

Molecular cell biology

Our present cell derived from
 one existing cell, all functions
 and structures cell are derived
 from being parents by various
 chemical reactions and by cell
 division process. This phenomenon
 is known as molecular cell
 biology.

* Molecular cell biology also includes
 DNA - Replication, Transcription
 and Translation process and
 this whole process is known
 as Central Dogma.

DNA

- Viroids are unicellular organisms called connecting links between prokaryotes and eukaryotes. They are non-living in outside environment while there are living inside the host, bacteria, plant and animal cells.

★ Three requirements have to be fulfilled for a cellular organisation these are :-

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- A selectively permeable boundary separating the cellular component from the outside.

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- A metabolic system which would allow a series of enzyme catalysed reactions.

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- A genetic information system which would store and transmit hereditary information for future generations.

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- Proto-cellular Evolution :-
- Pre-biotic
- Proto - newly formed/initially formed.
- Evolution - change at genetic or molecular basis

## ★ Proto-cellular Evolution and artificial creation of cells :-

- Our planet earth is originated about 15 billion years ago after theory of big-bang (creation of universe) of
- Initially our earth was too hot i.e. used to be hot and it was cooled when neutrons and protons fuse together to form atomic nuclei of hydrogen and helium gases so, hydrogen and helium was produced initially.
- Heavier elements were produced after the stars formed by influence of gravitational forces. When their (stars) densities increased, then

(15)   
fragment into smaller droplets.

Go ~~across~~ ~~are~~ ~~destroyed~~ when the pH of the medium are not favourable.

## Protoid Model

\* Sydney Fox in (1965) suggested that protoids are protein like molecules, which could be synthesized by polymerisation of amino acid.

\* Protoids are spherical particles with a double layered outer membrane like that of plasma membrane.

\* They show weak catalytic property.

# The Cell theory

- In 1665 Robert Hooke suggested the term "cell" after discovery of simple microscope.
- It was Compton that the cellular nature of living organisms occurs and various cells arise from their parents cells (pre-existing cell).
- During several centuries diff<sup>n</sup> - scientists gave the diff<sup>n</sup> concept of cell theory.
- Schleiden and Schwann (scientists) are generally given the cell theory according to them both plants and animals are made up of aggregations of basic unit called cells. Schleiden and Schwann