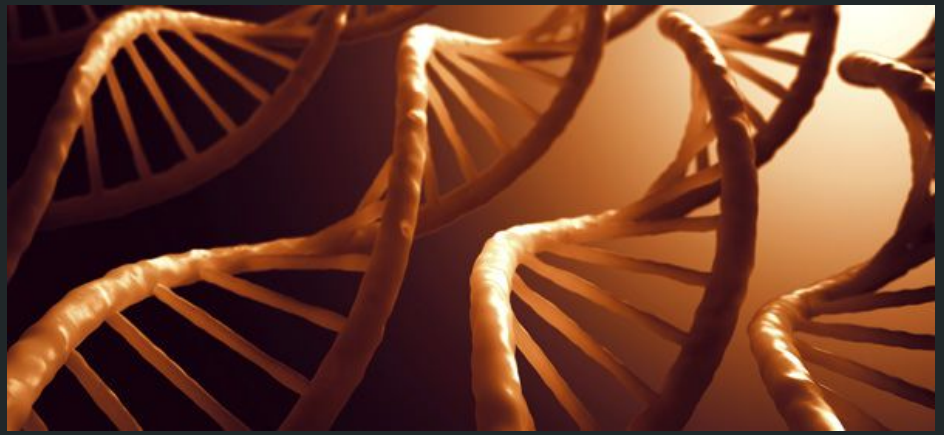
DNA & RNA



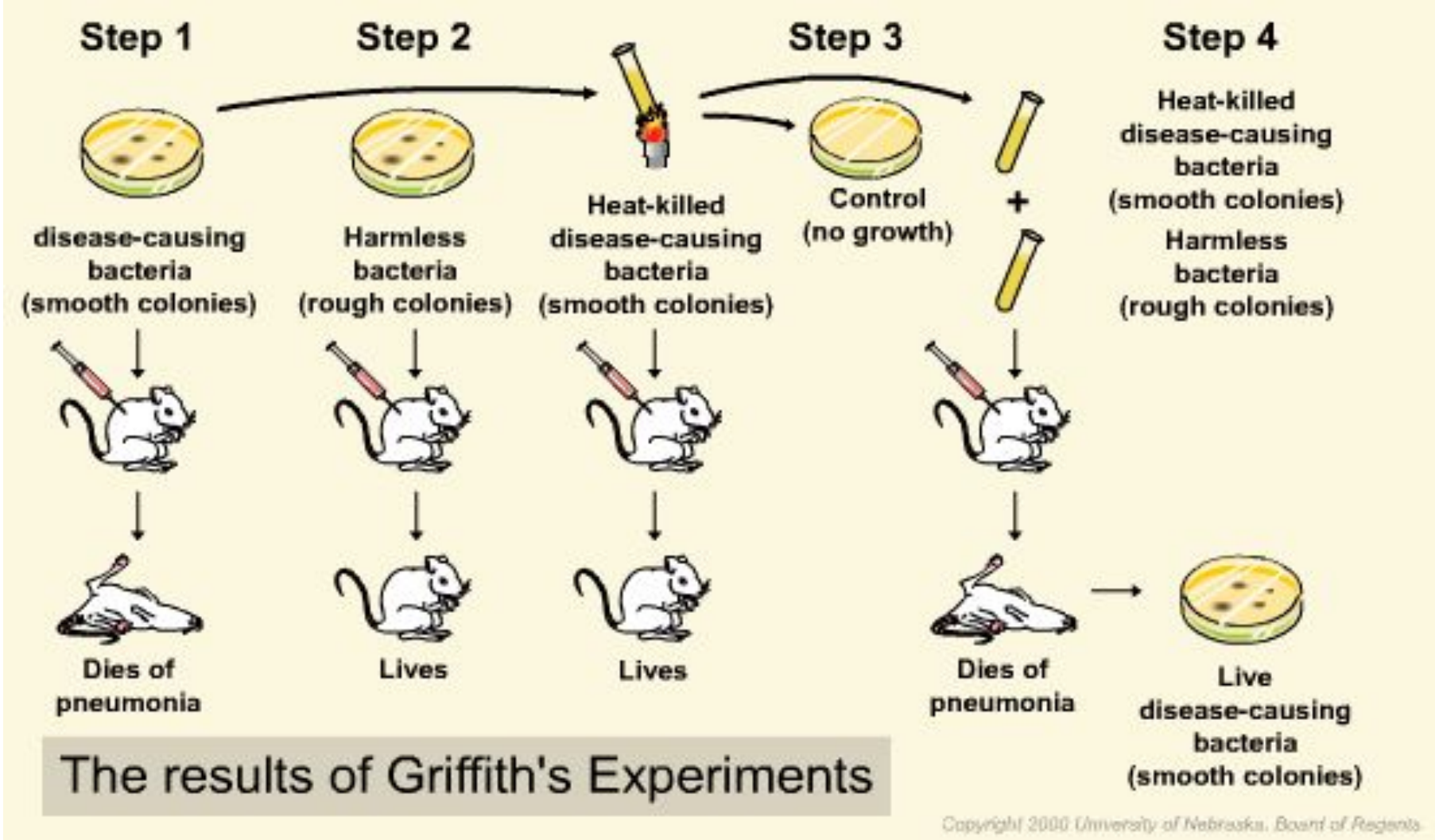
Chapter 12

12.1 The Discovery of DNA

The chemical nature of how genes were transported from generation to generation was unknown through most of human history.

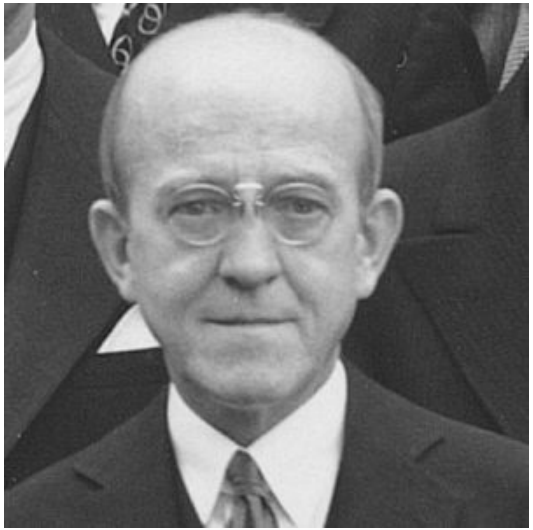
1928: Frederick Griffith was a British scientist, studying bacterial transmission of pneumonia

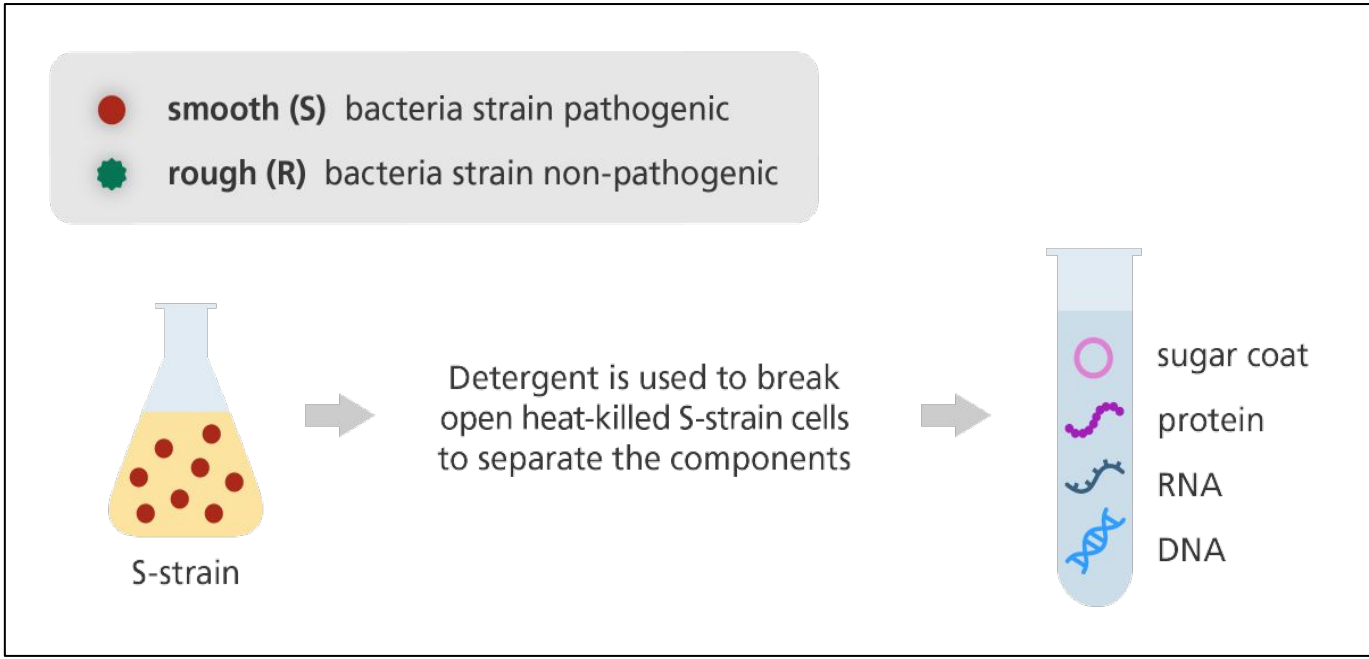
Transformation: process that allows bacterial genes to be altered by other strains of bacteria



The results of Griffith's Experiments

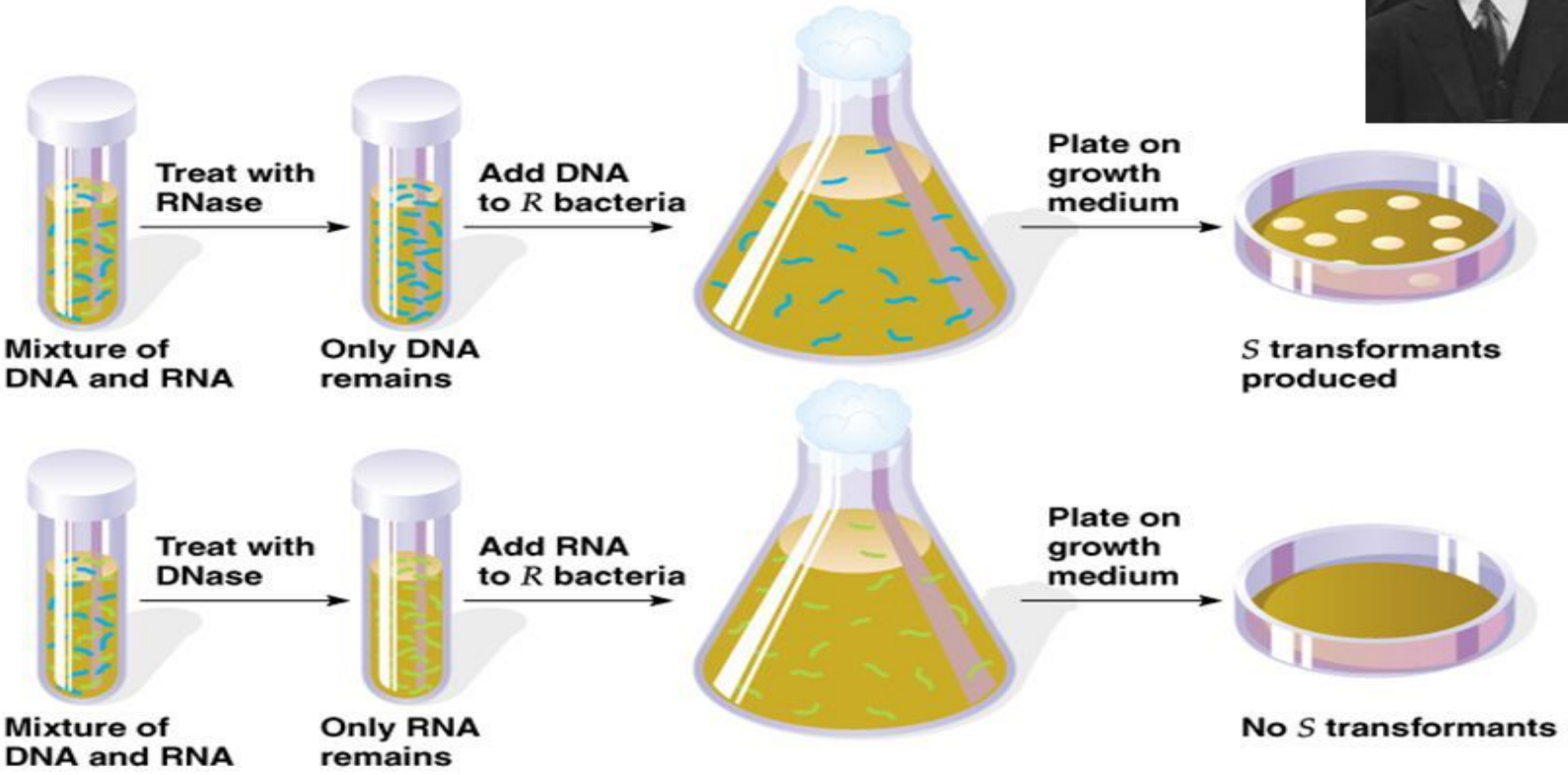
1944: **Oswald Avery** repeated Griffith's experiment and discovered that only when the nucleic acid DNA of the bacteria was destroyed did the genetic information not get passed on.



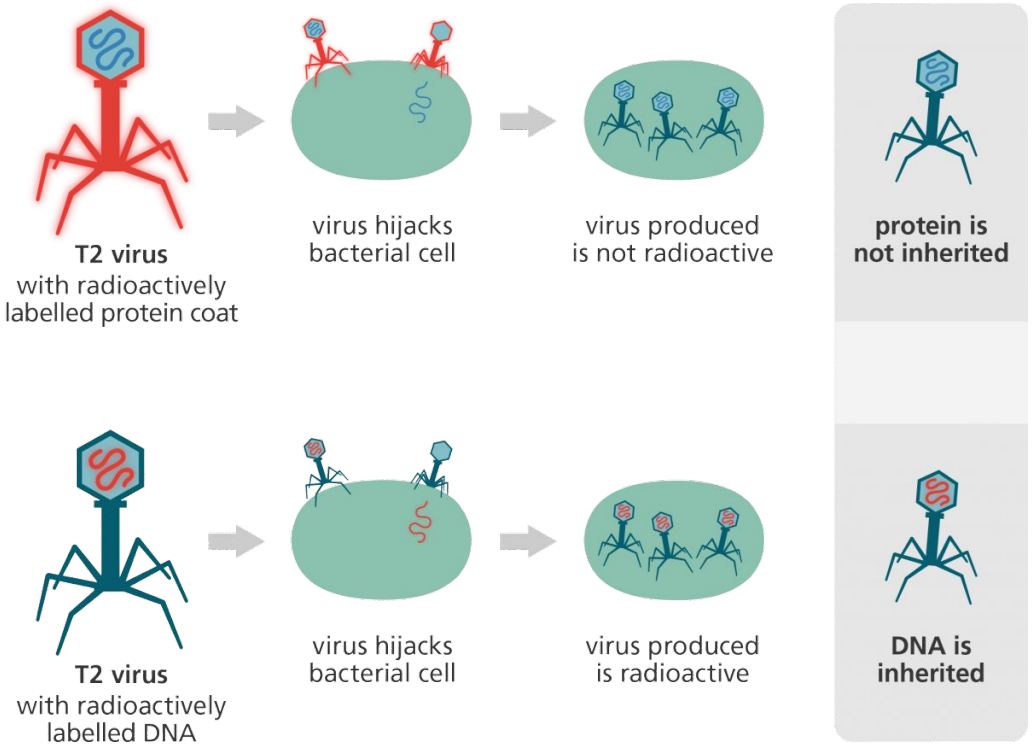


Oswald T. Avery's Transformation Experiment - 1944

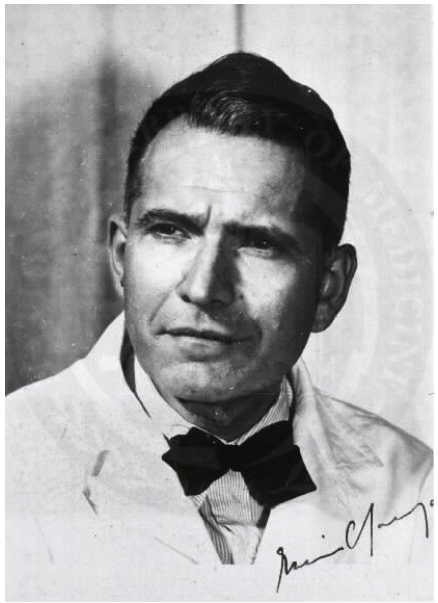
Determined that "IIIS" DNA was the genetic material responsible for Griffith's results (not RNA).

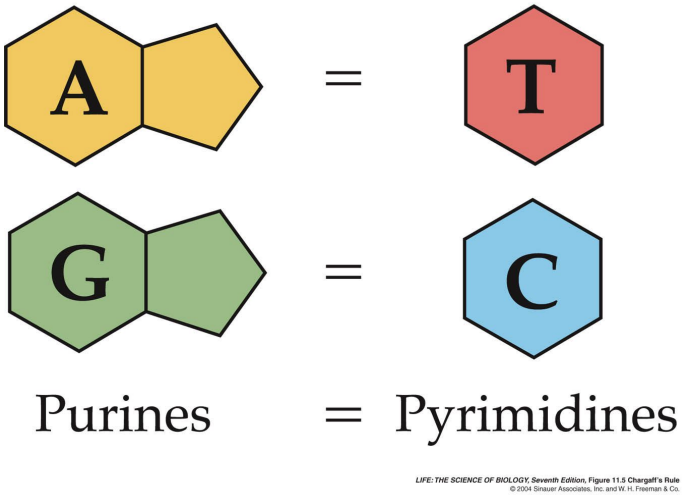


1952: Alfred **Hershey** and Martha **Chase**, discovered that the DNA was indeed passing genetic information, not the protein coat of a virus.



1950: American biochemist, **Erwin Chargaff** discovered the chemical composition of nitrogen-base pairs of a DNA strand.
Nitrogen base pairing are called *Chargaff's rules*.





LIFE: THE SCIENCE OF BIOLOGY, Seventh Edition, Figure 11.5 Chargaff's Rule
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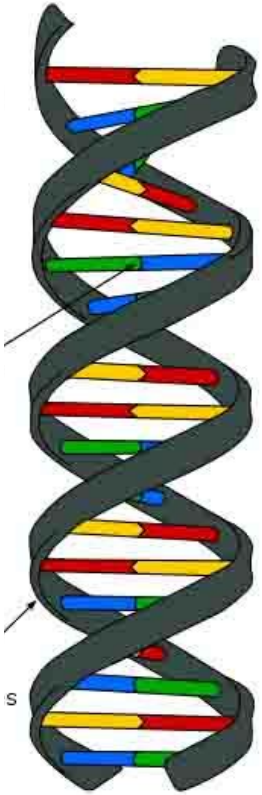
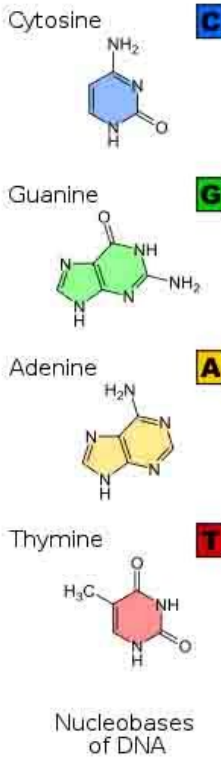
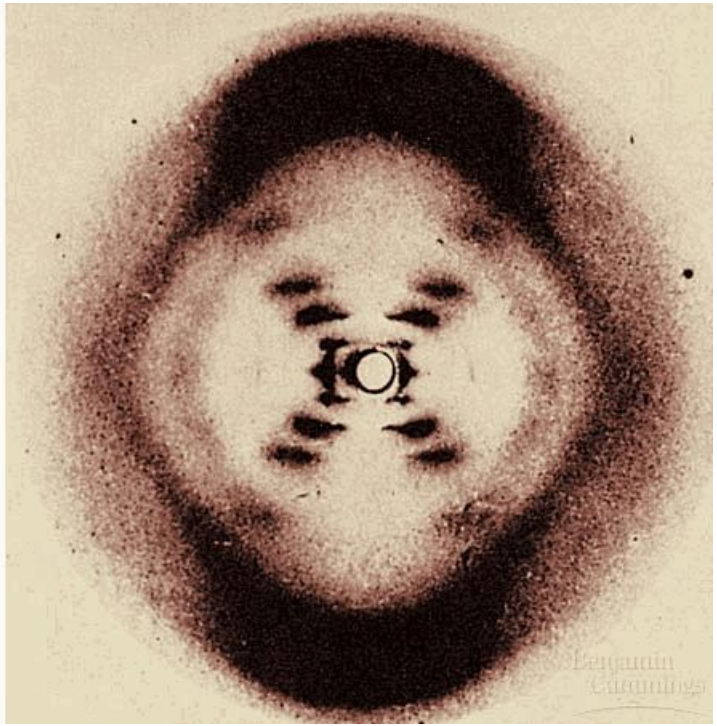


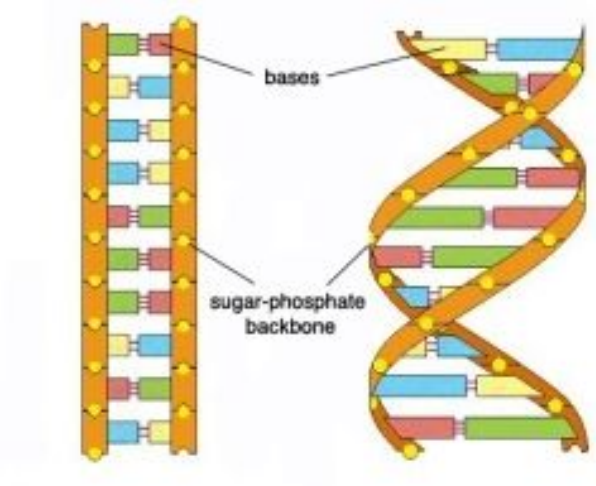
DNA
Deoxyribonucleic acid



Also in the **1950s**: a British scientist, **Rosalind Franklin**, took x-rays of DNA to see the pattern of the structure. Her x-ray photographs were the first hint at the double helix structure of DNA.



1953: British physicist, **Francis Crick,** and American biologist, **James Watson**, built the first three-dimensional model of DNA (*based on the photographs by Rosalind Franklin)*



DNA Discovery