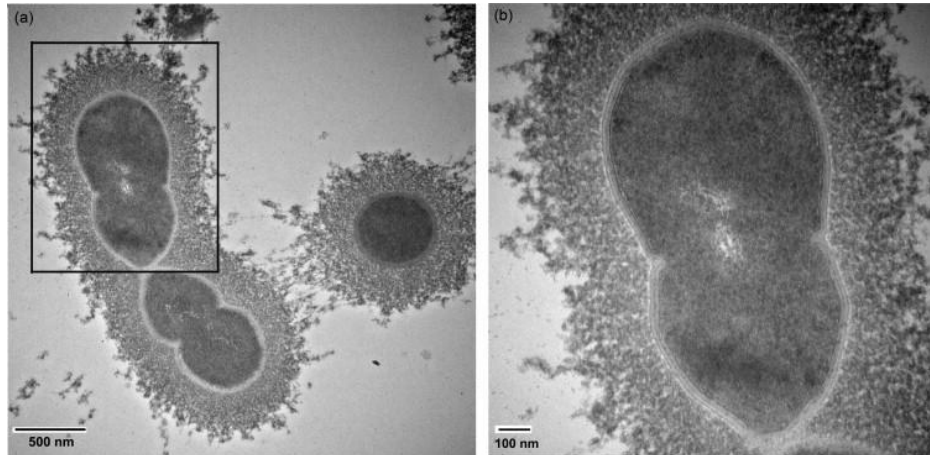


TYPES OF CAPSULES IN MICROORGANISMS



What is a capsule in Microorganism?

- A capsule is a structure that surrounds the cell wall of bacteria.
- It may consist of molecules other than polysaccharides, including proteins and teichoic acid.
- Capsules are commonly seen in Gram-negative bacteria.

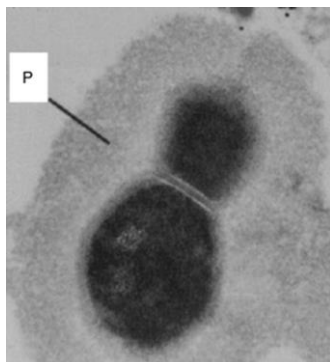
Different types of Capsules in Microorganisms

Polysaccharide Capsule

- A polysaccharide capsule is a layer of polysaccharides covering certain bacteria's surface.
- These include streptococci, staphylococci, and pneumococci.
- The function of a polysaccharide capsule is to protect bacteria from phagocytosis by white blood cells (leukocytes).

It can accomplish this in two ways:

1. By coating the bacterial cell surface with layers of carbohydrate chains that prevent antibodies from binding to it effectively.
2. By acting as an obstacle between antibodies and their target pathogenic cell surface antigen(s).

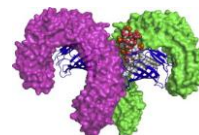


Lipopolysaccharide capsule

- The lipopolysaccharide capsule is a layer of polysaccharides that surrounds some bacteria.
- It's also called an LPS capsule because it's made of long chains of sugars called lipids (lipo-) and polysaccharides (-polysaccharide).
- Lipid A is the toxic component of this structure; it has been shown to cause fever in humans when injected into the bloodstream.

The LPS capsule serves several functions for bacteria:

1. It helps protect against phagocytosis by white blood cells (like macrophages) that would otherwise eat up and destroy them.
2. It allows certain bacteria to adhere tightly to surfaces such as our respiratory tract lining.
3. In some cases, this structure may also help prevent toxic substances from entering their cell walls.



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