

CHAPTER 4

CARBON AND THE MOLECULAR DIVERSITY OF LIFE

Learning objectives

The Importance of Carbon

1. Explain how carbon's electron configuration explains its ability to form large, complex and diverse organic molecules.
2. Describe how carbon skeletons may vary, and explain how this variation contributes to the diversity and complexity of organic molecules.
3. Describe the basic structure of a hydrocarbon and explain why these molecules are hydrophobic.
4. Distinguish among the three types of isomers: structural, geometric, and enantiomer. Be able to identify them.
5. Provide examples of how different enantiomeric drugs may have different effects on physiology.

Chemical Groups

6. Be able to identify the seven functional groups that are most important in the chemistry of life.
7. Be able to draw the basic structure of each chemical group (functional group).

ATP

1. Describe the cellular function of ATP.