

## CONCEPT: AMINO ACID CLASSIFICATION

You will likely need to memorize the 20 standard amino acids that are derived from proteins.

• You may be responsible to know:

- Names, structures, 3-letter abbreviations, 1-letter symbols, structural categories, functional categories, pKas
- We will be using the Clutch Prep Amino Acid Breakdown (next page) to organize all this information

### Categorization of Amino Acids:

There is no universally agreed upon method of categorization.

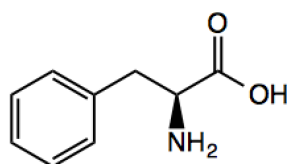
• The two most common methods are \_\_\_\_\_ and \_\_\_\_\_

#### 1. **Structural** Categorization:

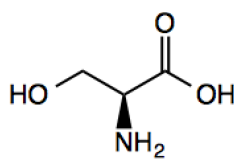
- Based on molecular/structural similarities/differences between amino acids.
- Common categories include aliphatic, aromatic, sulfur-containing, etc.

- *Problematic* because some amino acids fit into \_\_\_\_ 1 category

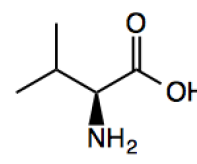
**EXAMPLE:** Propose structural categories for the following amino acids.



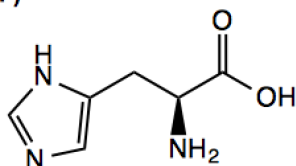
Phenylalanine (F)



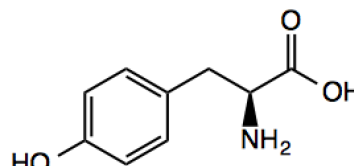
Serine (S)



Valine (V)



Histidine (H)



Tyrosine (Y)

#### 2. **Functional** Categorization

- Based on the functional similarities/differences between amino acids reacting in an aqueous environment
- Common categories include nonpolar, polar, neutral, acidic, basic, hydrophobic, hydrophilic, etc

- *Problematic* because different sources categorize differently

