Fungal Cell Structure

Lab 6

Fungi

-Eukaryotic, spore-bearing, heterotrophic organisms that produce extracellular enzymes and absorb their nutrition

-Fungi exhibit diverse lifestyles:
Decomposers, parasites and mutualistic symbionts

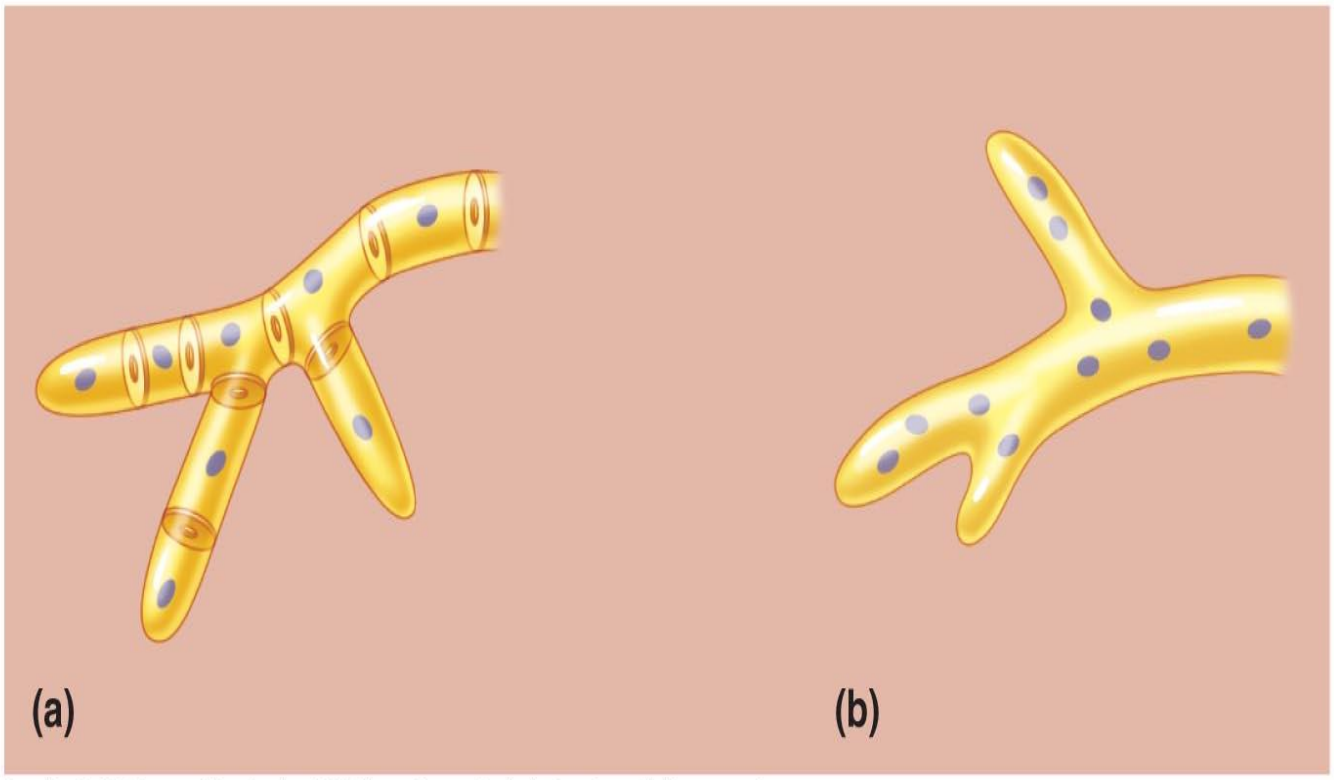
-The study of fungi : mycology

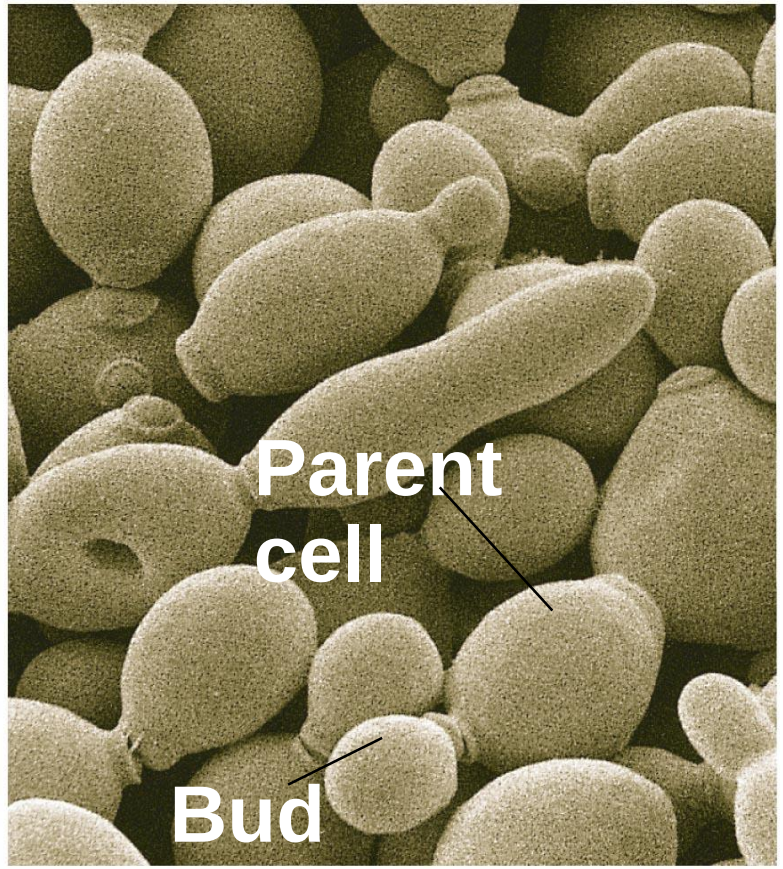
Body Structure

-unicellular (yeast), filamentous, or both

-Hypha is the basic “cellular” unit in filamentous fungi; they may be septate or coenocytic

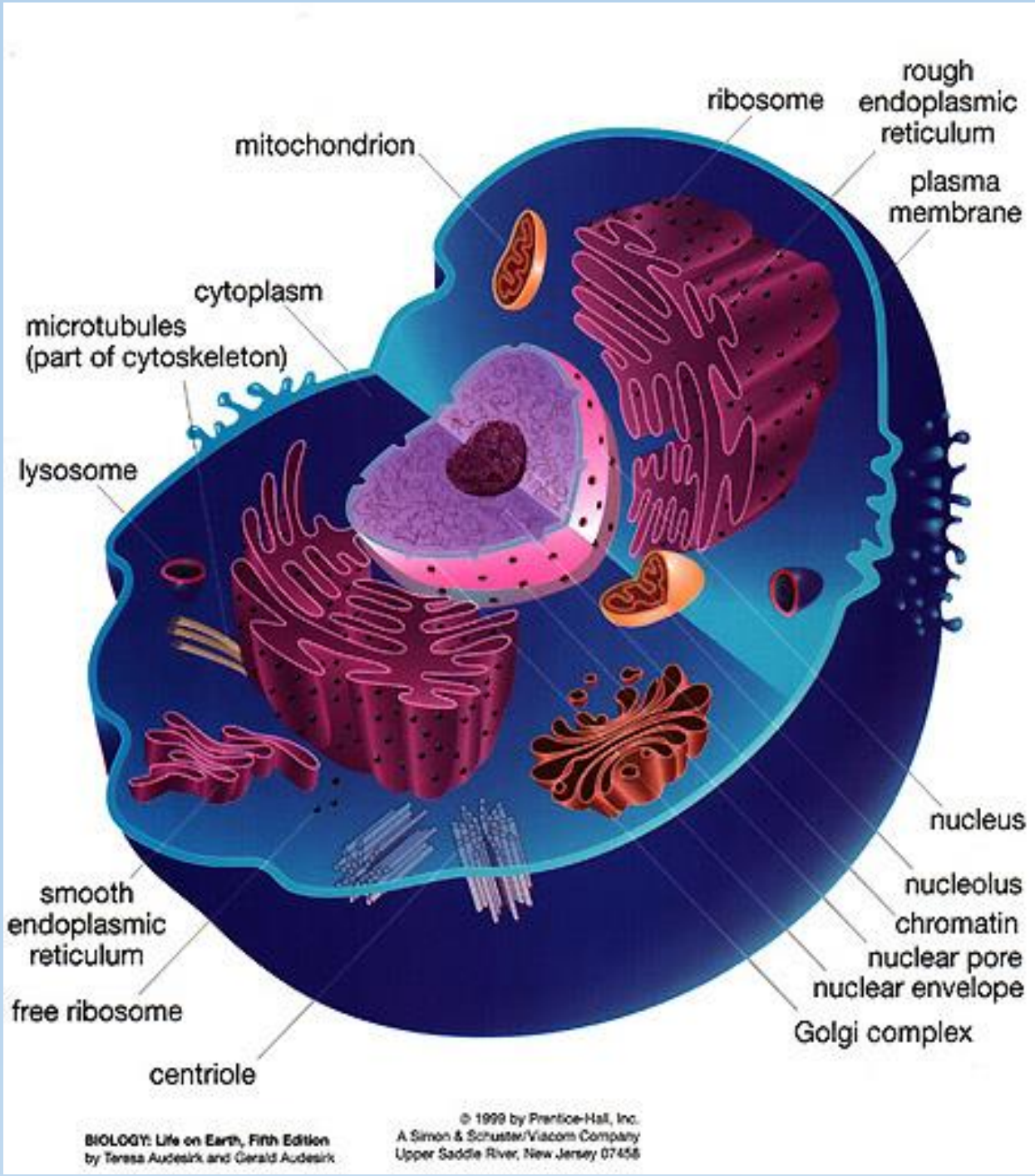
-Most fungi have cell walls made of chitin





Organelles

- Mitochondria
- Ribosomes
- Endoplasmic reticulum
- **Golgi equivalents**
- Single cisternal elements
- Vacuoles
- **Microbodies**



Reproductive structures

Asexual Reproduction

- **Fragmentation** – hyphae simply break off.
- **Budding** – small outgrowth of hyphae pinches off
- **Formation Asexual spores** – are formed by the hyphae of one organism. Once they germinate they become organism that are genetically identical to the parent.

Ex: Sporangiospores: produced in sporangia located on a sporangiophore.

Conidiospores: produced at the tips of specialized hyphae

Arthrospore

Blastospore

Sexual Reproduction

Sexual spore are result from the fusion of nuclei from two opposite mating strains of the same species of fungus

Ex: Zygospore
Oospore
Ascospore
Basidiospore

Zygomycetes: are named for their sexually produced zygosporangia

sexual sporaes:zygospore

ex (*Rhizopus stolonifer,Mucor*)

Sexual spore

Zygospore

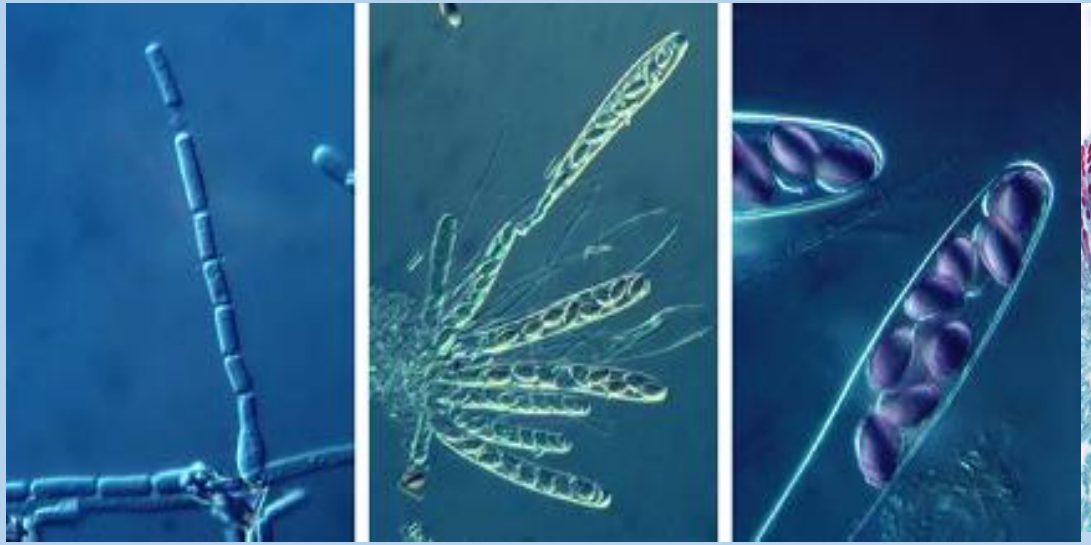
Asexual spores

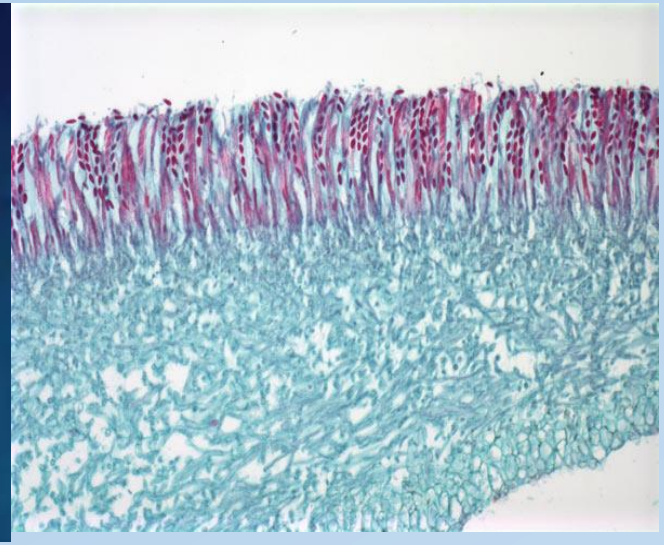
Conidiospores

Ascomycetes: is defined by production of sexual spores in ascus, usually contained in fruiting bodies called ascocarps

sexual spores: ascospore

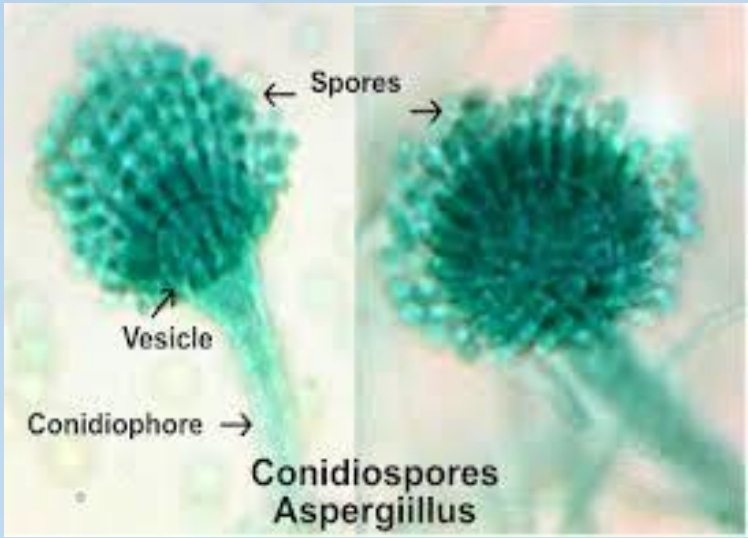
ex (*Aspergillus,Claviceps purpurea*)





Sexual spores

Ascospore



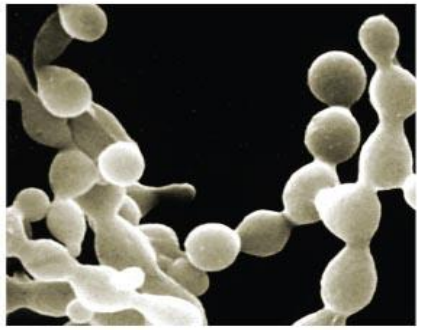
Asexual spores

Conidiospore

(a) The cup-shaped ascocarps (fruiting bodies) of Aleuria aurantia give this species its common name: orange peel fungus.

(b) The edible ascocarp of *Morchella esculenta*, the succulent morel is often found under trees in orchards.

(c) *Tuber melanosporum* is a truffle, an ascocarp that grows underground and emits strong odors. These ascocarps have been dug up and the middle one sliced open.



(d) *Neurospora crassa* feeds as a mold on bread and other food (SEM).

Basidiomycetes: basidia in a basidiocarp are sources of

sexual spores: basidiospores

ex (*Agaricus langei)*

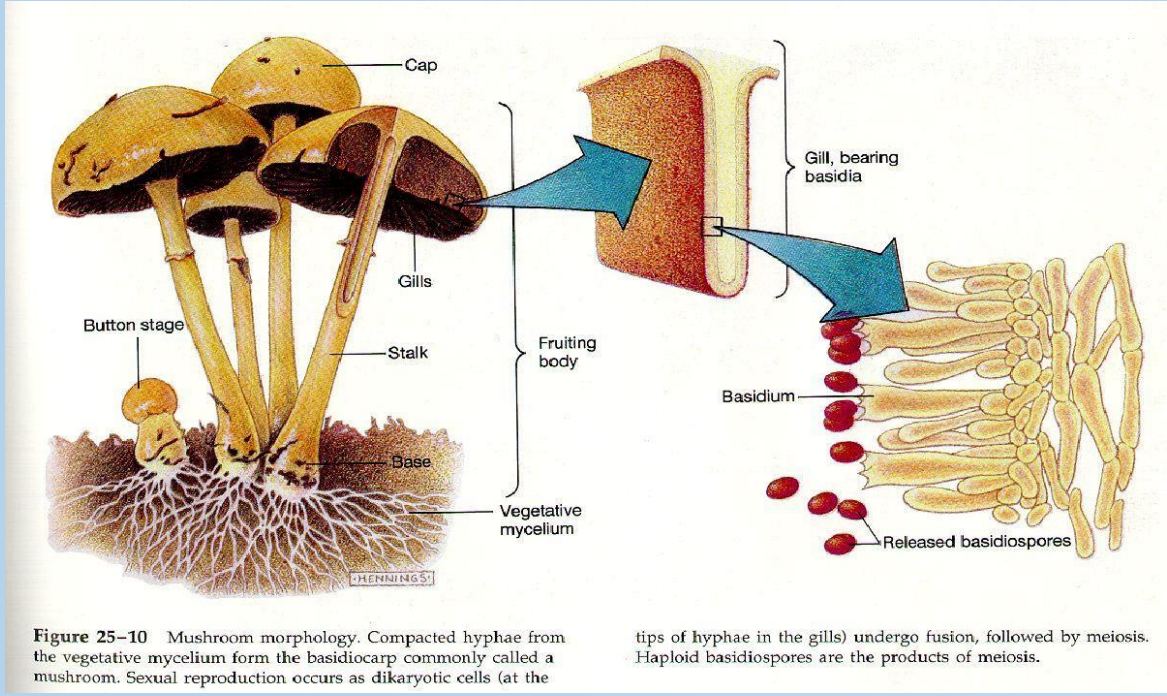
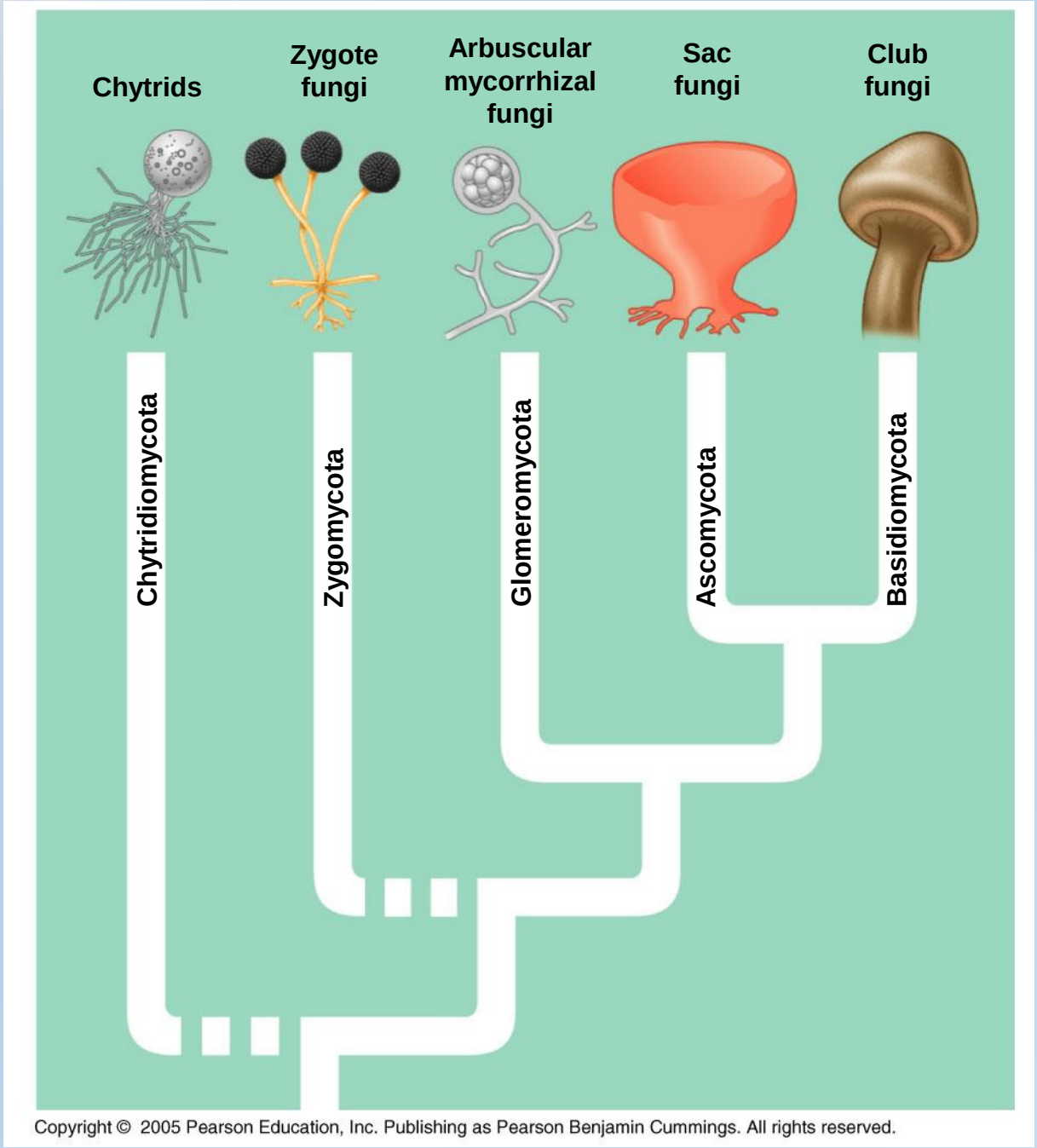


Figure 25–10 Mushroom morphology. Compacted hyphae from the vegetative mycelium form the basidiocarp commonly called a mushroom. Sexual reproduction occurs as dikaryotic cells (at the tips of hyphae in the gills) undergo fusion, followed by meiosis. Haploid basidiospores are the products of meiosis.

Agraicus langei



Thanks

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