I welcome u allI in this session myself.

Arati Talauliker.

Module name ribosome one. Model number 20 and the title of the unit is cell and its components. In this module we are going to learn the concept of ribosomes. Sedimentation coefficient types of ribosomes, and the structure of prokaryotic ribosomes. On the completion of this module, you will be able to explain what are ribosomes. And you will also be able to describe the structure of prokaryotic ribosomes. Ribosomes are small, dense, granular, ribonucleoprotein particles. They occur in all prokaryotic and eukaryotic cells. The name ribosome is derived from Greek words Ribo. It is ribonucleic acid and Soma means body. Ribosomes are non membraneous.

This diagram shows a plant cell in this we can see ribosomes. Some ribosomes are free in the cytoplasm, whereas some ribosomes they are attached to the endoplasmic reticular. Structure of ribosome. Ribosomes they are found in the cytoplasm of prokaryotic and eukaryotic cells, whereas saw they occur in organelles like. They are found in mitochondria and also in plastids. Arrival home is made from complexes of rRNA and proteins. And is therefore a ribonucleoprotein. The ribosome were first noted by Robinson And Brown in 1953 in plant cells and by palade. In 1955 in animal cells. Valid in 1956, he coined the term ribosome. Ribosomes are also known as ribonucleoprotein factories.

They also called us pallet particles. And also protein factories. Ribosomes the cell as a primary site for biological protein synthesis. Occurrence and distribution. They occur in both prokaryotic and eukaryotic cells. In prokaryotic cells, ribosomes they occur freely in the cytoplasm. An search ribosomes are called as free ribosomes. In eukaryotic cells ribosomes they either occur freely in the cytoplasm or they remain attached to the endoplasmic reticulum and nucleus. When this ribosomes, they're attached to the ER and nuclears they're called is bounded ribosomes. Number the number of ribosomes they differ greatly. In bacterial cells,

an average of about of about 10,000 ribosomes are seen. In plant cells up to five flag ribosomes in eukaryotic cell 1,000,000 to 10 million ribosomes. So this number, it depends on the physiological ability of cell to produce proteins. They occur single and they're known as monosomes and in cluster they are called polysomes. So at the time of protein synthesis, 6 to 8 ribosomes, they temporarily joined with the M RNA to form a cluster called polysome. Sedimentation coefficient ribosomes are of two basic types. 70 S an 80S ribosomes Is S refers to svedberg units. This is a sedimentation coefficient which shows at what rate cell

organelle sediments in a.

Ultracentrifuge the types of

ribosomes according to the

sedimentation coefficient.

Two types of ribosomes have been recognized.

70 S at 80 S.

Each ribosome is divided into 2 subunits,

a smaller subunit and a larger subunit.

The smaller subunit it binds to

a larger subunit and the M RNA.

The largest subunit it binds to the T RNA.

The amino acids and the smaller subunit.

Structure of prokaryotic ribosomes.

All prokaryotes they have 70 as ribosomes.

The molecular weight is 2.7

into 10<sup>6</sup> deltans.

They occur in the prokaryotic

cells of the blue green algae and

bacteria and also in mitochondria and

chloroplast of eukaryotic cells.

70S Ribosomes, these are porous,

hydrated and composed of the largest subunit which is 50 S smaller subunit which is 30 S This subunits joined together only during the process of protein synthesis. 30S subunit, it remains attached with the larger subunit. That is the 50S in the case of prokaryotic ribosomes like a cap. So you can see in this diagram that is larger subunit 50 S and the smaller subunit 30 is. The smaller subunit it remains attached with the largest subunit like a cap. The RNA and proteins are intertwined and arranged in a complex manner in the two subunits. The smaller subunit is asymmetrical. An indentation divides the Serbian it into two unequal parts. That is the head and the body.

a base, an a platform. The platform separates head from the base with the help of a cleft Larger subunit. It is made up of ridge. The central protuberance and a stock. The region the central protuberance are separated with the help of a Valley. The function of ribosome is to take the actual message and the charge aminoacyl -tRNA. complex to generate the protein. The M RNA passes through a tunnel between the two subunits between the two subunits is a group or channel through which the newly formed polypeptide chain comes out. Association and dissociation of subunits depends on the Mg ++ions.

So it is made up of a head,

The subunits of the ribosome are

synthesized by the nucleolus. Ribosomes, along with the tRNA helps to translate the protein coding genes in M RNA, to protein. So to do so, they have three binding sites. One is for the Amorini and the two are for the t RNA, so the binding site for t RNA are the A side or the acceptor side. And the P side which binds the growing polypeptide T or any. Growing polyp, the space site, which binds the growing polypeptide, tRNA. chemical composition. Ribosomes are composed of RNA proteins, and certain divalent metalilic ions. So the RNA and protein ratio is 2 is to 1. So you can see here it is the smaller subunit and the largest of the unit, the smaller subunit it is made up of.

16 rRNA and 21 proteins,

whereas the 50 S subunit

is made up of 5 S.

23 S rRNA and 34 proteins.

Besides, there are metal ions also present.

Like Mg ions, calcium ions

Mn ions

these are the references.

Online references.

Thank you.