Module 2 /Functional Groups

- Be able to identify different functional groups, and characterize each, by category (i.e. polar, non polar, neutral, charged).

Biological systems use only a small part of the total chemical repertoire. This is due to the number of chemical reactions that can occur under physiological conditions, and to the small number of chemical or functional groups compatible in biological systems. The physical properties of these groups define how molecules behave in biological systems at physiological pH and temperature. By learning the properties of these groups, you will be able to predict how various molecules will function, as well as which functional groups can be converted to others during metabolism

The functional groups fall into three broad categories: non-polar, polar neutral, and polar charged. The molecules in each group all have common properties.

Functional Group Tutorial

learn by doing

Functional Groups Activity

In the activity below, the radio buttons on the extreme left let you select a property and highlight the functional groups that exhibit the selected property. The [?] buttons display the definition of each of the properties. The **FUNCTIONAL GROUPS** column shows the names and chemical structure of important functional groups in biology.

- Select any one of these functional groups to see it's properties and to view examples of this group.
- The pull-down menu allows you to select different chemicals that contain the selected functional group.
- The functional groups are highlighted in both the 2D structure and the 3D Jmol.

Recognizing these functional groups where they appear in larger structures and knowing what properties they exhibit will provide you with insight into their function within these larger structures.

If you need a reminder of chemical structures or how to view molecules in 3-D, use the link below.

MANY STUDENTS WONDER...

Chemical Structures

Practice

This exercise uses the Functional Group Glossary to let you test your knowledge of the properties of the functional groups.

did I get this

The Functional Groups Quiz

Check Your Understanding

The structure of formamide is shown as a 2D drawing and in the 3D Jmol on the left. This compound is an example of an functional group called an amide, containing the C=O and the -NH_2 group, which is found in proteins.