

Systemic Mycoses

Systemic Mycoses

- Fungal infections affect the internal organs of the body.
- **Note:** Subcutaneous and systemic mycoses are the most sever types of mycoses.

Systemic mycoses include:

1. Histoplasmosis
2. Blastomycosis
3. Coccidioidomycosis

1. Histoplasmosis

It's infection of the RES caused by *Histoplasma capsulatum*.

Microscopic morphology of *H. capsulatum*:

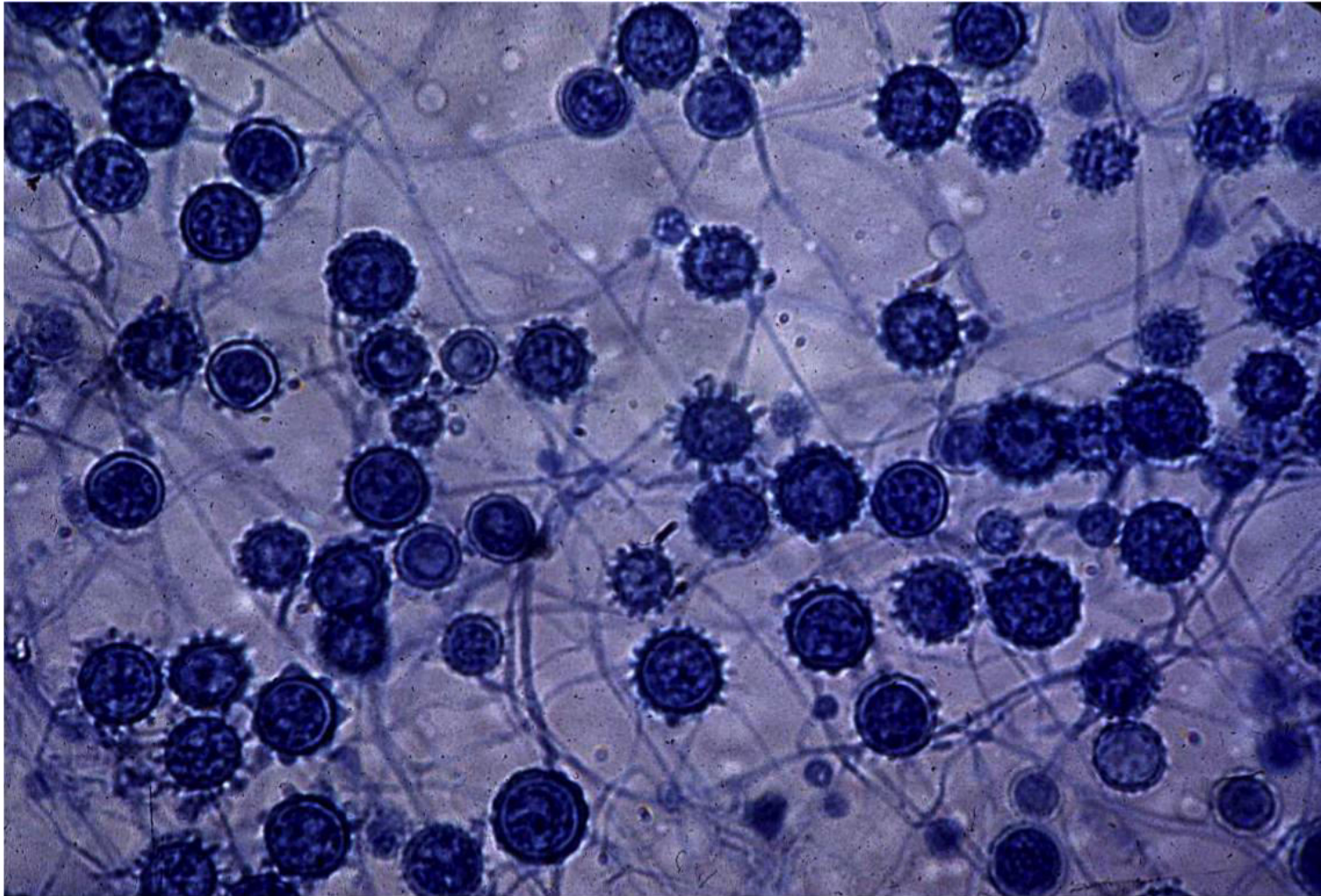
It is dimorphic fungi>>

➤ **At 20-25 °C >> mold**

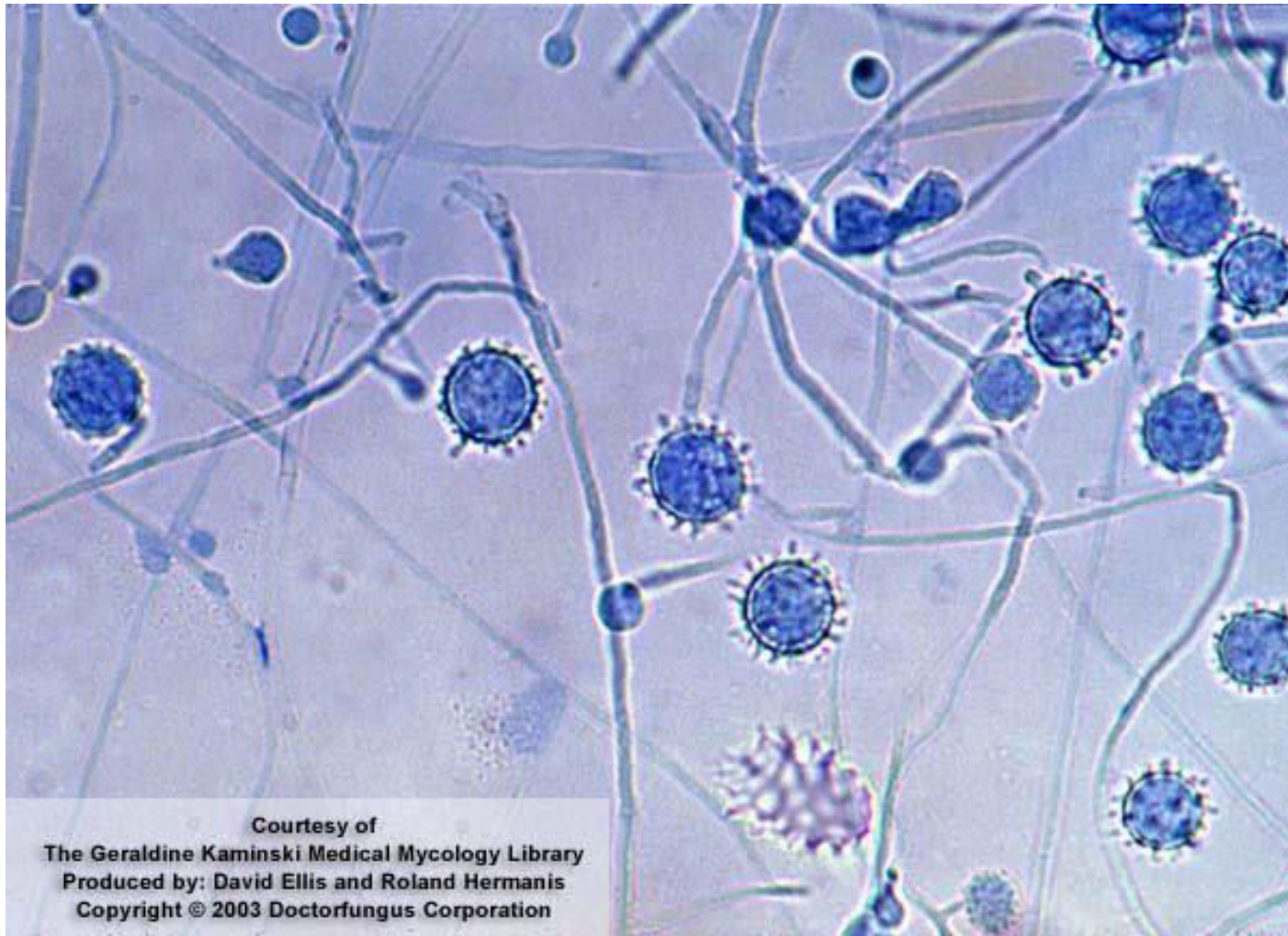
- **Young culture:** Septate hyphae, conidiophore, round to pear shaped smooth or spiny Microconidia.
- **After several weeks:** large , thick wall round to pear shape macroconidia.

➤ **At 35-37 °C >> small , round or oval budding yeast cells**

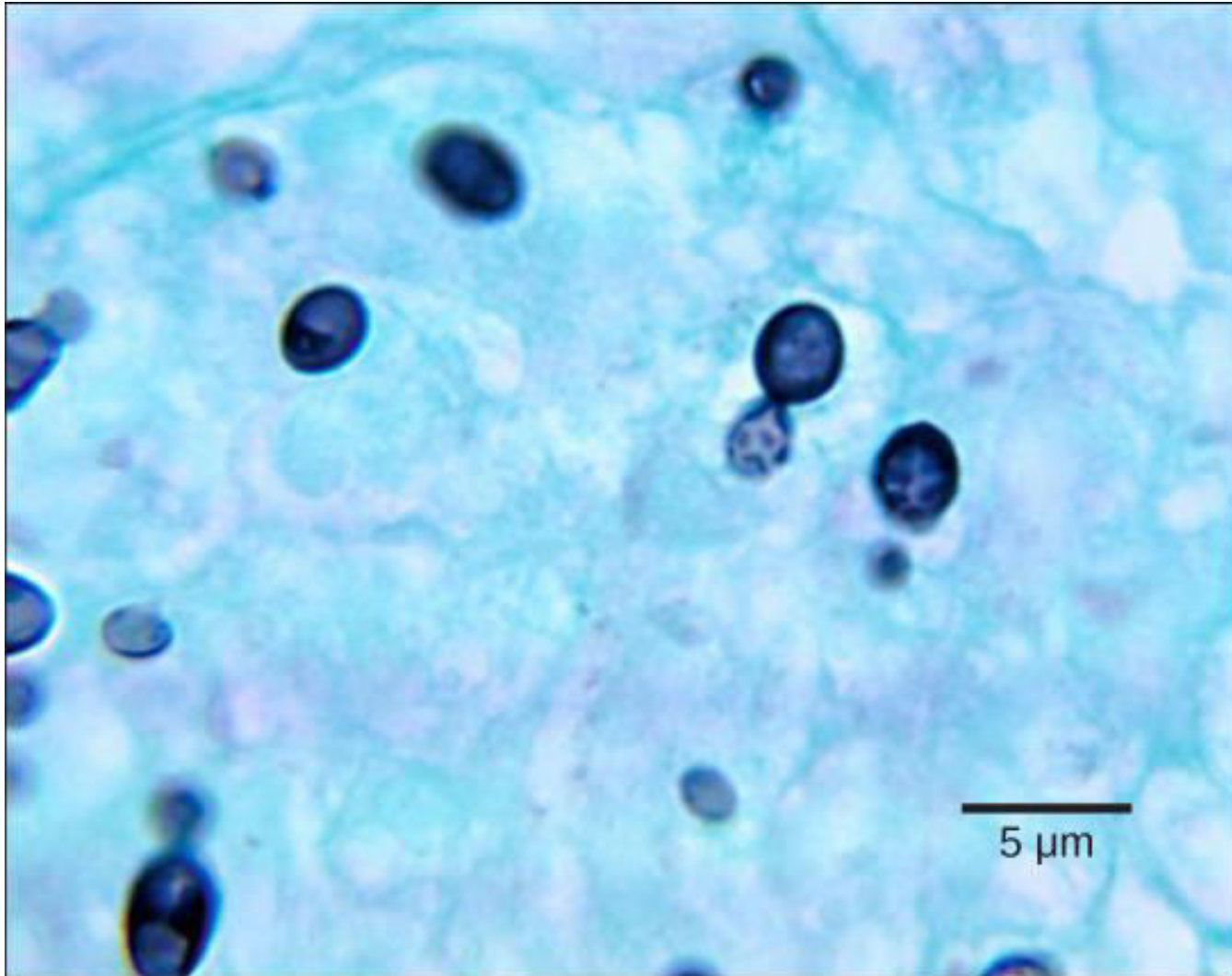
Histoplasma capsulatum (mold)



Histoplasma capsulatum (mold)



Histoplasma capsulatum (yeast)



2. Blastomycosis

- It's infection begins in the lung and can be disseminates to skin, subcutaneous tissue, bone, CNS.
- Caused by *Blastomyces dermatitidis*

Microscopic morphology of *B. dermatitidis*:

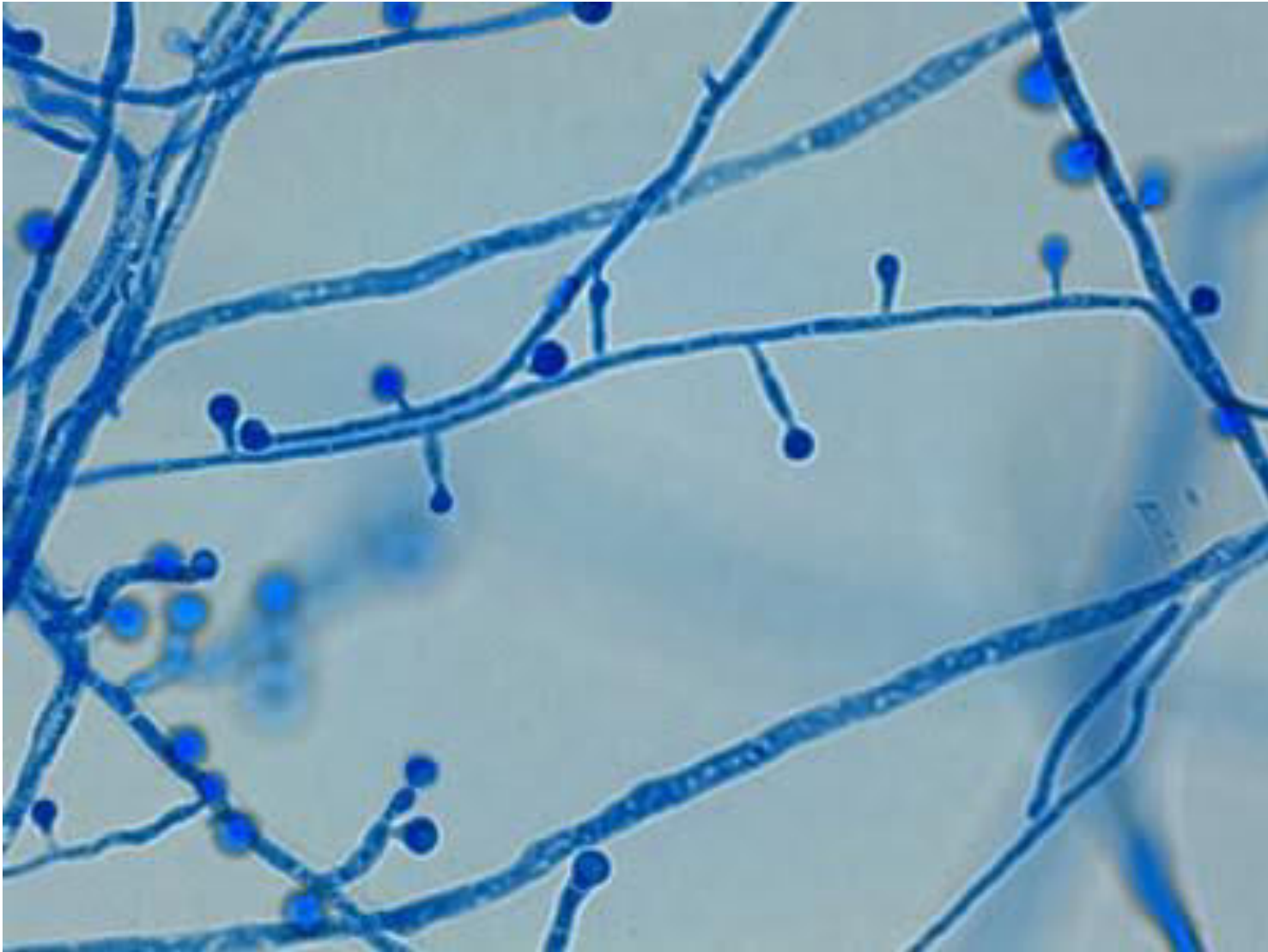
It is dimorphic fungi>>

➤ **At 20-25 °C >> mold**

- **Young culture:** septate hyphae, round or pear shaped conidia which attached to conidiophores or directly to the hyphae.
- **After several weeks:** thick walled chlamydoconidia attached to conidiophore.

➤ **At 35-37 °C >>** large budding yeast cells , thick walled and appearing double contoured.

Blastomyces dermatitidis (mold)



Blastomyces dermatitidis (mold)



Blastomyces dermatitidis (yeast)



3. Coccidioidomycosis

- It's respiratory infection but may disseminate
- Caused by *Coccidioides immitis*

Microscopic morphology of *C. immitis*:

It is dimorphic fungi>>

➤ **At 20-25 °C >> mold**

Septate branch hyphae which produce barrel shape arthrospores that alternate with disjunct cells.

➤ **At 35-37 °C (in tissue) >>** large, round, thick walled spherules which contain endospore.

Coccidioides immitis (mold)



Coccidioides immitis (spherule)



Opportunistic mycoses

- Fungal infections caused by opportunistic fungi.

Examples of opportunistic mycoses:

1. Aspergillosis>> caused by *Aspergillus sp.*
2. Zygomycosis>> caused by *Zygomycetes*
3. Candidiasis>> caused by *Candida albicans*