



LAB #: F000000-0000-0  
 PATIENT: Sample Patient  
 ID: PATIENT-S-00012  
 SEX: Male  
 AGE: 7

CLIENT #: 12345  
 DOCTOR:  
 Doctors Data, Inc.  
 3755 Illinois Ave.  
 St. Charles, IL 60174 USA

## Yeast Profile, stool

### BACTERIOLOGY CULTURE

#### Expected (Beneficial) flora

N/ABacteroides fragilis group  
 N/ABifidobacterium spp.  
 N/AEscherichia coli  
 N/Lactobacillus spp.  
 N/AEnterococcus spp.

#### Commensal (Imbalanced) flora

not ordered

#### Dysbiotic flora

NG = No Growth

### CLOSTRIDIUM CULTURE

Clostridium spp. N/A

Clostridia are dominant inhabitants of the human intestine. Although most are not virulent, many species produce potentially harmful products, including toxins, amines, indole, and ammonia. Clostridia in the intestine change the redox status of the colon; they also produce molecules such as short chain fatty acids. These bacteria exert effects on host immunity, which extend well beyond the intestine.

### BACTERIOLOGY INFORMATION

**Expected (Beneficial) bacteria** make up a significant portion of the total microflora in a healthy & balanced GI tract. These beneficial bacteria have many health-protecting effects in the GI tract including manufacturing vitamins, fermenting fibers, digesting proteins and carbohydrates, and propagating anti-tumor and anti-inflammatory factors.

**Commensal (Imbalanced) bacteria** are usually neither pathogenic nor beneficial to the host GI tract. Imbalances can occur when there are insufficient levels of beneficial bacteria and increased levels of commensal bacteria. Certain commensal bacteria are reported as dysbiotic at higher levels.

**Dysbiotic bacteria** consist of known pathogenic bacteria and those that have the potential to cause disease in the GI tract. They can be present due to a number of factors including: consumption of contaminated water or food, exposure to chemicals that are toxic to beneficial bacteria; the use of antibiotics, oral contraceptives or other medications; poor fiber intake and high stress levels.

### YEAST CULTURE

#### Normal flora

1+ Candida parapsilosis

#### Dysbiotic flora

### MICROSCOPIC YEAST

|                |                  |
|----------------|------------------|
| <b>Result:</b> | <b>Expected:</b> |
| Few            | None - Rare      |

The microscopic finding of yeast in the stool is helpful in identifying whether there is proliferation of yeast. Rare yeast may be normal; however, yeast observed in higher amounts (few, moderate, or many) is abnormal.

### YEAST INFORMATION

**Yeast** normally can be found in small quantities in the skin, mouth, intestine and mucocutaneous junctions. Overgrowth of yeast can infect virtually every organ system, leading to an extensive array of clinical manifestations. Fungal diarrhea is associated with broad-spectrum antibiotics or alterations of the patient's immune status. Symptoms may include abdominal pain, cramping and irritation. When investigating the presence of yeast, disparity may exist between culturing and microscopic examination. Yeast are not uniformly dispersed throughout the stool, this may lead to undetectable or low levels of yeast identified by microscopy, despite a cultured amount of yeast. Conversely, microscopic examination may reveal a significant amount of yeast present, but no yeast cultured. Yeast does not always survive transit through the intestines rendering it unviable.

### Comments:

Date Collected: 12/7/2009  
 Date Received: 12/11/2009  
 Date Completed: 12/21/2009

\* *Aeromonas, Campylobacter, Plesiomonas, Salmonella, Shigella, Vibrio, Yersinia, & Edwardsiella tarda* have been specifically tested for and found absent unless reported.

v5.09



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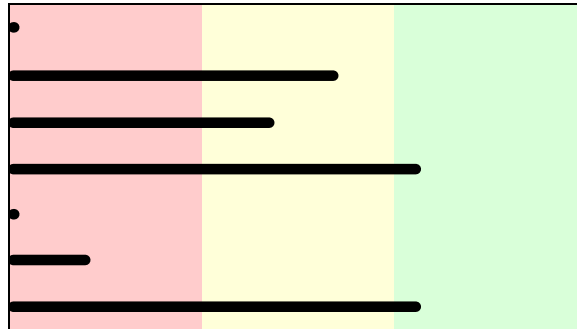
## Yeast Susceptibilities: *Candida parapsilosis*

### NATURAL ANTIFUNGALS

#### Disk Content

1mg Berberine  
 46mg Caprylic Acid  
 10mg Uva Ursi  
 2.5mg Tannic Acid  
 11mg Oregano  
 45mg Undecylenic Acid  
 25mg Citrus Seed Extract

#### Low Activity High Activity

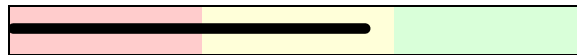


**Natural antibacterial** agents may be useful for treatment of patients when organisms display in-vitro sensitivity to these agents. The test is performed by using standardized techniques and filter paper disks impregnated with the listed agent. Relative activity is reported for each natural agent based upon the diameter of the zone of inhibition or no growth zone surrounding the disk. Data based on over 5000 individual observations were used to relate the zone size to the activity level of the agent. A scale of relative activity is defined for the natural agents tested.

### NON-ABSORBED ANTIFUNGALS

Nystatin

#### Low Activity High Activity

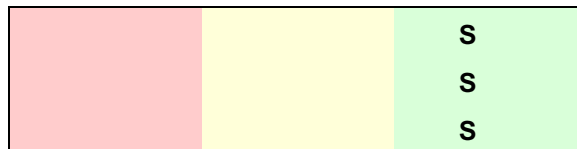


**Non-absorbed antifungals** may be useful for treatment of patients when organisms display in-vitro sensitivity to these agents. The test is performed using standardized commercially prepared disks impregnated with Nystatin. Relative activity is reported based upon the diameter of the zone of inhibition or no growth zone surrounding the disk.

### AZOLE ANTIFUNGALS

Fluconazole  
 Itraconazole  
 Voriconazole

#### Resistant S-DD Susceptible



**Susceptible** results imply that an infection due to the fungus may be appropriately treated when the recommended dosage of the tested antifungal agent is used.  
**Susceptible - Dose Dependent (S-DD)** results imply that response rates may be lower than for susceptible fungi when the tested antifungal agent is used.  
**Resistant** results imply that the fungus will not be inhibited by normal dosage levels of the tested antifungal agent.

Standardized test interpretive categories established for *Candida* spp. are used for all yeast isolates.

#### Comments:

Date Collected: 12/7/2009  
 Date Received: 12/11/2009  
 Date Completed: 12/21/2009

Yeast antifungal susceptibility testing is intended for research use only.  
 Not for use in diagnostic procedures.

v5.09

## INTRODUCTION

This analysis of the stool specimen provides fundamental information about the overall gastrointestinal health of the patient. When abnormal microflora or significant aberrations in intestinal health markers are detected, specific interpretive paragraphs are presented. If no significant abnormalities are found, interpretive paragraphs are not presented.

### Cultured Yeast

Yeast, such as *Candida* are normally present in the GI tract in very small amounts. Many species of yeast exist and are commensal; however, they are always poised to create opportunistic infections and have detrimental effects throughout the body. Factors that contribute to a proliferation of yeast include frequent use of wide-spread antibiotics/low levels of beneficial flora, oral contraceptives, pregnancy, cortisone and other immunosuppressant drugs, weak immune system/low levels of sIgA, high-sugar diet, and high stress levels.

When investigating the presence of yeast, disparity may exist between culturing and microscopic examination. Yeast grows in colonies and is typically not uniformly dispersed throughout the stool. This may lead to undetectable or low levels of yeast identified by microscopy, despite a cultured amount of yeast. Conversely, microscopic examination may reveal a significant amount of yeast present, but no yeast cultured. Yeast does not always survive transit through the intestines rendering it unviable for culturing. Therefore, both microscopic examination and culture are helpful in determining if abnormally high levels of yeast are present.

### Microscopic yeast

Microscopic examination has revealed yeast in this stool sample. The microscopic finding of yeast in the stool is helpful in identifying whether the proliferation of fungi, such as *Candida albicans*, is present. Yeast is normally found in very small amounts in a healthy intestinal tract. While small quantities of yeast (reported as rare or few) may be normal, yeast observed in higher amounts (moderate to many) is considered abnormal.

An overgrowth of intestinal yeast is prohibited by beneficial flora, intestinal immune defense (secretory IgA), and intestinal pH. Beneficial bacteria, such as *Lactobacillus* colonize in the intestines and create an environment unsuitable for yeast by producing acids, such as lactic acid, which lowers intestinal pH. Also, *Lactobacillus* is capable of releasing antagonistic substances such as hydrogen peroxide, lactocidin, lactobacillin, and acidolin.

Many factors can lead to an overgrowth of yeast including frequent use of antibiotics (leading to insufficient beneficial bacteria), synthetic corticosteroids, oral contraceptives, and diets high in sugar. Although there is a wide range of symptoms which can result from intestinal yeast overgrowth, some of the most common include brain fog, fatigue, recurring vaginal or bladder infections, sensitivity to smells (perfumes, chemicals, environment), mood swings/depression, sugar and carbohydrate cravings, gas/bloating, and constipation or loose stools.

A positive yeast culture (mycology) and sensitivity to prescriptive and natural agents is helpful in determining which anti-fungal agents to use as part of a therapeutic treatment plan for chronic colonic yeast. However, yeast are colonizers and do not appear to be dispersed uniformly throughout the stool. Yeast may therefore be observed microscopically, but not grow out on culture even when collected from the same bowel movement.