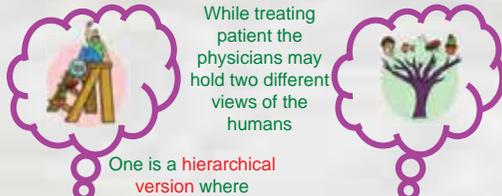


# EVOLUTIONARY MEDICINE: RESOLVING REASONS FOR SICKNESS

Modern medicine slowly but surely realizing that the basis of both healthy and diseased states are mostly hardwired in the genetic and evolutionary makeup of the organism. **Evolutionary Medicine** furnishes an approach to study such inbuilt characteristics

## A New Look

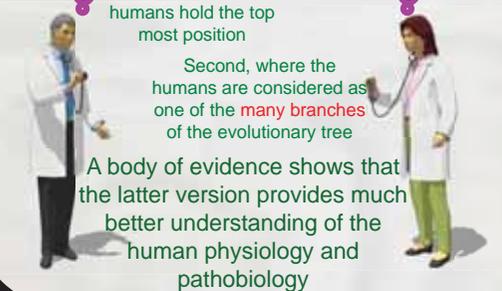
While treating patient the physicians may hold two different views of the humans



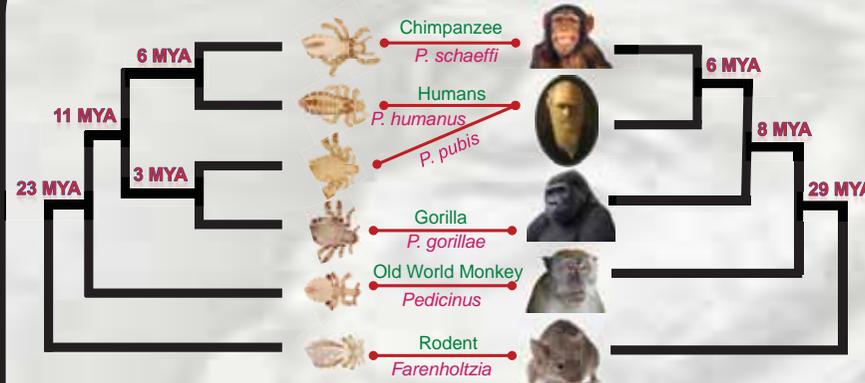
One is a **hierarchical version** where humans hold the top most position

Second, where the humans are considered as one of the **many branches** of the evolutionary tree

A body of evidence shows that the latter version provides much better understanding of the human physiology and pathobiology

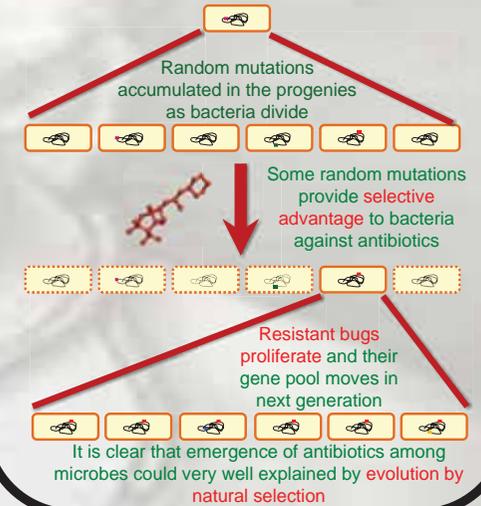


## Co Evolution Host and Parasites



Evolution does provide explanation for the origin of parasites such as lice. Interestingly, as primates undergoes speciation, lice infecting those evolved parallel to their hosts (**co-evolution**) which infect the newly evolved species

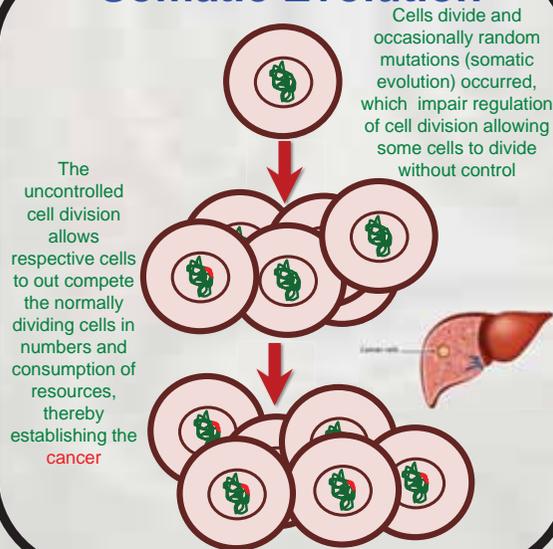
## Antibiotic Resistance



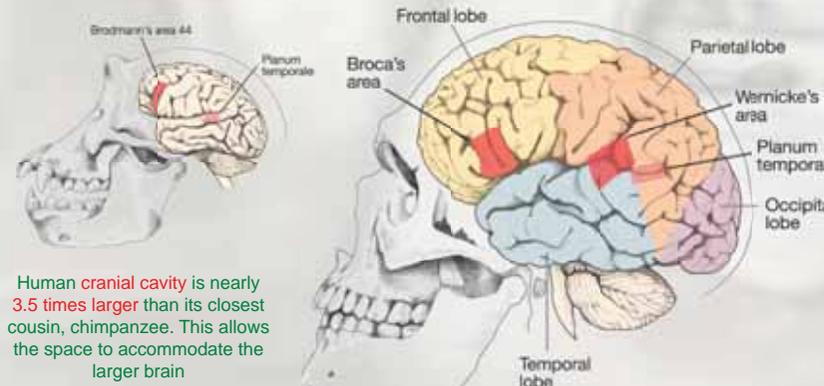
## Somatic Evolution

Cells divide and occasionally random mutations (somatic evolution) occurred, which impair regulation of cell division allowing some cells to divide without control

The uncontrolled cell division allows respective cells to out compete the normally dividing cells in numbers and consumption of resources, thereby establishing the **cancer**



## Trade-Offs



Human **cranial cavity** is nearly **3.5 times larger** than its closest cousin, chimpanzee. This allows the space to accommodate the larger brain

The larger brain size allows humans to supersede other primates at least intellectually and in terms of cognition. On the downside it raises the complications during child birth where human females generally require assistance during child birth. This combination of evolving advantage and disadvantage is referred to as **Trade-Off**. Evolutionary history of animals is laced with such compromises

## Competition Effect

Human females who conceive the pregnancy after repeated insemination from same partner are less prone to abortion compared to females which conceive the fertilization after just one exposure insemination

Multiple Events of Insemination

As humans like most other mammals have parental care, It is proposed that this phenomenon provide **Evolutionary Advantage** to human females to bear the offspring of faithful partner

Single Event of Insemination

