

EVOLUTION: SMALL VARIATIONS FOR BIG CHANGES

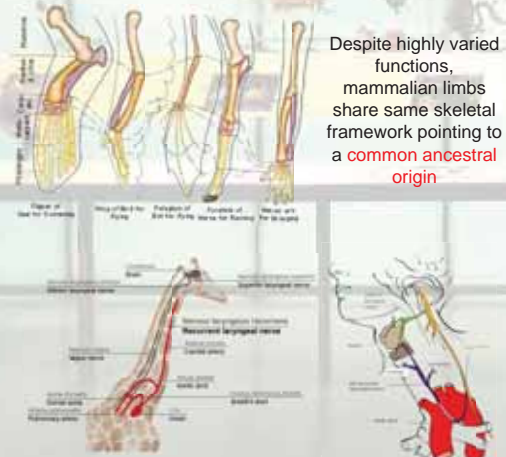
Rationally, simplicity has a power to explain complexity. **Evolution** provides a way to explain the astounding complexity of life from simple beginning

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**

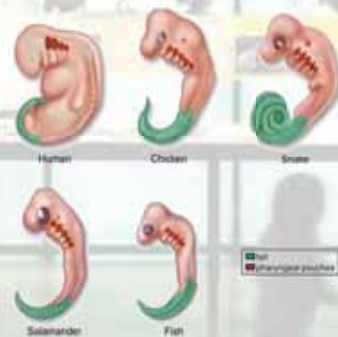
What is Evolution?

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

Gradual transition from Simple to Complex

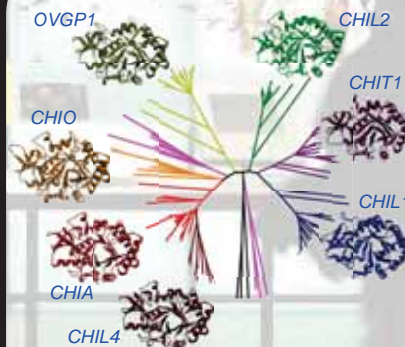
DESCENT with MODIFICATION

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



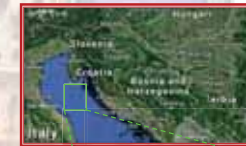
Hussain and Wilson., 2013. J Mol Evol. 76

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