What Are Opportunistic Fungal Pathogens?

There are literally about one and a half million fungal species on earth. Fungi are different from bacteria, and are typically described as non-phototrophic eukaryotic microorganisms that contain rigid cell walls. Many of these organisms are a ubiquitous component of the normal microbial flora all around us and on our bodies. Virtually all of these organisms can cause infection under favorable growth conditions, which presents a constant diagnostic challenge. The term ‘Opportunistic fungi’ is used to describe fungi that normally would not cause infections in otherwise healthy people. However, in a person with a compromised immune system, the fungi have the opportunity to invade and infect the host, and circulate in the blood stream. Many conditions such as immune deficiency, cancer, organ transplant, and long term antibiotics use lead to a compromised immune system. Given the opportunity, these pathogenic fungi can invade the blood stream and tissue and become a life threatening infection.

New Fungi Test Panel

Spiro Stat Technologies, L.P. is excited to introduce a new Fungi test panel that both complements our existing Lyme panel, and offers a powerful diagnostic tool for health care practitioners of all specialties and disciplines. This test is designed to detect invasive fungal pathogens that have entered the blood stream. Normally healthy persons are usually unaffected by fungal infections; with exceptions being conditions such as thrush caused by Candida spp. and other skin infections like athlete’s foot. However, in individuals with suppressed or compromised immune systems, many mildly pathogenic and even some nonpathogenic fungi cause potentially fatal infections that circulate in the blood. Fungal infections also become serious issues for those taking long term antibiotics.

Spiro Stat uses modern molecular diagnostic approaches that have been validated under stringent criteria. The unique methodology employed in these molecular assays is often referred to as a universal testing method for fungi. DNA sequencing methods are used to identify the pathogens’ genetic signatures present in the specimen. Virtually all fungi are screened for and most predominant populations are reported. All laboratory testing is performed in our CAP accredited CLIA laboratory, Southwest Regional PCR.
Increasing Prevalence of Fungal Infections

Many factors are contributing to the increase in the number of people affected by invasive fungal infections:

- increasing number of immunocompromised patients
- increase in chemotherapy
- widespread use of broad-spectrum antibiotics
- increasing use of corticosteroids
- increasing use of central venous catheters
- increasing number of organ transplants

Common Clinical Symptoms

- persistent fever after broad spectrum antibacterial treatment
- neutropenia
- intraocular inflammation
- symptoms of lower respiratory tract infection
- symptoms of upper respiratory tract infection
- invasive sinus infection
- ulceration or erosion of sinus walls

Optimal Test for Fungal Detection

The next generation of molecular assays utilized in the Spiro Stat Fungi panel are basically universal for fungal pathogens. This universal nature is not possible with assays based on the detection of antigens, antibodies, or metabolites generated by the host immune system or the organism. Most scientists consider molecular diagnostics the best testing method because of the potential for:

- directly detecting the genetic material of the pathogen
- ability to detect virtually all genera of fungi in one test
- more sensitivity than culture based methods
- can be used to detect invasive fungal pathogens in the blood

Examples of Detectable Fungi

Here is an Example list of just A FEW of the organisms that can be detected and identified with the New Fungi Panel*:

- Aspergillus cervinus
- Aspergillus flavus
- Aspergillus fumigatus
- Aspergillus niger
- Aspergillus terreus
- Candida albicans
- Candida dubliniensis
- Candida glabrata
- Candida orthopsilosis
- Candida parapsilosis
- Cladosporium herbarum
- Curvularia lunata
- Exserohilum rostratum
- Fusarium equiseti
- Fusarium moniliforme
- Fusarium sporotrichioides
- Kodamaea ohmeri
- Malassezia restricta
- Neosartorya pseudofischeri
- Phoma beta
- Phoma rabiei
- Physcia adscendens
- Rhizopus oryzae
- Trichophyton mentagrophytes

* This List is INCOMPLETE