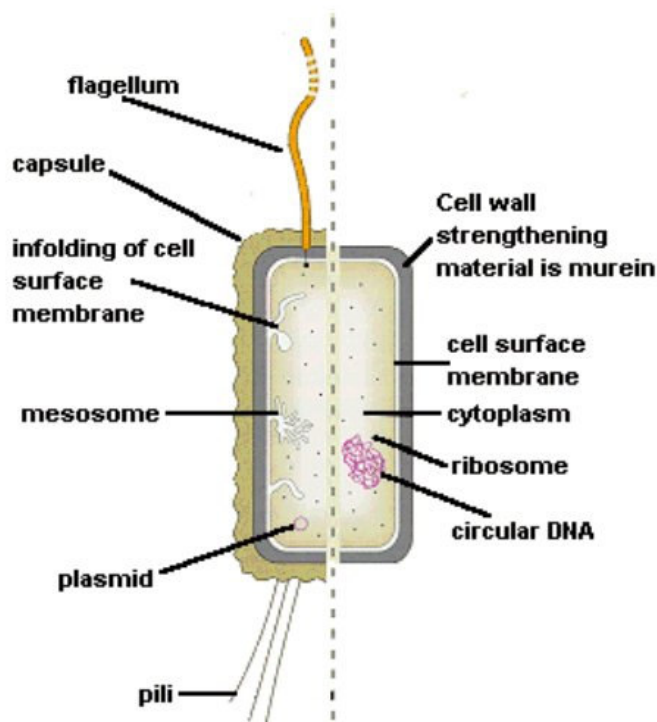


Prokaryotic Cells



- **Cytoplasm.** Contains all the enzymes needed for all metabolic reactions, since **there are no organelles**
- **Ribosomes.** The **smaller (70 S) type**.
- **Nuclear Body.** The region of the cytoplasm that contains DNA. It is **not** surrounded by a nuclear membrane.
- **DNA.** Always **circular** and **not associated with any proteins to form chromatin**.
- **Plasmid.** **Small loops of DNA**, used to exchange DNA between bacterial cells. **Used in genetic engineering**, they often contain **genes giving resistance to antibiotics**.
- **Cell membrane.** Made of phospholipids and proteins, **like eukaryotic membranes**.
- **Mesosome.** A tightly folded region of the cell membrane containing all the membrane-bound proteins required for respiration and photosynthesis. Can also be associated with the nucleoid.
- **Cell Wall.** Made of **murein** (not cellulose), which is a **glycoprotein** (i.e. a protein/carbohydrate complex, also called **peptidoglycan**). There are two kinds of cell wall, which can be distinguished by **Gram's stain**:
 - **Gram +ve** bacteria have a thick cell wall, stain purple, may have spores and **are sensitive to penicillin and lysosome** (an antibacterial enzyme found in tears and saliva).
 - **Gram -ve** bacteria have a thin cell wall with an outer lipid layer, have no spores and stain pink – these are thought to be more highly evolved.
- **Capsule.** A **thick polysaccharide layer outside the cell wall**. Used for sticking cells together, as a food reserve, as protection against desiccation and chemicals, and as protection against phagocytosis. Found only in some Gram +ve bacteria, **if a capsule is present, then flagellae are not**.
- **Flagellum.** A rigid rotating helical-shaped tail **used for propulsion**. The motor is embedded in the cell membrane and is driven by a H^+ gradient across the membrane. They always rotate clockwise - the only known example of a rotating motor in nature – rather like a propeller on a ship, it has to pass through the ‘hull’ of the cell *via* a waterproof seal.