See individual Panels/Assays for ranges. Consists of Aspergillus Real-time PCR Panel, Mucorales Real-time PCR, Nocardia Real-time PCR, Pneumocystis Real-time PCR assays.	BAL	Mon - Fri	NY State Approved

"Raising the general awareness of the significance and impact of IFD on human health, in both the hospital and the community, is critical to understand the scale of the problem and to raise interest to help fight these devastating diseases.[1]"

Learn More

FIGHTING FUNGALS

Results in Time to Make a Difference

View Our Fungal Test Menu

1. Firacative C. Invasive fungal disease in humans: are we aware of the real impact? Mem Inst Oswaldo Cruz. 2020 Oct 9;115:e200430. doi: 10.1590/0074-02760200430. PMID: 33053052; PMCID: PMC7546207. https://pubmed.ncbi.nlm.nih.gov/33053052/

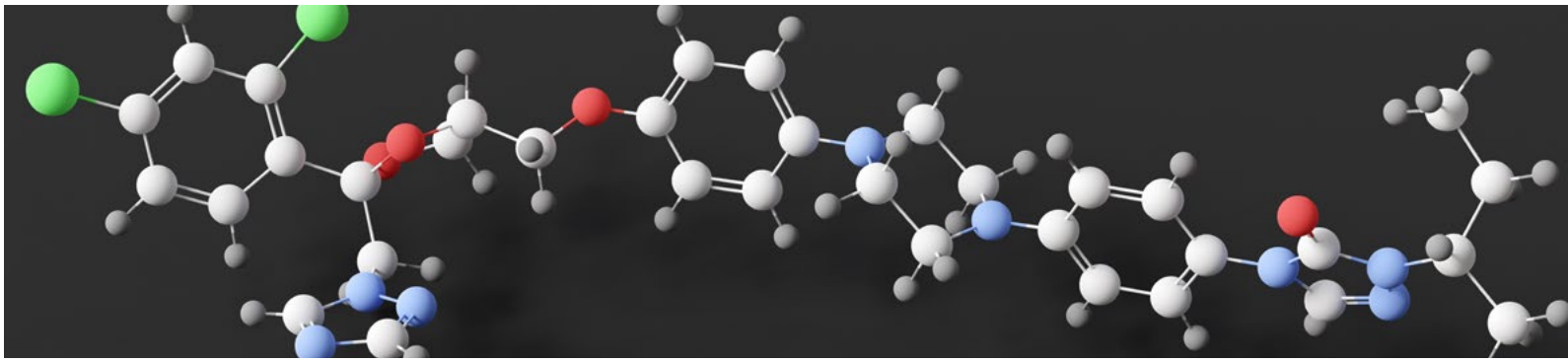
When timing is critical, can you afford not to know?

RISKS OF TREATMENT DELAY

Treat IFDs Faster, Reduce Mortality

Managing fungal infections in immunocompromised individuals can be challenging due to a lack of specific symptoms and increased drug resistance. A rapid and accurate diagnosis is key in reducing the risk of mortality due to delayed treatment.[1,2]

Antifungal Treatment Delay In days	0	1	2	≤3
Mortality	**15%**	**24%**	**37%**	**40%**
Blood Culture 50% sensitivity		1-5 days for result		
Other lab's Fungitell® testing ≥ 20% failure rate			2-4 days for result	
Eurofins Viracor Fungitell® testing < 6% failure rate			8-12 hours (M-Sat.) for Serum samples	



Antifungal Therapy, Drug Level Monitoring and Azoles

Once a fungal infection has been diagnosed, treatment can begin. Antifungal medications, such as fluconazole, amphotericin B, or voriconazole, are often used to treat fungal infections. The choice of medication will depend on the type of fungus causing the infection, as well as the patient's overall health and medical history.

Azoles

Azole drugs are a class of antifungal drugs that work by blocking the growth of fungi. They are effective against a wide range of fungi, including Candida, Aspergillus, and Cryptococcus.

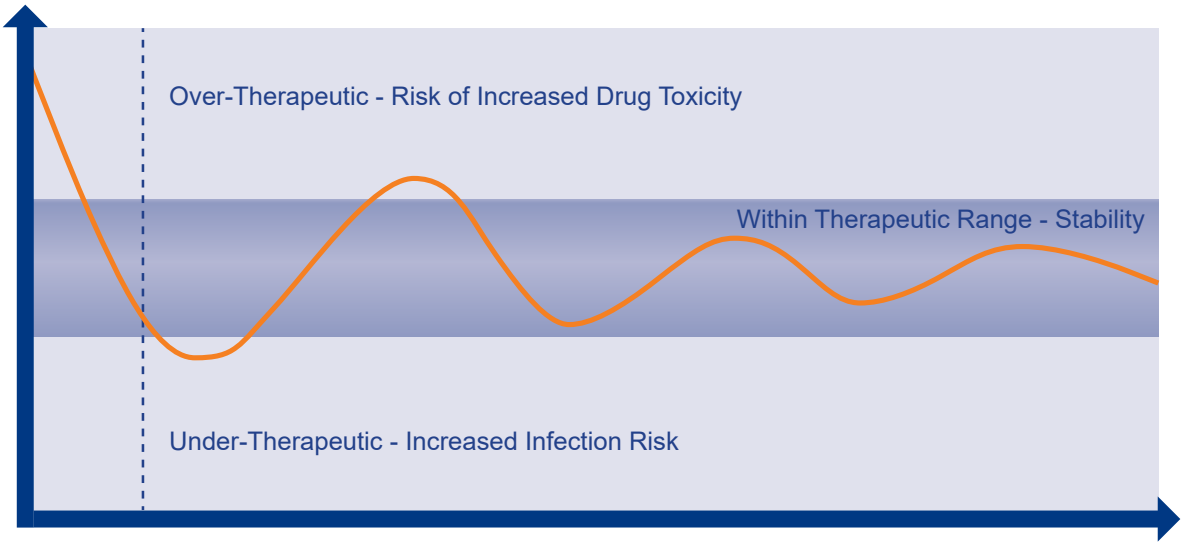
Azole drugs can have side effects, such as liver damage, kidney damage, and bone marrow suppression. It is important to talk to your doctor about the risks and benefits of azole drugs before starting treatment.

Antifungal therapy is an important component in the management of IFDs. Drug level monitoring is important to ensure that therapeutic levels of the drug are achieved and maintained. Azole drugs such as voriconazole and Posaconazole are commonly used for the treatment of IFDs, and therapeutic drug monitoring is recommended to ensure optimal dosing and to prevent toxicity. Additionally, these drugs can interact with other medications, so it is important to monitor for drug-drug interactions and adjust doses as necessary.

1. Assoc. of Cape Cod, Fungitell Assay Instructions for Use. 2011 (Feb) Garey et al, Clin Infect Dis. 2006; 43:25-31. Karageorgopoulos et al.
2. Luong ML et al. Clin Inf Dis. 2012; 52 (10): 1218-1226. Nguyen ML, Wissel MC et al. Clin Inf Dis. 2015; 54:1240-1248

Anti-fungal TDM Offering(s) from Eurofins Viracor

Anti-Fungal TDM	Order Code(s)	Turnaround Time	Assay Range	Available Sample Types	Days Performed	Platform	NY State
Isavuconazole (CRESEMBA®)	4901 - Plasma 4910 - Serum	8 - 12 hours from receipt of specimen (same day)	0.1-10 mcg/mL	Plasma, Serum	Mon - Sat	LC-MS/MS	NY State Approved
Itraconazole	2801 - Plasma 2810 - Serum	8 - 12 hours from receipt of specimen (same day)	0.1-10 mcg/mL	Plasma, Serum	Mon - Sat	LC-MS/MS	NY State Approved
Posaconazole	4210 - Serum	8 - 12 hours from receipt of specimen (same day)	0.1-10 mcg/mL	Serum	Mon - Sat	LC-MS/MS	NY State Approved
Voriconazole	3301 - Plasma 3310 - Serum	8 - 12 hours from receipt of specimen (same day)	0.1-10 mcg/mL	Plasma, Serum	Mon - Sat	LC-MS/MS	NY State Approved



Learn More

"Unfortunately these [fungal] infections are pretty non-specific… there's not a very characteristic sign of fungal infection like you would see, for example, with Mpox (monkeypox virus), and only when we do a lot of testing [do] we find out you have an invasive fungal infection."

Dr. Luis Ostrosky, Chief of Infectious Disease and Epidemiology, UT Health and Memorial Hermann

With a robust fungal menu, differential testing, faster result turnaround time and diagnostics to monitor drug levels, Eurofins Viracor can help you better support your patients' continuum of care — from the onset of symptoms to managing dosage.

* Most fungal tests results the same day (within 8-12 hours) of specimen receipt.

FUNGAL TESTING

For Your Patient's Continuum of Care

View Our Fungal Test Menu

Get Fast Accurate Results

Find out more at eurofins-viracor.com
or contact us at info@eurofins-viracor.com
or call 800-305-5198

About Viracor

With over 30 years of diagnostic expertise in infectious disease, immunology and allergy testing for immunocompromised and critical patients, Eurofins Viracor is passionate about delivering accurate, timely and actionable results, never losing sight of the connection between the testing it performs and the patients it serves.

Eurofins Viracor is a subsidiary of Eurofins Scientific (EUFI.PA), a global leader in bio-analytical testing, and one of the world leaders in genomic services. For more information, please visit eurofins.com and eurofins-viracor.com

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1. Firacative C. Invasive fungal disease in humans: are we aware of the real impact? Mem Inst Oswaldo Cruz. 2020 Oct 9;115:e200430. doi: 10.1590/0074-02760200430. PMID: 33053052; PMCID: PMC7546207.
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4. https://www.healthline.com/health/fungal-infection/antifungal
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