

Candida albicans

- Diploid fungus that is neither Gram – or +. Can be yeast form or filamentous hyphal form. Part of the normal flora and normally does not cause harmful effects in healthy individuals.
- Polyphenic: can produce multiple phenotypes from a single genotype. Changes in environment cause shift from yeast form to hyphal form.
- All infections caused by *Candida* species are commonly referred to as candidiasis (yeast infection)

Diseases: Candidiasis

- Thrush- fungal infection of the mucous membrane lining the mouth and tongue. Commonly seen in infants and immunocompromised individuals. Signs and symptoms are whitish, velvety sores in the mouth and on tongue, underneath is red tissue that bleeds easily. Mild cases can be treated with yogurt or acidophilus. More severe cases treated with antifungal mouthwash.
- Vulvovaginitis: yeast infection of the vulva and vagina causing inflammation in one or both areas. Signs and symptoms include foul odor, irritation and itching, burning while urinating, and vaginal discharge. Can be treated with certain antibiotics and antifungal agents depending on infection

Mechanisms of Invasion:

- Fungi become pathogenic when their environment is altered or alterations occur in the normal flora, or if immune defenses are compromised (how the host recognize and respond to these changes is not well understood)
- *C. albicans* utilizes multiple mechanisms for colonization and invasion of host tissues: expression of adhesins, reversible morphotypes, expression of tissue invasion-facilitating enzymes, endocytosis, and proteolytic breakdown of E-cadherin, the predominant protein in epithelial adheren junctions

Evading the Immune System:

- *C. albicans* binds to the host immune signaling molecule, interleukin (IL) 17A, which allows fungus to tolerate and navigate through immune environment
- Specific adhesins participate in biofilm production, which protects the fungus from antifungal agents, and allows safe harbor for genetic variation and resistant forms to arise
- Fungi also surrounded by a thick capsule that protects it from immune responses

Spreading throughout body and person-person:

- *C. albicans* can be spread throughout the body by the passive uptake of fungal particles by host cells, and by penetration of host cell membranes by the hyphal tip. Passive uptake occurs by molecules on the fungal surface stimulating endocytosis and by uptake by phagocytic cells with the aim of killing the microbe
- Spread through sexual contact and from mother to baby during passage through the birth canal