

NAME _____

SS# _____

EXAM 2
March 6, 2001
BIO 329

Directions: All explanations, definitions, and descriptions should be presented in good English. This means complete sentences should be used except when lists or fill-in-the-blanks are required. Spelling of mycological terms should be accurate. Slight misspellings may be overlooked, but major misspellings will result in wrong answers.

1. Multiple choice (30 pts @ 2 each); circle the number of the correct choice.
 - a. Natural immunity to fungi is said to be high and most likely involves
 1. physical barriers, such as skin and mucus membranes.
 2. chemical barriers such serum factors, possibly complement proteins, and maybe even iron-unsaturated transferrin.
 3. natural effector cells, which ususally are, but not always, phagocytic.
 4. all of the above.
 5. none of the above (1, 2 and 3).
 - b. Some natural effector cells that contribute to natural immunity to fungi may include
 1. neutrophils
 2. blood monocytes
 3. histiocytes
 4. alveolar macrophages
 5. all of the above
 6. none of the above (1, 2, 3 and 4)
 - c. The reticuloendothelial system of humans does not include the
 1. lungs
 2. liver
 3. spleen
 4. lymph nodes
 5. any of the above tissues and organs
 - d. Current science suggests that immunity to fungi seems least dependent upon
 1. innate immune systems
 2. cell mediated immunity systems
 3. cytotoxic killer cells and their release of antimicrobial cytokines
 4. humoral (antibody) immunity systems
 5. any of the above systems or activities

- e. The antifungal therapeutic agent most associated with the interference of microtubule function is
1. 5-fluorocytosine
 2. amphotericin B
 3. griseofulvin
 4. fluconazole
 5. none of the above
- f. *Malasseza furfur* is most associated with the clinical syndrome known as
1. tinea nigra
 2. tinea capitis
 3. black piedra
 4. pityriasis versicolor
 5. none of the above
- g. Trichosporonosis is caused by the same fungus that gives rise to the clinical syndrome known as
1. white piedra
 2. tinea pedis
 3. tinea nigra
 4. pityriasis versicolor
 5. none of the above
- h. So-called annellate black yeast cells are most associated with the clinical syndrome known as
1. pityriasis versicolor
 2. tinea nigra
 3. tinea favosa
 4. black piedra
 5. none of the above
- i. The stratum corneum is not part of the clinical description of
1. tinea nigra
 2. tinea pedis
 3. tinea corporis
 4. tinea unguium
 5. any of the above
- j. So-called enteroblastic phialidic yeast cells are most associated with the clinical condition known as
1. tinea favosa
 2. tinea nigra
 3. pityriasis versicolor
 4. black piedra
 5. none of the above

- k. Dermatophytic fungi are all most likely species of the teleomorphic genus
1. *Microsporum*
 2. *Epidermophyton*
 3. *Arthroderma*
 4. *Cladosporium*
 5. none of the above
- l. Sexual dermatophytes are members of the class
1. Ustomycetes
 2. Plectomycetes
 3. Holobasidiomycetes
 4. Hemiascomycetes
 5. none of the above
- m. Scalp ringworms in the U.S. today are probably mostly caused by
1. *Microsporum audouinii*
 2. *Trichophyton schoenleinii*
 3. *Trichophyton rubrum*
 4. *Trichophyton tonsurans*
 5. none of the above
- n. Most cases of tinea unguium in the U.S. today are probably caused by
1. *Trichophyton rubrum*
 2. *Trichophyton concentricum*
 3. *Trichophyton violaceum*
 4. *Microsporum canis*
 5. none of the above
- o. The most common so-called zoophilic agent of dermatophytosis in the U.S. is probably
1. *Trichophyton rubrum*
 2. *Trichophyton schoenleinii*
 3. *Microsporum canis*
 4. *Microsporum andouinii*
 5. none of the above
2. Fill in the blanks (30 pts @ 2 pts each)
- a. When a neutrophil encounters a foreign cell that is too large to phagocytize, it often releases its granules into the extracellular milieu. This process is sometimes called _____.
- b. The main killing system used by neutrophils of the human host to kill fungi is probably the system that involves the enzyme _____.
- c. Resident macrophages of the liver, spleen and lymph nodes are predominantly _____.

- d. Delayed-type hypersensitivity, T_H^1 -type macrophage activation and chronic granulomatous reactions are host expressions of the immune pathway termed the _____ pathway.
- e. At a simple level, the most common pathological tissue response of humans to a so-called opportunistic (2°) systemic fungal pathogen is the formation of a _____, whereas that for an endemic (1°) systemic fungal pathogen is the formation of a _____.
- f. Two major types of antifungal therapeutic agents target, in part, a unique difference between fungal and animal cells. That difference relates to the chemical _____ in fungi.
- g. The main antifungal used in the U.S. for the treatment of oropharyngeal and esophageal candidiasis or, of cryptococcal meningitis in patient's with AIDS is _____.
- h. A number of products are currently approved for use in the U.S. for the treatment of tinea unguium. Probably the most effective and least dangerous of these for such use is currently _____.
- i. The outermost "cornified" layer of the skin is called the _____.
- j. Dermatophytoses are said to have a pathology that is first _____, followed by _____.
- k. Raimond Sabourand devised a type of therapy that was for many years the only cure for some types of tinea capitis. That therapy is known as _____ therapy.
- l. The black (UV) light (lamp) used by some public health agencies and dermatologist to detect certain types of tinea capitis is called the _____.
- m. The terms interdigital, vesicular and hyperkeratotic-erythrodermic are most often associated with dermatophytoses termed clinically _____.
3. Short answers or definitions (20 pts at 4 pts each)
- a. tinea favosa
- b. trichosporonosis

c. endothrix

d. *Trichophyton concentricum*

e. chronic granulomatous reactions

4. Essay No. 1 (10 pts). On the answer sheets and in an essay or in a list of sentences, describe the hypothetical trend that can be recognized among dermatophytic fungi, which might have led to the anthropophilic species.
5. Essay No. 2 (10 pts). On the answer sheets and in essay form, compare and contrast in a somewhat general way the kinds of conditions that might arise by the growth of *Exophiala werneckii* and *Trichophyton mentagrophytes* growing in the stratum corneum of glabrous skin.
6. Bonus: (10 pts) On the answer sheets and in essay or in any manner you wish, compare and contrast the modes of action of an antifungal drug like itraconazole with that of a drug like amphotericin B.