RAMA UNIVERSITY

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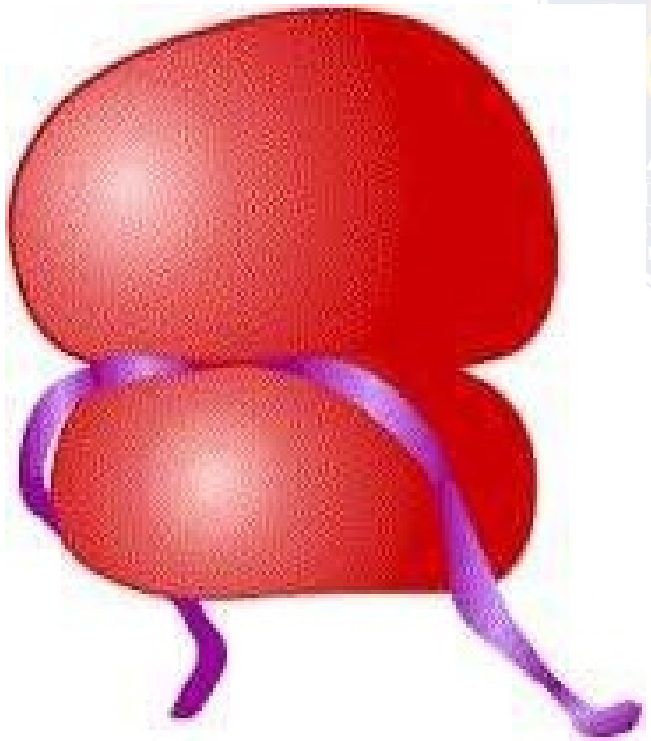
FACULTY OF ENGINEERING &TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Ribosomes

- It is a large & complex molecule.
- Found in all living cells prokaryote & eukaryote.
- That serves as the primary site of biological protein synthesis.
- Ribosome was first observed in 1953s by romanian cell biologist george emil palade using a electrone microscope.

george emil palade (1953)

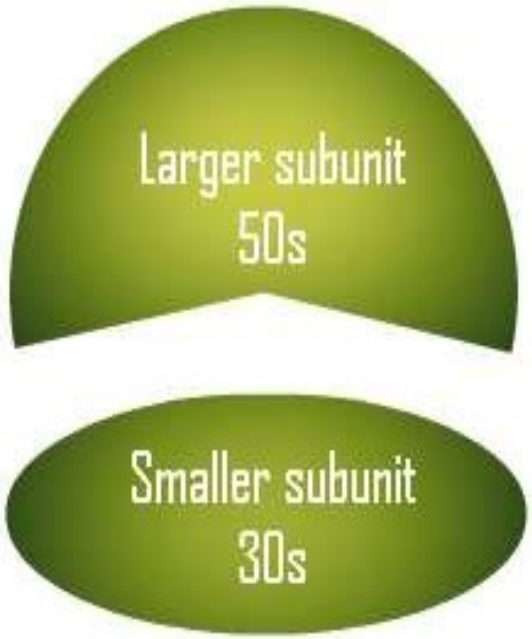


- In prokaryote free form in cytoplasm & protoplasm
- In eukaryote free in cytoplasm inside the cell attach to the outer membrane in endoplasmic reticulum

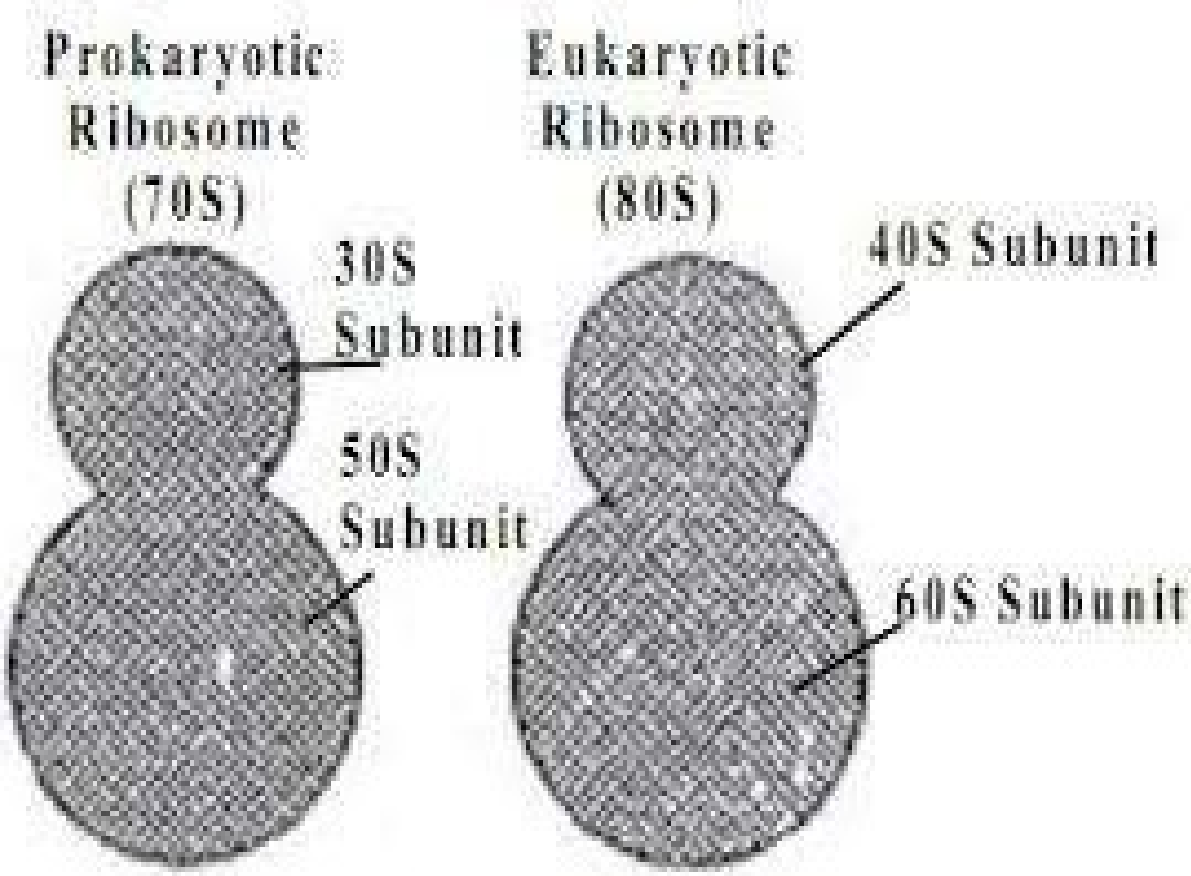
STRUCTURE

- It is without cell membrane.
- Two subunits are attach by a different angles.
  - ❑ Large subunit
  - ❑ Small subunit

The subunits of the ribosome are synthesized by the nucleolus.



Structure of ribosomal subunit


Prokaryotic
Ribosome
(70S)
30S
Subunit
50S
Subunit
Eukaryotic
Ribosome
(80S)
40S Subunit
60S Subunit

- The subunits of ribosomes join together when the ribosomes attaches to the messenger RNA during the process of protein synthesis.

- Ribosomes along with a transfer RNA molecule (tRNA), helps to translate the protein-coding genes in mRNA to proteins.

Ribosome Function

- Ribosome basically a protein factory. Subunits each have role in making of proteins
- To understand exactly what each subunit does, it's necessary to walk through protein synthesis step by step