

# EVOLUTION: SMALL VARIATIONS FOR BIG CHANGES

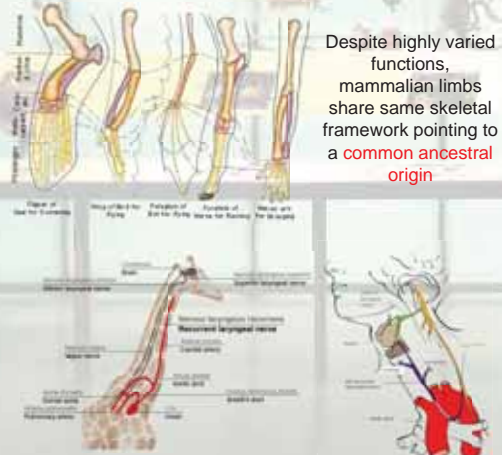
Rationally, simplicity has a power to explain complexity. **Evolution** provides a way to explain the astounding complexity of life from simple beginning

## Paleontological Evidences



Distribution of fossils in earth layers suggests **gradual transformation** of life from simple to complex

## Anatomical Evidences



Despite highly varied functions, mammalian limbs share same skeletal framework pointing to a **common ancestral origin**

Presence of vestigial organs suggests **lack of design**

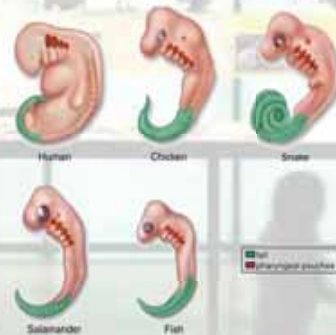
## What is Evolution?

36,00,000,000 years (3.6 billion years)

Gradual transition from Simple to Complex

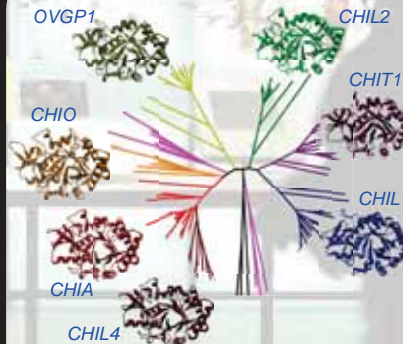
**DESCENT with MODIFICATION**

## Embryological Evidences



Formation of gill clefts and tail in the embryos of tail less vertebrates can be rationally explained only in the light of evolution

## Molecular Evidences



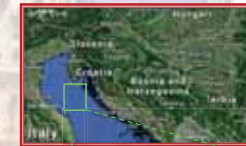
Hussain and Wilson., 2013. J Mol Evol. 76

Evolutionary trees based on DNA /protein sequences and structures align neatly with the evolutionary trees based on the homologous morphological and anatomical characteristics

## Before Our Eyes



HIV-AIDS is a relatively recent viral disease, phylogenomic studies demonstrate a common origin of primates **SIV** and human **HIV**



In 1971, scientists transported 5 pairs of insectivore lizards *Podacris sicula* from island **Pod Kopiste** to **Pod Mrcaru**



After 20 years, reanalyses showed that the insectivore lizards evolved in response to Pod Mrcaru vegetations. The changes even observed at the anatomical level for example *P. sicula* developed **cecal valve** and **broader jaws** which were not present in progenitors