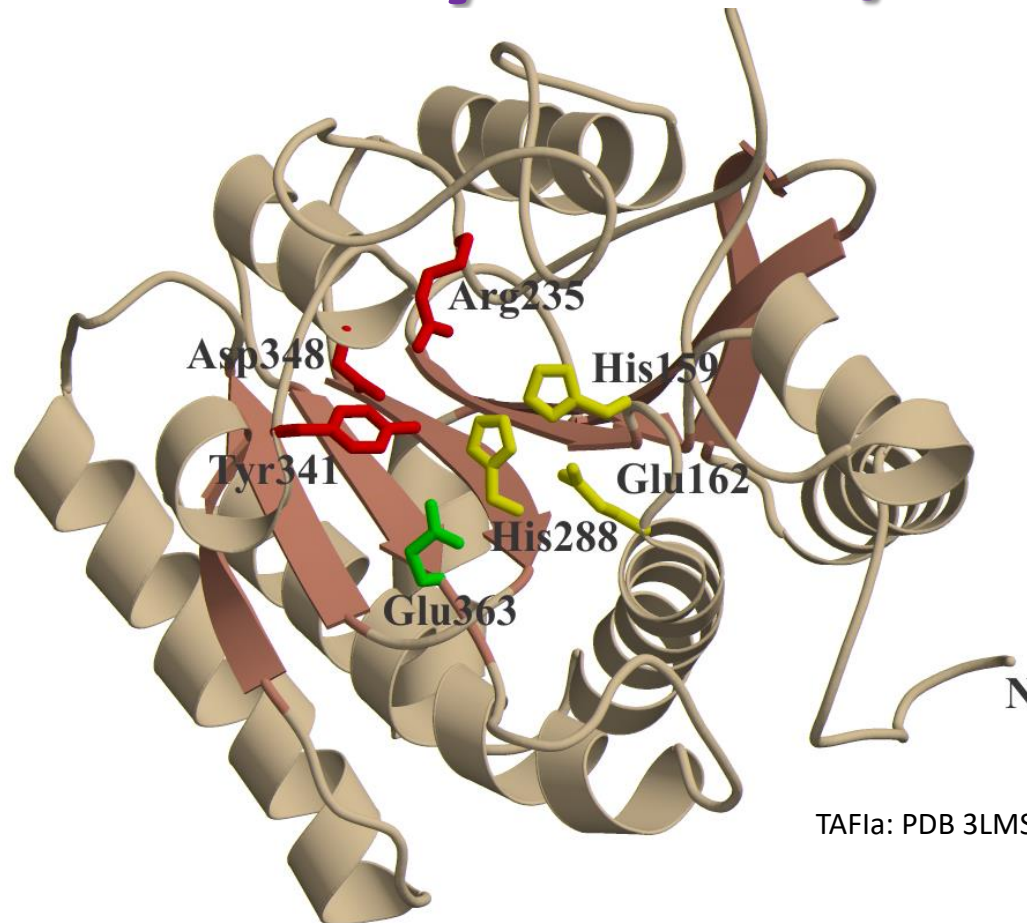


Welcome to: Biochemistry 2280A/2288A



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TAF1a: PDB 3LMS

General Information

- **Assignments**

- 2288A only: Written assignment due 4 pm, Oct 4th
 - Will soon be available on OWL
 - Late assignment penalty of 1 mark (20%)/day. Not accepted after 3 days.

- **Contact**

- My office hours: MBL C5, 1 – 2 pm Mondays (Sept 11th – Oct 23rd)
- Questions? (course content)
 - Email TA's (not me!)
 - Biochem 2280_2288 forum on OWL

- **Textbook:** you are not responsible for material in textbook that I have not covered in lectures

- **Midterm:** multiple choice questions only (no multiple multiples)

- **Lecture notes/slides:** posted on OWL

- NOT A SUBSTITUTE FOR ATTENDING CLASS!!!

My goals for this course

- Impart foundational concepts in protein biochemistry
 - Harness and extend your previous knowledge of biology and chemistry
- Inspire you with the possibilities

Topics (Boffa)

1. Chemical basis of life
2. Amino acids
3. Protein structure
4. Protein function
5. Enzyme catalysis
6. Protein purification

Topic 1

The Chemical Basis of Life

Topic 1 Learning Objectives

- Be familiar with the four major types of biomolecules
- Understand the central dogma of molecular biology

Topic 1 Readings

- Essential Cell Biology
 - p. 3-4; 39-79; 224
 - Panel 2-1
 - Panel 2-2
 - Panel 2-7

What is Biochemistry?

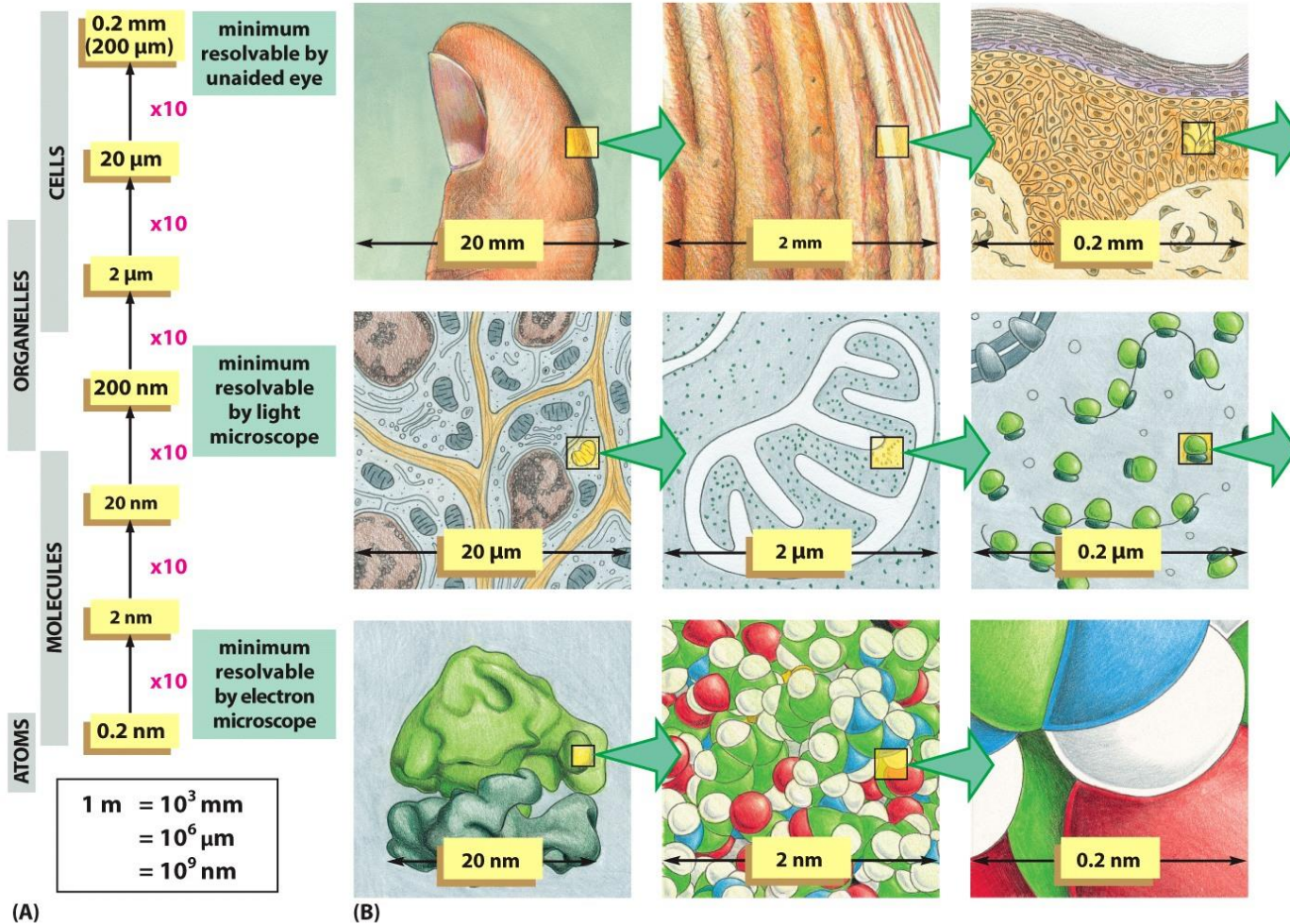
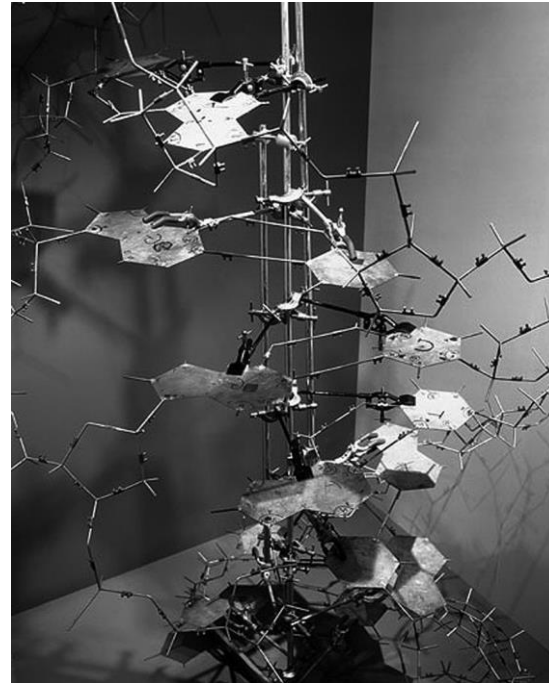


Figure 1-8 Essential Cell Biology, 4th ed. (© Garland Science 2014)

Major classes of biomolecules



Proteins



Nucleic acids

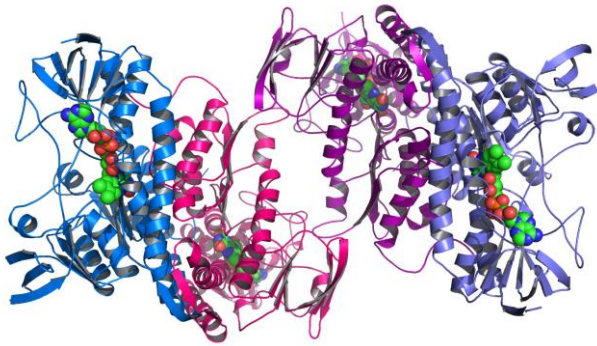


Carbohydrates

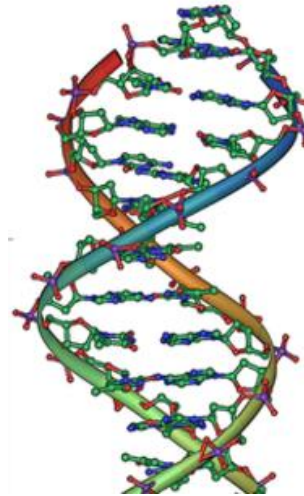


Lipids

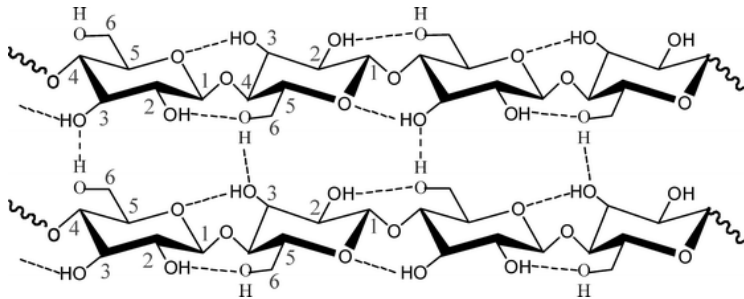
Major classes of biomolecules



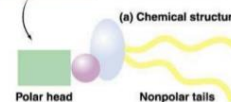
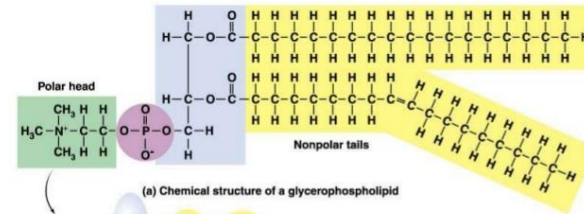
Proteins



Nucleic acids

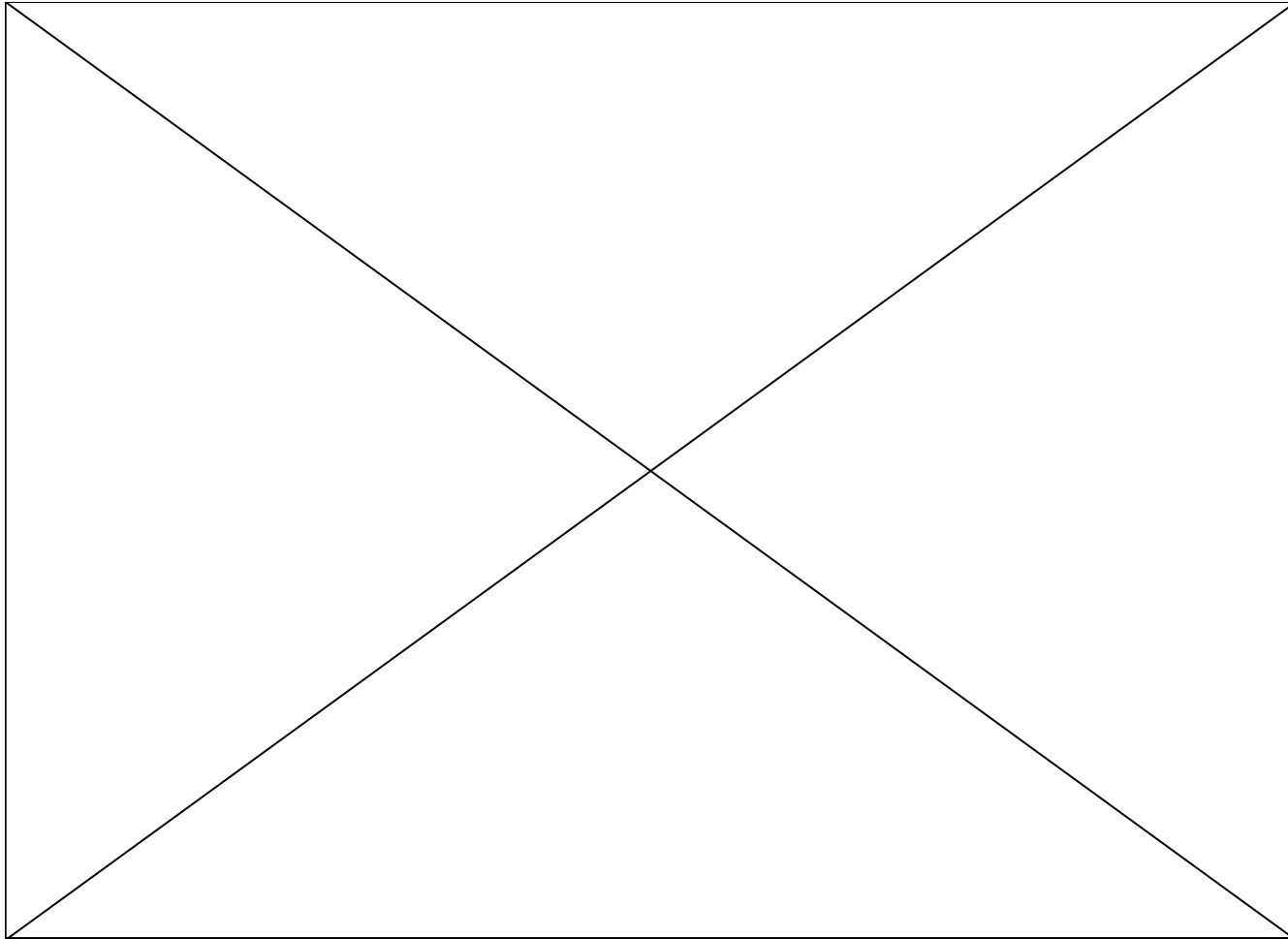


Carbohydrates



Lipids

The Inner Life of the Cell



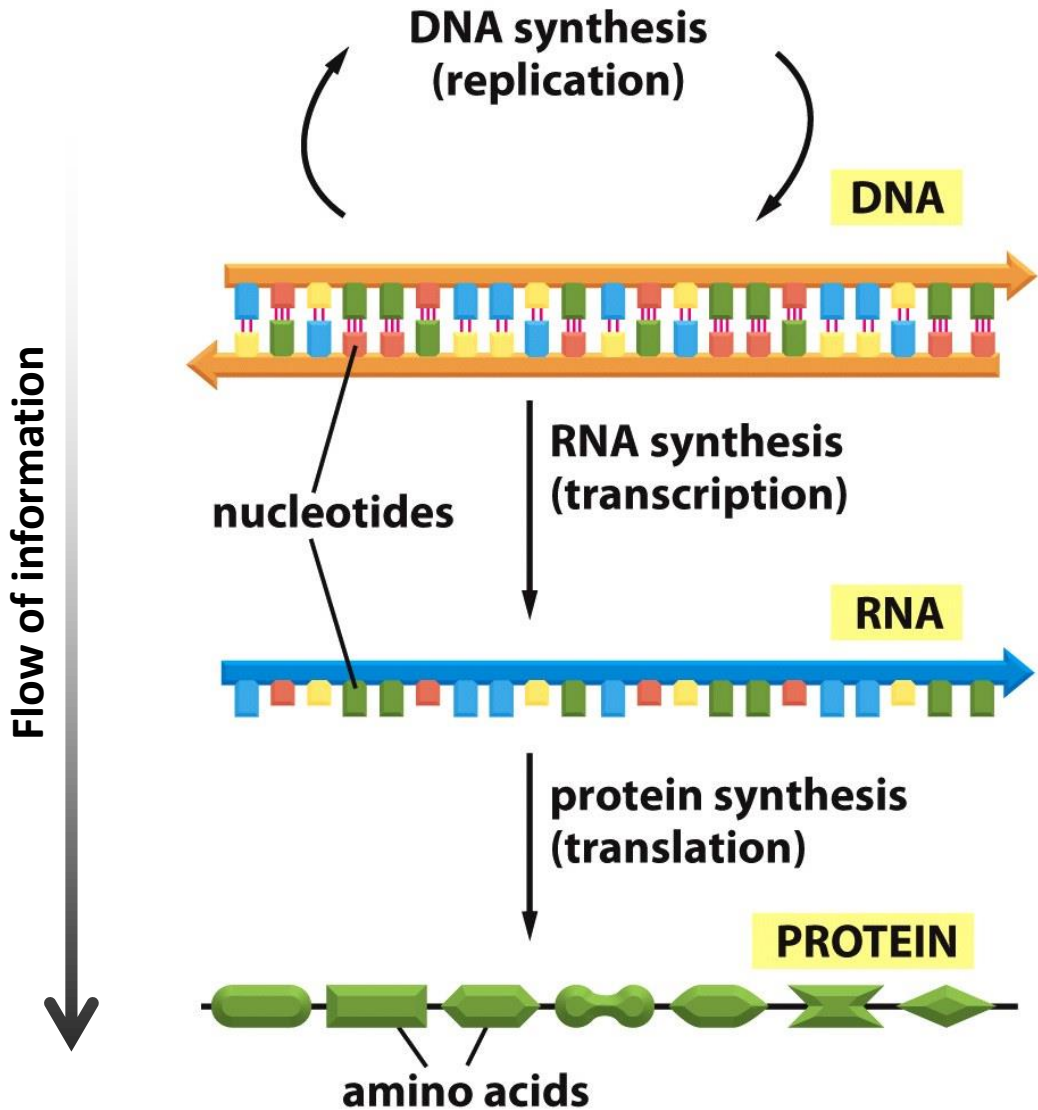
<https://youtu.be/WFCvkkDSfIU>

More available at: <http://multimedia.mcb.harvard.edu/>

The flow of information in living things can be summarized as:

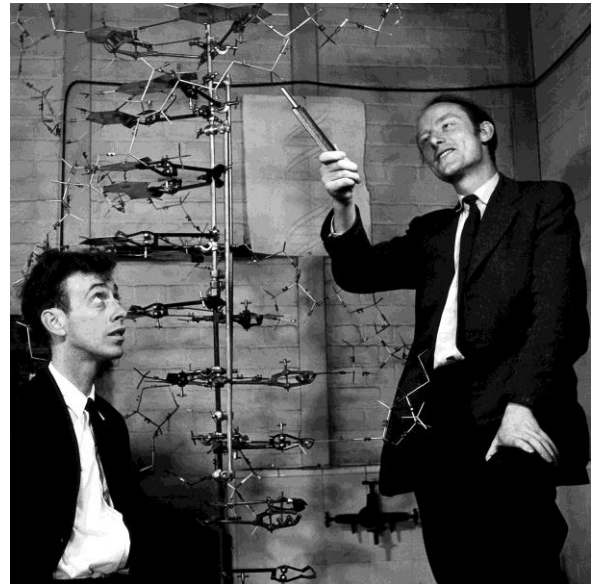
- A. Proteins → DNA → RNA
- B. RNA → DNA → Proteins
- C. RNA → Proteins → DNA
- D. Proteins → RNA → DNA
- E. DNA → RNA → Proteins

Central Dogma of Molecular Biology

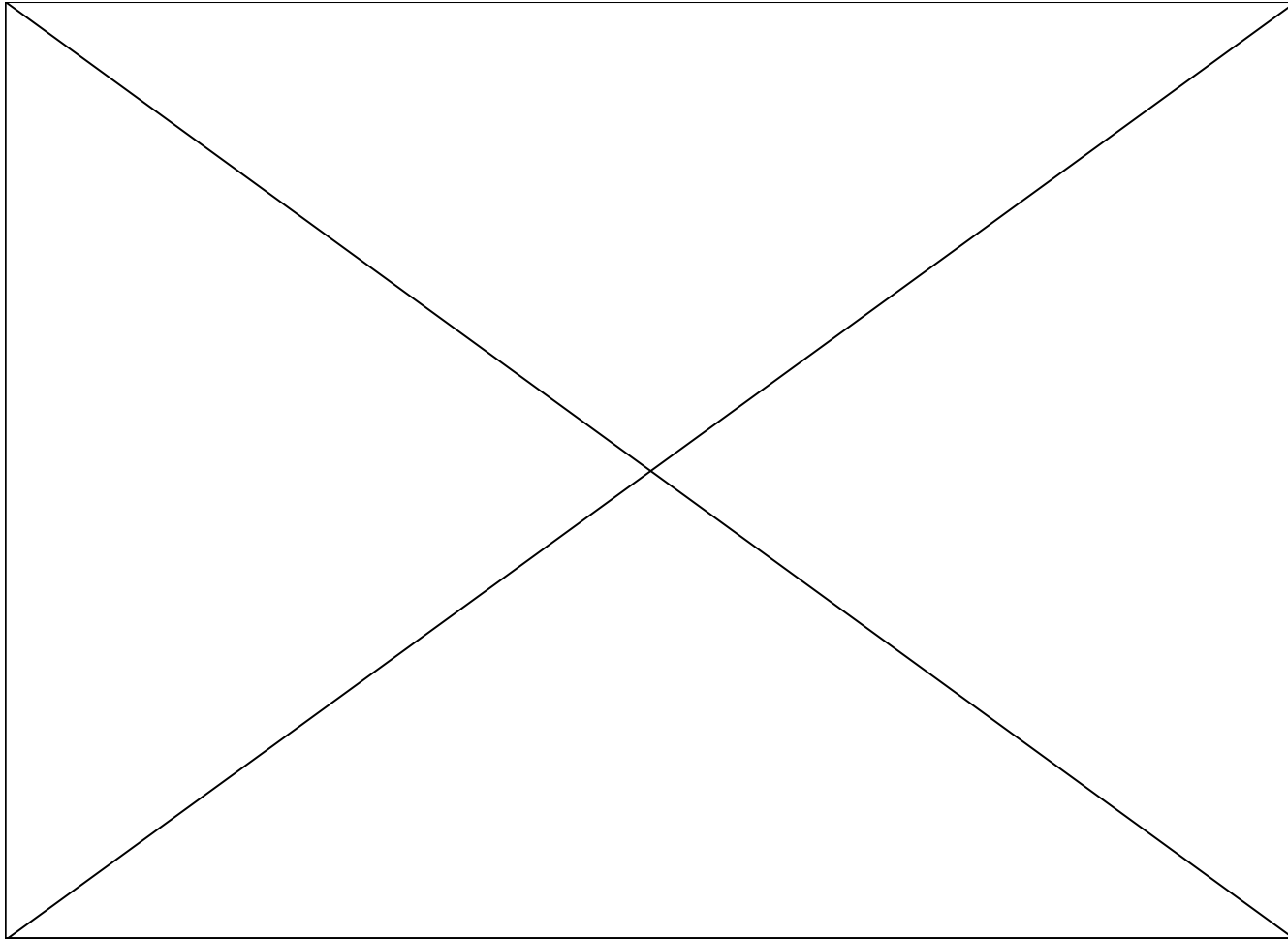


Francis Crick &
James Watson

Determined the structure
of DNA
in 1953



The Race for the Double Helix

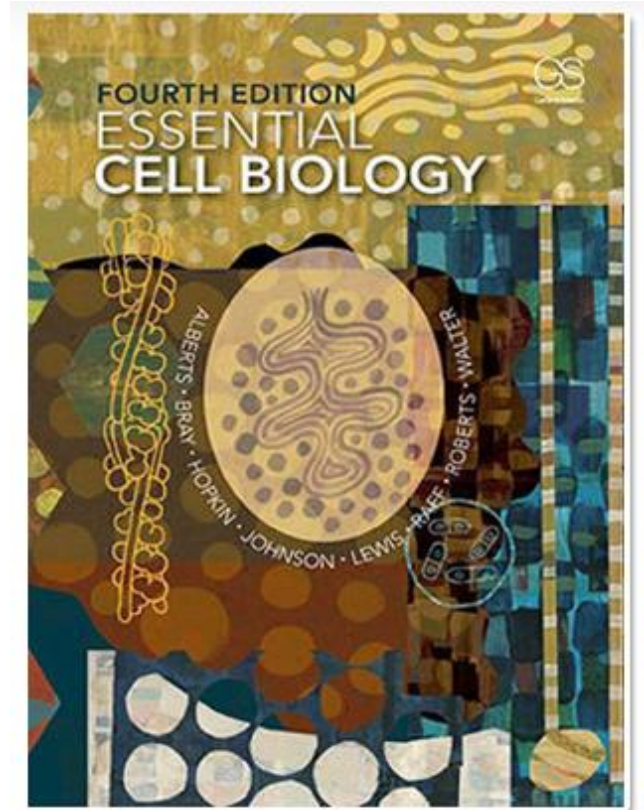


<http://www.imdb.com/title/tt0093815/>

https://www.rottentomatoes.com/m/the_race_for_the_double_helix/

Review:

- Panel 2-1
 - Chemical bonds and groups
- Panel 2-2
 - The chemical properties of water
- Panel 2-7
 - The principal types of weak non-covalent bonds



Topic 1 Learning Objectives

- Be familiar with the four major types of biomolecules
- Understand the central dogma of molecular biology