



Clinical Laboratory Department POLICY AND PROCEDURE

POLICY NUMBER: 1180
VERSION: 3

SUBJECT: Germ Tube Cryovial for the Identification of C.albicans

Purpose:

This test is used for the identification of *Candida albicans* by germ tube formation. The rapid identification of this yeast is usually based on the formation of hypha by the yeast cell that are half its width, up to three or four times the length of the cell, and with no constriction seen between the cell and the hyphal growth. Known as a germ tube, the growth occurs when the yeast is incubated in a serum medium at 35°C for one to two hours.

Specimen:

Several colonies of suspected *C.albicans* recovered and well-isolated on routine laboratory media.

Reagents:

The germ tube cryovial contains a ready-to-use solution of newborn calf serum and trypticase soy broth in a single test quantity.

Storage:

Store tubes at less than -2°C (freezing). Product should not be used if there are any signs of deterioration or if the expiration date has passed.

Supplies:

1. Inoculating loop
2. Incinerator
3. 35°C heat lock
4. Pasteur pipets
5. Microscope
6. Microscope slides and coverslips

Quality Control:

(#53) *Candida albicans* ATCC 10231 –Positive: forms germ tubes within 2 hours
(#66) *Candida tropicalis* ATCC 750 –Negative: no germ tubes formed within 2 hours

A positive and negative control is to be run once each week. Unexpected reactions with the QC organisms must be resolved before patient testing can be performed.

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Precautions:

Observe approved biohazard precautions and aseptic techniques.

Procedure:

Thaw medium to room temperature, and label vial appropriately. With a sterile loop, applicator stick, or Pasteur pipet, lightly touch a colony. Do not heavily inoculate the media. Increased amounts of inoculum decrease germ tube production. Emulsify cells in the medium. Incubate aerobically in an incubator or heat block for no longer than 2 hours at 35°C. Examine culture for presence of germ tubes by placing one drop of media on a slide, covering it with a coverslip, and examining under a microscope using high dry magnification.

Interpretation of Results:

A positive test is determined by the presence of a thin, tube-like structure half the width and approximately three to four times the length of the yeast cell. No constriction should be seen at the germ tube/cell wall interface. If no such growth is seen, it constitutes a negative test.

1. *C. albicans* are 95% positive
2. Rare strains of *C. tropicalis* produce similar structures with constrictures.
3. All other species of *Candida* are negative.

Limitations:

The media is a selective enrichment broth. Additional tests including subculture to an appropriate agar media as well as biochemical and/or serological tests using pure cultures should be performed for complete identification.

If medium is incubated longer than three hours, other types of *Candida* yeasts may start producing germ tubes, thus resulting in possible false positives.

The medium must be sterile and the isolate pure, as germ tube production may be inhibited or delayed in contaminated serum media.

References:

Germ Tube Cryovial product insert, Hardy Diagnostics, Santa Maria, CA. 022494mt

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Approved By: Brian Yee (PHYS SPEC PATHOLOGY)	
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