

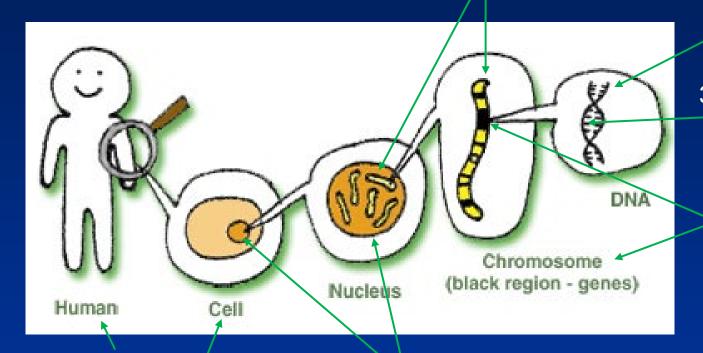
## "Genetics...is like the beginning of the internet in 1993"

...George Church Harvard Medical School

## Basic Genetics (one slide) -- DNA?...chromosome? ...gene?

Each nucleus has 46 chromosomes

Each chromosome is made of DNA



DNA is made of 3,050,000,000 links

19,969 genes are sections of a chromosome

Body made of cells

Each cell has one nucleus

## What determines our future? ... "Nature versus Nurture"



Genetics? ("Nature")

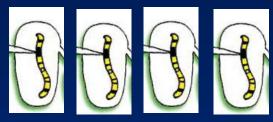






Upbringing? ("Nurture")

## Answer: "to some extent"



Many Genes -> One Effect (Polygenics)

Limitations -



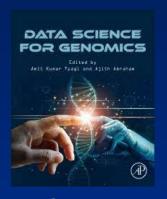
Genes have "On – Off" Switch (Epipgenetics)



In the future: Can genes tell our future?

Answer: "more and more"

2003 2021 2040?



Human Genome Project

Total = ~20,000 genes

Function = 0



T2T Project
Total = 19,969
Functions = 115+



"more & more" Functions: >115

