



## Basic Mycology      October 2005

### 0509-1 Skin scraping *Candida glabrata*

**CMPT QA:** pure growth of *Candida glabrata*, viable 36 days.

**Reference Laboratory:** *Candida glabrata* confirmed.

**Results:** The results received from participants are shown in Table 1.

<i>Candida albicans</i>	1
<i>Candida</i> sp.	1
<i>Candida</i> sp., not <i>C. albicans</i>	1
cocci, bacterial contaminant	1
no growth	2
no report	1
Grand Total	7

#### **GROWTH CHARACTERISTICS and MORPHOLOGY**

Yeasts are unicellular, eucaryotic, budding organisms that are usually round to oval in shape. They multiply by the production of blastoconidia<sup>1</sup>. *Candida glabrata* grows on blood agar as small, glossy, smooth colonies. Growth is usually detected in 48 to 72 hours of incubation at 37°C and pseudohyphae or chlamydo spores are not produced on cornmeal agar. Microscopically *C. glabrata* is smaller than the other species of *Candida* and appears as 2-5 µm oval, budding yeasts, often in clumps or in clusters<sup>2</sup>. As such, *C. glabrata* may be confused with *Histoplasma capsulatum*<sup>2</sup>.

**IDENTIFICATION** The germ tube test is negative for *C. glabrata*, and growth on CHROMagar® gives a pink colony, which may not be readily distinguished from other *Candida* sp. (other than *C. albicans*, *C. tropicalis*, or *C. krusei*). The CLSI (NCCLS) has proposed a 3-hour rapid trehalose assimilation procedure (document M35-P) for the identification of *C. glabrata*. Positive trehalose assimilation results must be correlated with a negative germ tube test and small microscopic cell size to report *C. glabrata*<sup>1,3</sup>.

**CLINICAL SIGNIFICANCE** Yeast species have become opportunistic pathogens in the right clinical setting. The first step in the development of a candidal infection is colonization of the mucocutaneous surfaces. Increased colonization rates are associated with many factors, e.g., central intravascular access devices, the use of broad-

spectrum antibiotic agents, recent chemotherapy or radiation therapy, and prolonged hospitalization stay in the intensive care unit and with severe neutropenia or other types of immunosuppression<sup>1,3,4,5</sup>. Disruption of the colonized surface allows the organisms access to the bloodstream. Candidal colonization is at the highest levels during the extremes of ages, in neonates and in people older than 65 years. In addition, mucocutaneous candidiasis is also more prevalent in neonates and older adults. Blood cultures are helpful but are positive in only 50-60% of cases of disseminated disease<sup>5</sup>.

*Candida* species currently are the fourth most commonly isolated organism in blood cultures, and *Candida* infection generally is considered a nosocomially acquired infection. Isolation of yeast from a blood culture is clinically relevant and should be identified to the species level, particularly because *C. glabrata* may be resistant to azole antifungal agents<sup>1,3</sup>. Susceptibility testing should also be performed either in-house or by forwarding the isolate to a reference laboratory. A critical component in the management of candidemia and disseminated candidiasis is the removal of the focus of infection, such as intravenous and Foley catheters.

**TREATMENT** In vitro antifungal susceptibility data shows that *C. glabrata* is less susceptible to all azole agents, including fluconazole and itraconazole, but it is susceptible to amphotericin B and flucytosine<sup>1,3</sup>. For this reason, it is clinically important that a pure growth of yeast from a deep seated source (i.e. fluid or tissue) be fully speciated. Without speciation, physicians would tend to use an azole agent for treatment due to the decreased toxicity of these drugs. Patients with *C. glabrata* should immediately be placed on amphotericin B since this is the only effective therapy for azole resistant yeast infection<sup>3</sup>. It is also worthwhile to note that *C. glabrata* and *Candida krusei* have emerged as important pathogens in disseminated infections in patients with hematologic malignancies because of the prophylactic use of fluconazole.

#### **REFERENCES**

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2. Larone DH. 2002. p. 52. *Medically important fungi A Guide to Identification*. 4<sup>th</sup> ed. ASM Press, Washington, D.C.
3. CMPT critique M051-4 pancreatic pseudocyst: *C. glabrata*. May 2005.
4. CMPT critique M21-5 abscess aspirate: *C. glabrata*. May 2000.
5. EMedicine <http://www.emedicine.com/med/topic264.htm>