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## **Ribosomes and Inclusion Bodies**

Cytoplasm in prokaryotes appear granular, due to the presence of following structures:

### **i. Ribosomes**

Like eukaryotes, ribosomes are also found in prokaryotes and serves a common function, i.e., acts as a site of protein synthesis. Ribosomes are small, but are complex both in structure and chemical composition. They are about 15-20 nm in size.

In prokaryotes, ribosomes are found in association with the plasma membrane of the cell (as it lack endoplasmic reticulum) in the cytoplasmic matrix. The prokaryotic ribosomes are of 70S type.

#### **It has following two sub-units**

(a) Smaller subunit (30S)

(b) Larger subunit (50S)

Ribosomes generally occur in helical groups called polysome or polyribosomes. In each polysome 4-8 ribosomes are attached to a single strand of mRNA. The ribosomes of a polysome helps in the translation (mechanisms to synthesise several copies of the same protein) of mRNA into protein.

### **ii. Inclusion Bodies**

They are non-living structures present in the cytoplasm and not bounded by any membrane system. They may either lie free in the cytoplasm (e.g., Cyanophycean granules, glycogen granules) or may be covered by 2-4 nm thick, non-protein membrane (e.g., Gas vacuoles, sulphur granules, etc).

\* Gas vacuoles are gas storing vacuoles that do not have any covering of their own. They are found in cyanobacteria (blue-green algae), purple and green photosynthetic bacteria.

\* These are named so, because they are permeable to atmospheric gases but not to water.