

Microbiology / Active Lecture Questions
Chapter 15 / Microbial Mechanisms of Pathogenicity

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2 The removal of plasmids reduces virulence in which of the following organisms?

- a. Clostridium tetani
- b. Escherichia coli
- c. Staphylococcus aureus
- d. Streptococcus mutans
- e. Clostridium botulinum

3 What is the LD₅₀ for the bacterial toxin tested in the example below?

Dilution (µg/kg)	No. of Animals Died	No. of Animals Survived
a. 6	0	6
b. 12.5	0	6
c. 25	3	3
d. 50	4	2
e. 100	6	0

4 Which of the following is not a portal of entry for pathogens?

- a. mucous membranes of the respiratory tract
- b. mucous membranes of the gastrointestinal tract
- c. skin
- d. blood
- e. parenteral route

5 All of the following can occur during bacterial infection. Which would prevent all of the others?

- a. vaccination against fimbriae
- b. phagocytosis
- c. inhibition of phagocytic digestion
- d. destruction of adhesins
- e. alteration of cytoskeleton

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6 The ID₅₀ for *Campylobacter* sp. is 500 cells; the ID₅₀ for *Cryptosporidium* sp. is 100 cells. Which of the following statements is not true?

- a. Both microbes are pathogens.
- b. Both microbes produce infections in 50% of the inoculated hosts.
- c. *Cryptosporidium* is more virulent than *Campylobacter*.
- d. *Campylobacter* and *Cryptosporidium* are equally virulent; they cause infections in the same number of test animals.
- e. The severity of infections caused by *Campylobacter* and *Cryptosporidium* cannot be determined by the information provided.

7 An encapsulated bacterium can be virulent because the capsule

- a. resists phagocytosis.
- b. is an endotoxin.
- c. destroys host tissues.
- d. interferes with physiological processes.
- e. has no effect; because many pathogens do not have capsules, capsules do not contribute to virulence.

8 A drug that binds to mannose on human cells would prevent

- a. the entrance of *Vibrio* enterotoxin.
- b. the attachment of pathogenic *E. coli*.
- c. the action of botulinum toxin.
- d. streptococcal pneumonia.
- e. the action of diphtheria toxin.

9 The earliest smallpox vaccines were infected tissue rubbed into the skin of a healthy person. The recipient of such a vaccine usually developed a mild case of smallpox, recovered, and was immune thereafter.

What is the most likely reason this vaccine did not kill more people?

- a. Skin is the wrong portal of entry for smallpox.
- b. The vaccine consisted of a mild form of the virus.
- c. Smallpox is normally transmitted by skin-to-skin contact.
- d. Smallpox is a virus.
- e. The virus mutated.

10 Which of the following does not represent the same mechanism for avoiding host defenses as the others?

- a. Rabies virus attaches to the receptor for the neurotransmitter acetylcholine.
- b. *Salmonella* attaches to the receptor for epidermal growth factor.
- c. Epstein-Barr (EB) virus binds to the host receptor for complement.
- d. Surface protein genes in *Neisseria gonorrhoeae* mutate frequently.
- e. none of the above

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- 11 Which of the following statements is true?
- The primary goal of a pathogen is to kill its host.
 - Evolution selects for the most virulent pathogens.
 - A successful pathogen doesn't kill its host before it is transmitted.
 - A successful pathogen never kills its host.
- 12 Which portal of entry is most often used by microorganisms?
- Parenteral route
 - Mucous membranes of the respiratory route
 - Mucous membranes of the conjunctiva
 - Skin
- 13 One disease that can be transmitted by the parenteral route is
- Tetanus
 - Trachoma
 - Influenza
 - Tuberculosis
- 14 When pathogens enter the skin, they usually
- Enter through the hair follicles and sweat ducts
 - Penetrate intact skin
 - Are injected into the skin
 - Adhere to the skin and then penetrate the skin
- 15 To prevent the disease botulism, which is caused by ingesting an exotoxin, it is necessary to
- Avoid canned food
 - Boil food prior to consumption
 - Prevent fecal contamination of food
 - Administer antibiotics to patients
- 16 Which organism produces an exotoxin?
- Proteus spp.
 - Neisseria meningitidis
 - Staphylococcus aureus
 - Salmonella typhi
- 17 Clostridium tetani causes the disease tetanus because it produces
- An endotoxin
 - An exotoxin
 - A capsule
 - An enzyme

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18 Which of the following allows viruses to gain access to target cells?

- a. Fimbriae
- b. Attachment sites
- c. Inclusion bodies
- d. Capsids

19 Which of the following refers to the visible effects of a viral infection?

- a. Lysogenic conversion
- b. Lysogenic effects
- c. Cytopathic effects
- d. Cytopathic conversion

20 Bacteriophages can contribute to bacterial virulence because they can

- a. Carry plasmids
- b. Produce toxins
- c. Give new gene sequences to the host bacteria
- d. Kill the bacteria causing release of endotoxins

21 Which of the following DOES NOT contribute to fungal disease?

- a. Cell walls
- b. Toxins
- c. Capsules
- d. Allergic response of the host

22 Which of these toxins is an alkaloid that can cause hallucinations resembling those produced by LSD?

- a. Aflatoxin
- b. Ergot
- c. Phalloidin
- d. Amanitin

23 What is the causative agent of elephantiasis?

- a. *Entamoeba histolytica*
- b. *Candida albicans*
- c. *Cryptococcus neoformans*
- d. *Wuchereria bancrofti*

24 Arthropods provide a portal of exit for microbes in

- a. Skin
- b. Blood
- c. Respiratory tract
- d. Genitourinary tract

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25 Pathogens that are discharged from the respiratory tract cause the following disease:

- a. Salmonella
- b. Whooping cough
- c. Poliomyelitis
- d. Rabies

26 The following disease can be transmitted by a biting insect:

- a. Shigellosis
- b. Mumps
- c. Tularemia
- d. Chickenpox