

Ch 20 Review

1. Describe the chromosome of a bacteria.

It is a small loop of coiled DNA that is in the cytoplasm of the bacterium because bacteria do not have nuclei

2. Structures found in bacterial cells but not in eukaryotic cells are

Peptidoglycan cell wall, plasmids

3. What are the shapes of these?

Plasmids are small loops of DNA

4. What are plasmids?

5. What are prions?

Prions are misfolded proteins that when they come into contact with another molecule of the same protein, cause that normal protein to misfold itself. Examples are mad cow disease (Creutzfeldt-Jakob disease) and chronic wasting disease in deer

6. Cell organelles that *Escherichia coli* and other bacteria have in common with eukaryotes are ribosomes

7. It is important to distinguish between Gram-positive and Gram-negative bacteria in diagnosing a bacterial infection because gram positive bacteria (purple) have a thicker cell wall that is susceptible to antibiotics. Antibiotics interfere with peptidoglycan production and therefore interfere with a gram positive bacterium's ability to support itself and reproduce

8. What is the difference between eukaryotic and prokaryotic cell walls?

Bacterial cell walls are made of peptidoglycan

9. What makes up bacterial cell walls?

10. Cyanobacteria are photoautotrophs because they require sunlight

11. What are nitrogen-fixing bacteria?

Nitrogen fixing bacteria are one of the most important bacteria to life on earth because they take gaseous nitrogen from the atmosphere and turn it into a solid, usable form of nitrogen (nitrogen fixation) these microbes live in soil and around the roots of legumes

12. What is conjugation?

Conjugation is a form of bacterial sex. They bump into each other and swap genetic material.

This increases the genetic variation because normally bacteria only undergo mitosis in the form of binary fission

13. What is binary fission?

Binary fission is mitosis- the production of two genetically identical cells

14. What is a bacterial endospore?

It is an escape pod for certain species of bacteria. It is a thick walled container for DNA, a small bit of cytoplasm and a few ribosomes. It stays in hibernation without metabolism until conditions become favorable

15. Are viruses alive? Why or why not?

Viruses are not alive because they do not maintain homeostasis, do not reproduce and do not have the minimum size of being a cell.

16. What are viruses doing in biology?

17. What are the parts of a typical virus?

Viruses have genetic material and a capsid. ALL viruses have at least those two things Some also have an envelope.

18. What types of viruses are there?

Lytic- kills the cell immediately upon infection, lysogenic- inserts its DNA into the genome of the host cell and lays dormant until an event occurs

19. What is an RNA virus?

RNA in a capsid. Enters cell and reverse transcribes its RNA into DNA using the hijacked cell

20. What is a DNA virus?

21. What is a retrovirus?

RNA in a capsid. Enters cell and reverse transcribes its RNA into DNA using the hijacked cell

22. The function of a bacteriophage's tail and tail fibers is to inject genetic material into a bacteria

23. What is a lytic cycle?

Lytic cycle explodes the infected host cell when the cell becomes full of viral particles. The released viral particles then go on to infect other cells

24. What is the lysogenic cycle?

In the lysogenic cycle, the viral DNA becomes incorporated into the host cells nuclear DNA. It stays silent and gets replicated when that cell undergoes mitosis. When cell gets stressed or there are environmental changes, the viral DNA that had been silent jumps into lytic cycle and starts producing new viruses instead of normal cell functions, the lytic cycle is entered and the cell pops and releases viral particles

25. What is a virulent virus?

Virulent viruses have only a lytic cycle. Deadly for the host cell always

26. The cycle of viral infection, replication, and cell destruction is called the virus's lytic/lysogenic cycle

27. What is a prion?

28. What is Koch's postulate?

Koch's postulate is the scientific method for determining pathogen.

1. The microorganism must be found in animals with the disease and not in healthy animals
2. The microorganism must be isolated from a diseased organism and grown in the lab in a culture.
3. The cultured microorganism should cause disease when given to uninfected organism
4. The microorganism must be found in the newly infected animal and must be identical to the originally identified microbe.