

## Organic Chemistry

- all organic molecules contain carbon (C)
- other elements that may be present include H, O, N, S, or halogens
- hydrocarbons only contain carbon and hydrogen
- examples of organic molecules include fats, sugars, proteins, hormones, polymers and pharmaceuticals
- the huge variety of organic molecules that exist can be explained by the bonding properties of carbon:

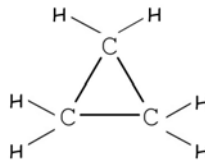
1) four valence electrons  $\cdot\overset{\cdot}{\underset{\cdot}{\text{C}}}\cdot$

$\cdot\cdot$  forms four covalent bonds

2) can form chains 
$$\begin{array}{ccccccc} & \text{H} & & \text{H} & & \text{H} & \\ & | & & | & & | & \\ \text{H} & -\text{C} & - & \text{C} & - & \text{C} & -\text{H} \\ & | & & | & & | & \\ & \text{H} & & \text{H} & & \text{H} & \end{array}$$

3) can form double and triple bonds 
$$\begin{array}{ccccccc} & \text{H} & & \text{H} & & \text{H} & \\ & | & & | & & | & \\ \text{H} & -\text{C} & = & \text{C} & - & \text{C} & -\text{H} \\ & & & | & & | & \\ & & & \text{H} & & \text{H} & \end{array} \quad \text{H}-\text{C}\equiv\text{C}-\text{H}$$

4) can form ring structures



5) organic molecules can form isomers

