

MYCOLOGY



Important terms:

- **Conidia:** Asexual reproductive structures (mitospores) produced either from the transformation of a vegetative yeast or hyphal cell or from a specialized conidiogenous cell. Can be microconidia or macroconidia.
- **Arthroconidia** result from the fragmentation of hyphal cells.
- **Blastoconidia** Conidial formation through a budding process.
- **Chlamydo spores** produced from terminal or intercalary hyphal cells.

- **Hyphae:** Tubular, branching filaments of fungal cells, the mold form of growth.
- Most hyphal cells are separated by porous cross-walls or septa, but the zygomycetous hyphae are characteristically sparsely septate. Vegetative or substrate hyphae anchor the colony and absorb nutrients. Aerial hyphae project above the colony and bear the reproductive structures.

- **Mold:** Hyphal or mycelial colony or form of growth.
- **Mycelium:** Mass or mat of hyphae, mold colony.
- **Perfect fungi:** Fungi that are capable of sexual reproduction.
- **Pseudohyphae:** Chains of elongated buds or blastoconidia.
- **Septum:** Hyphal cross-wall, typically perforated.

mycology

- Mycology is the study of fungi.
- All fungi are eukaryotic organisms, and each fungal cell has at least one nucleus and nuclear membrane, endoplasmic reticulum, mitochondria, and secretory apparatus.
- **Cell membrane:** The bilayered cell membrane is the innermost layer around the fungal cytoplasm. It contains sterols, ergosterol is the essential sterol in fungi.

- **Spore:** A specialized structure with enhanced survival value, such as resistance to adverse conditions or features that promote dispersion.
- **Yeasts:** Unicellular, spherical to ellipsoid (3–15 μm) fungal cells that usually reproduce by budding.

- **Capsule:** This is a polysaccharide coating that surrounds the cell wall.
- This antiphagocytic virulence factor.
- is employed by *Cryptococcus neoformans*. The capsule can be visualized with the **India ink stain**.

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- Most fungi are obligate or facultative aerobes.

They are chemotrophic, secreting enzymes that degrade a wide variety of organic substrates into soluble nutrients which are then passively absorbed or taken into the cell by active transport.

- Fungal infections are **mycoses**.

human fungal diseases by the depth of the skin that they infect:

➤ SUPERFICIAL FUNGAL INFECTIONS

1-Pityriasis versicolor

2-tinea nigra

➤ CUTANEOUS FUNGAL INFECTIONS of the SKIN, HAIR, and NAILS

1) **Tinea corporis**

2) **Tinea cruris**

3) **Tinea pedis**

4) **Tinea capitis**

5) **Tinea unguium**

6) ***Candida albicans***

➤ SUBCUTANEOUS FUNGAL INFECTIONS

1-Sporothrix schenckii

2-Phialophora and Cladosporium

➤ SYSTEMIC FUNGAL INFECTIONS

Histoplasma capsulatum,

Blastomyces dermatitides,

Coccidioides immitis.

➤ OPPORTUNISTIC FUNGAL INFECTION IN AIDS PATIENTS.

Cryptococcus neoformans

Candida albicans

Aspergillus flavus