St. Gregorios School, Dwarka

Class 8th (Session 2020-21)

Biology Worksheet- 2 (Chapter-2 Microorganisms)

Q1 What are communicable diseases? Name any two communicable diseases.

Q2 Write one point of difference between Pathogens and Carriers.

Q3 How is common cold spread?

Q4 How does a housefly transmit diseases?

Q5 How can we control the spread of malaria and dengue?

Q6 How does the food becomes poison?

Q7 What do you mean by food preservation? What role does sugar play in the preservation of food? Name two chemical preservatives.

Q8 What is Pasteurisation? Why do we boil milk before consuming it?

Q9 What are the indications or changes which helps to detect the spoilage of food?

Q10 Why are bacteria and fungi said to be decomposers?

Q11 Name three plant diseases, their causative microorganisms and mode of transmission in tabular form.

Q12 Name the dangerous human and cattle disease caused by a bacterium (Bacillus anthracis). Who discovered that bacterium?

Q13 Name the causative microorganism, its mode of transmission and preventive measures for the given human diseases –

a Tuberculosis
b Typhoid
c Hepatitis B
d Malaria

Q14 Define 'Immunity'.

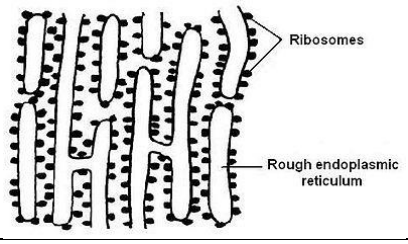
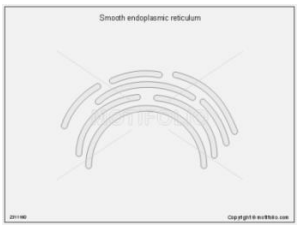
Q15 Draw a systematic diagram of Nitrogen Cycle and explain in points.

Class IXth (Biology Notes)
Chapter-5 (The Fundamental Unit Of Life)

CELL ORGANELLES

A) ENDOPLASMIC RETICULUM

1. Discovered by K. Porter.
2. It is a double membrane bound cell organelle.
3. Its forms an extensive network of membrane bound tube like structures throughout the cytoplasm.
4. It provides mechanical support to the cell i.e. forms skeletal framework of cell and provide large surface area for biochemical activities of the cells.
5. It helps in transport of substances from one part of the cell to the other and vice-versa forms a circulatory system of the cell).
6. It helps in "MEMBERANE BIOGENESIS"- the proteins and lipids synthesized by the RER and SER respectively help in building up the plasma membrane.
7. Some proteins and lipids act as enzymes and hormones.

ROUGH ENDOPLASMIC RETICULUM	SMOOTH ENDOPLASMIC RETICULUM
1. They have ribosome's attached on their surface.	1. They don't have ribosome's on their surface.
2. They help in synthesizing proteins.	2. They help in synthesizing lipids(fats).
	3. It helps in detoxifying many poisons and drugs in the liver cells mainly in vertebrates by making them harmless.
	

B) RIBOSOMES

1) Discovered by George E. Palade
2) It is present in ER and freely in cytoplasm.

3) It is a site for protein synthesis.
4) It is a dense single cell, spherical structure composed of RNA and proteins.
5) It is a smallest organelle without a cell membrane.
6) It is called as "Protein factory of the cell" as helps in protein synthesis.
7) Each ribosome is formed of 2 unequal components - 70S ribosome (in prokaryotes) is formed of 50S and 30S sub units, 80S ribosome (in eukaryotes) is formed of 60S and 40S subunits.

C) GOLGI APPARATUS

1) Discovered by Camillo Golgi
2) It is double membrane bound cell organelle consist of curved tubular structures called CISTERNAE with swollen ends called VESICLES which are arranged one above the other in parallel rows.
3) It helps in storage, modification and packaging of products in vesicles and then transporting them to necessary locations within the cell.
4) It also helps in formation of Lysosomes.
5) It helps in the formation of complex sugars from simple sugars.
6) It is also known as the "Export house of the cell" because it helps in packaging and dispatch of materials to various targets inside and outside the cells.

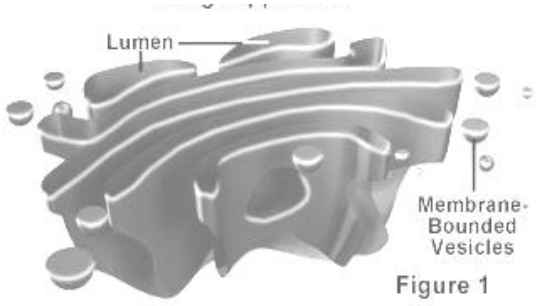
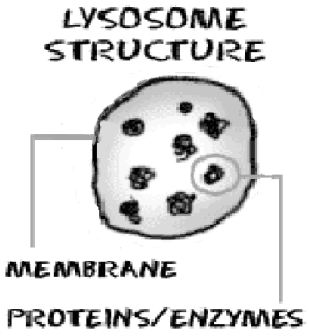


Figure 1

D) LYSOSOMES

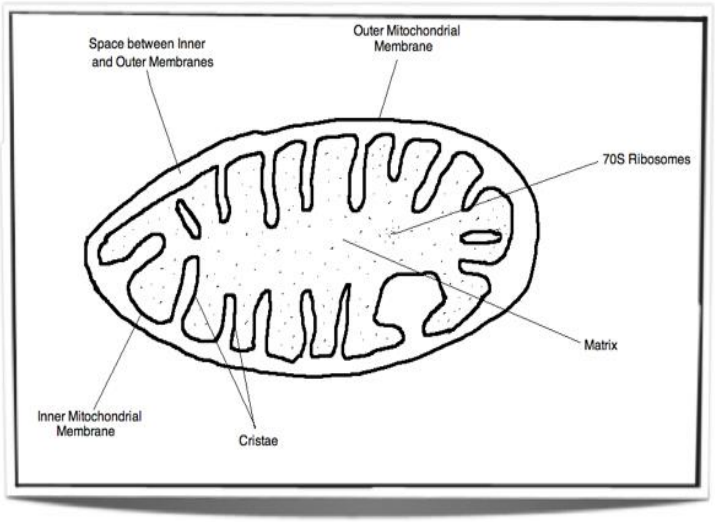
1) Discovered by Christian De Duve.
2) Surrounded by single membrane made of lipids and proteins.
3) They are tiny spherical bag like structures full of digestive enzymes.
4) They clean the cell by digesting any foreign material present within the cell.
5) They also digest worn out cell and cell organelles.
6) They also help in getting rid of worn out and damaged cells i.e. when a cell gets damaged lysosomes may burst and digestive enzymes digest their own cell and shows self- digestion (AUTOLYSIS) and hence are called as SUICIDAL BAGS. (The lysosomes originate from Golgi. The proteins which are synthesized in RER are transported to Golgi and then pinched off to form lysosomes.

7) They are a kind of waste disposal system of the cell.



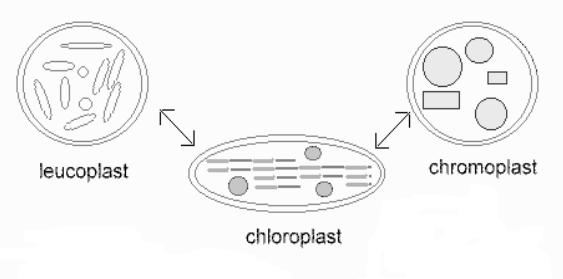
E) MITOCHONDRIA

1) Discovered by Kolliker
2) It is a double membrane bound cell organelle.
3) The outer membrane is porous and allows uptake of substances and the release of ATP (Adenosine Tri Phosphate) molecules.
4) The inner membrane forms finger like folds called cristae which increase the surface area for ATP generating chemical reactions. The inner chamber is filled with matrix where the synthesis of ATP molecules takes place.
5) This organelle helps in synthesizing ATP molecules and thus provides energy during respiration. (ATP is called as ENERGY CURRENCY of the cell.)
6) The mitochondria have its own DNA and Ribosomes and hence it can synthesize its own proteins independently.
7) It is called as "Power House of the cell".



F) PLASTIDS

1) Discovered by E. Haeckel.
2) Double membrane bound cell organelle, oval shaped.
3) Only found in plant cell.
4) They are of 2 types –Chromoplast and Leucoplast
5) **CHROMOPLAST** – They are plastids containing coloured pigments like yellow or orange which give bright color to flowers and fruits and also helps in pollination and dispersal of fruits and seeds.
6) **LEUCOPLAST** – They are colourless plastids which help in storage of various substances within the cell. Eg.-starch, oil and protein granules.
7) **CHLOROPLAST** – Plastids which are green in colour. They contain green pigment called chlorophyll which helps in photosynthesis. The chloroplast has **GRANA** disc like structure which are interconnected and chlorophyll are located in this part. It also has **MATRIX** or **STROMA** the denser proteinaceous material which fills the inner chamber and contains grana, ribosome and DNA material. Since they have their own DNA and ribosome so can prepare their own proteins. They are called as "Kitchen of the cell"



G) VACUOLE

1) Discovered by Anton van Leeuwenhoek
2) It is surrounded by a single membrane called Tonoplast.
3) In plant cells the fluid inside the vacuole is called cell sap which gives rigidity and turgidity to the cell.
4) They help in storage of various substances like amino acids, sugars and proteins.
5) In unicellular organisms, vacuoles help in digesting food for e.g. Amoeba.
6) In some unicellular organisms vacuole help in excretion for e.g. Contractile vacuole in amoeba.
7) Plant cell have a larger vacuole than animal cell which has small vacuoles.

H) PEROXISOMES

1) Found in animal cell(kidney and liver cells except RBC) and in photosynthetic cells of plants.

2) Small membranes bound sac like structure containing powerful oxidative enzymes which helps in removal of toxic substances from cells and in photorespiration.

I) CENTROSOMES AND CENTRIOLES

1) In animal cells except RBC minute hyaline body is present inside the cytoplasm.
2) It contains 2 round dot like bodies called as centrioles. Each one is made up of microtubules and occurs in pairs.
3) They initiate the cell division during which forms asters and helps in movement of chromosomes in the daughter cells.
4) They also help in formation of cilia and flagella of the cells by forming their basal bodies.

** SPINDLE - During the process of cell division the number of fibers are formed by centrioles which attach themselves to the centromere of the chromosomes which act as spindles. They help the chromatids to pull apart.

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St. Gregorios School, Dwarka
Class 9th (Session 2020-21)
Biology Worksheet – 2 (Chapter – 5 The Fundamental Unit Of Life)

Q1 Draw a neat and well labelled diagram of a prokaryotic cell.
Q2 Describe the structure of mitochondria and its main function.
Q3 Write the similarities between mitochondria and plastids.
Q4 Name the cell organelle which is non-membrane bound. Mention its function.
Q5 Describe the role played by the Lysosomes in a cell. Why are these termed as 'suicidal bags'. How do they perform their function?
Q6 Differentiate between RER and SER in tabular form. (3 points)
Q7 Differentiate between plant cell and animal cell in tabular form.
Q8 Differentiate between Chromoplasts and Leucoplasts. Give an example of Chromoplasts which have a green pigment. Why is it green in colour?
Q9 Why is virus an exception to cell theory?
Q10 Why do plant cells possess largely sized vacuole?
Q11 What would happen to the life of a cell if there was no Golgi apparatus?
Q12 List the constituents of plasma membrane. What would happen to the life of cell if the plasma membrane ruptures or break down?
Q13 Define Cell Division. sWhich type of cell division is required for growth of cell and which type is involved in formation of gametes?
Q14 What are the functions of Endoplasmic Reteculum (ER)?
Q15 Give brief answers –

a Why is the inner membrane of mitochondria folded?
b Name the smallest and the longest cell in human body.
c Define protoplasm.
d What are membrane bound structures in a cell called?
e Name the membrane which surrounds vacuole.
f Name and draw two Human cells.