

L1

▼ Hypothesis 1: abiotic synthesis

- very first biomolecules were formed by abiotic synthesis.
- reducing env + UV/lighting (basically high energy) → synthesis
- 1953 Miller and Urey demonstrated this (Primordial soup wala expt)

▼ hypothesis 2: abiotic polymerization

- due to high rate of dehydration spontaneous polymerization occurred
- hence macromolecules like cellulose got formed
- Sydney Fox proved in 1950

▼ hypo 3: Abiotic Replication

- it can be RNA
- flow of info in the living world: DNA → RNA → protein

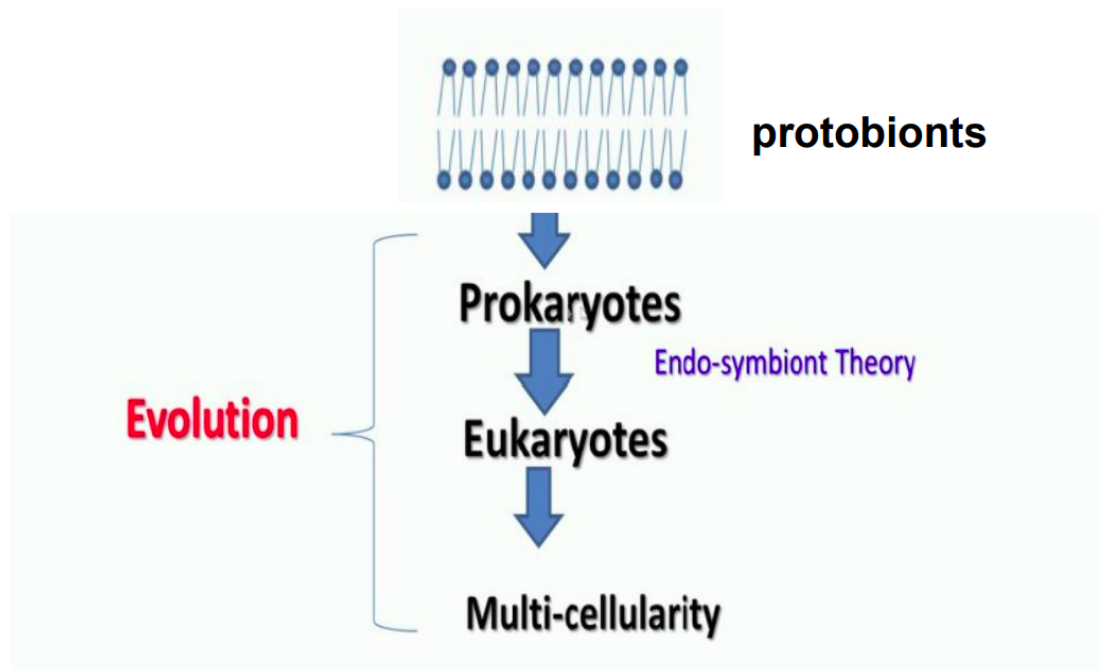
Why can RNA be the earliest molecule capable replicating?

as it can:

1. Polymerize
2. cleave
3. act as an enzyme without protein catalyst
4. involved in protein synthesis, ribosomes synthesis, DNA synthesis

▼ hypo 4: Protobionts

- liposomes bne honge
- amphipathic hote hai - polar head, non-polar tail
- A Liposome is a spherical vesicle made of phospholipids derived from natural or man-made materials
- Phospholipids are the main components of biological membranes



▼ Oxygen revolution

- life form ko energy obtain krne keliye sources chahiye
- H₂S ka reducing power use kiya
- H₂S khatam to Solar energy use kiya → photosynthesis chalu
- by product : O₂
- oxidizing condtions mei bna mitochondria : O₂ imp for life hui

▼ Evolution

homology: somekind of similarity

Lamarck's theory: theory based on use or disuse of a particular part was not the reason for evolution

▼ Darwin Wala Part

▼ Galapagos Islands Observations

1. in each island, there were unique birds, species and tortoises and no two islands had exactly the same kind of species, though similar to those found in the nearest island
2. the species can adapt to the changing environment.
3. the survival of the fittest

▼ Observation in Coastlines

Another observation he made during his voyage across the coastlines of Africa, Southern America, and Australia, was that the distribution of the species mirrored how the continental drift actually happened in the earth's history

▼ Summary

To summarize Darwin's observations:

- **Individuals in a population exhibit variable traits: Variations**
- **Many traits are heritable**
- **Species adapt to their environment**
- **Limited resources**
- **Competition for survival**

▼ Natural Selection

pressure, provided by the environment is what is called the 'natural selection'.

▼ Mendelian Genetics

▼ Variations kaise hote hai?

Mutation : replication ke time kuch error

▼ Extinction kaise?

- adapt nhi kr paaya

- catastrophic event

Molecular phylogeny: look at similarities in DNA, RNA and proteins sequences/structures