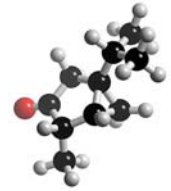


# AMINO ACIDS & PROTEINS

Name ..... Form .....


**TABLE 3.1**  
 Twenty amino acids found in proteins

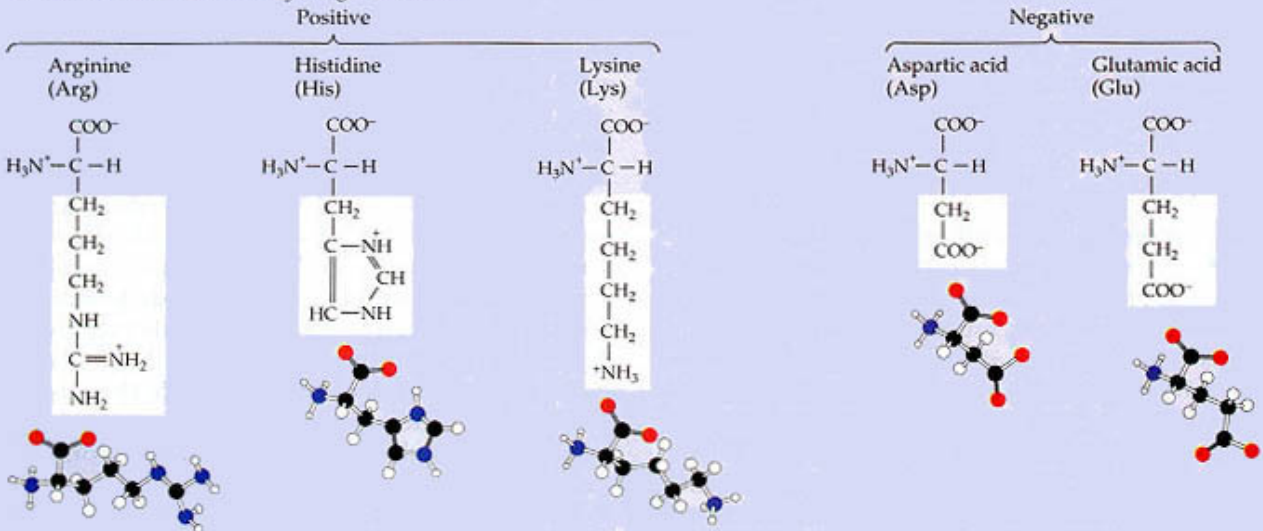
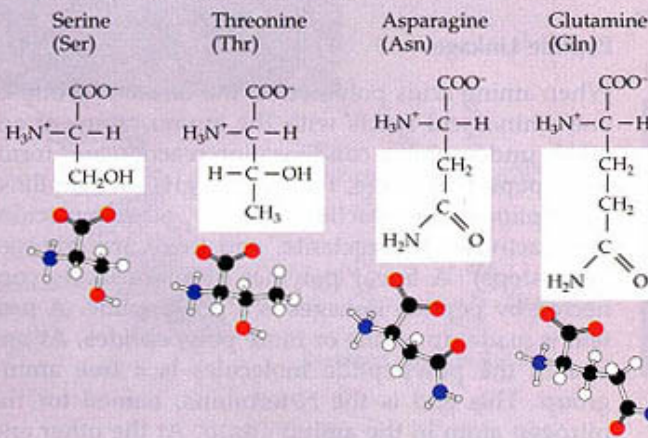
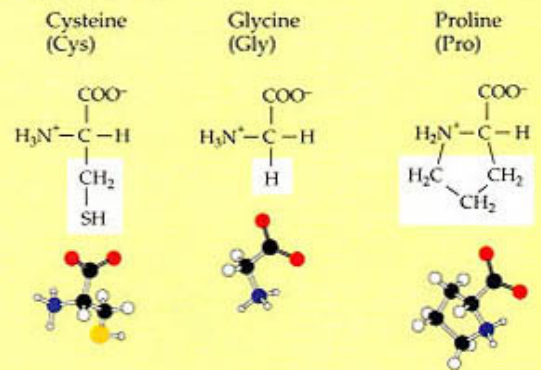
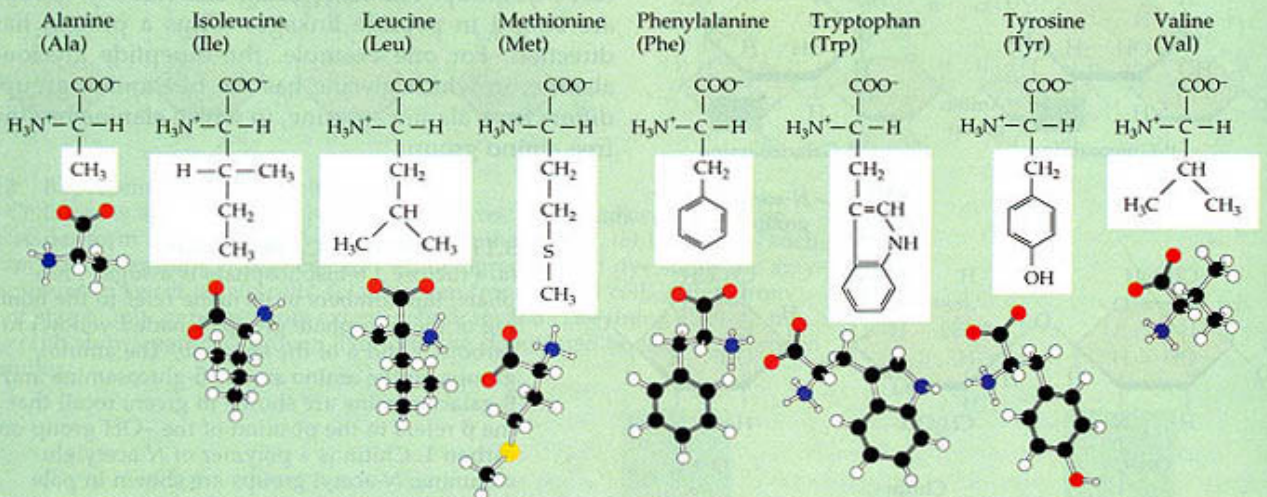
**A. Amino acids with electrically charged side chains**

**B. Amino acids with polar but uncharged side chains**

**C. Special cases**

**D. Amino acids with hydrophobic side chains**


Fig. 6 3D secondary structure of a protein

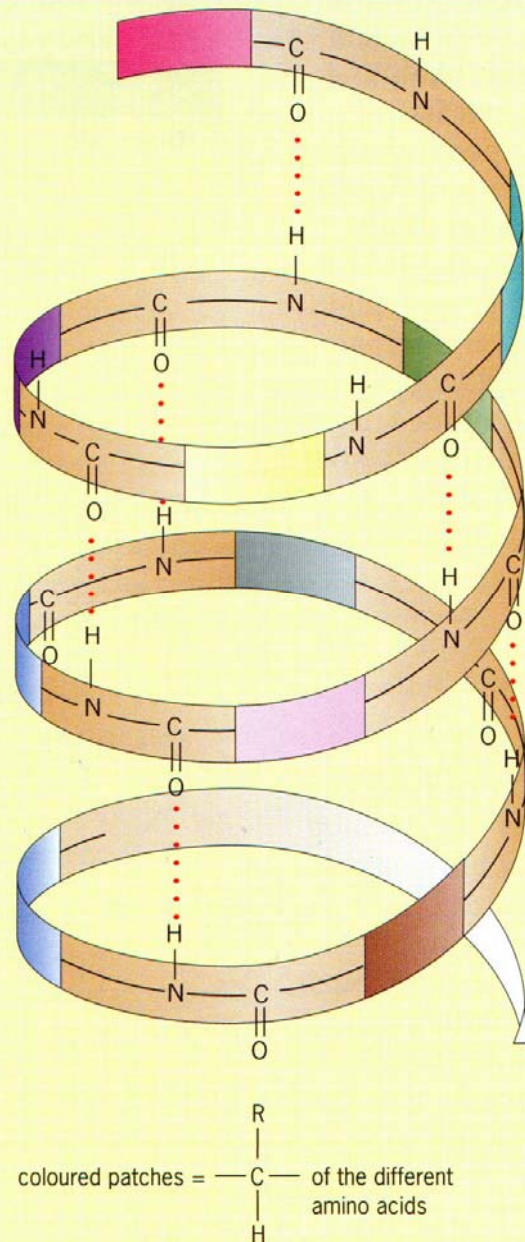
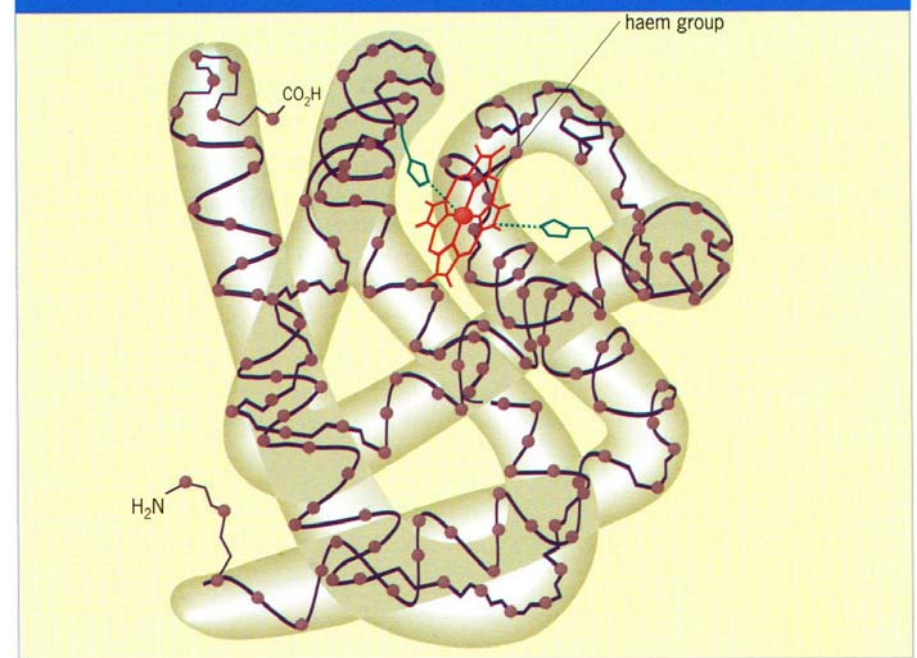


Fig. 7 Tertiary structure of the muscle protein myoglobin



### Primary structure

- This is the sequence of amino acid units in the chain.

### Secondary structure

- The chain is often arranged in a helix (coil) – this is the secondary structure.
- The helix is held together by H-bonds between  $\text{C}=\text{O}\cdots\cdots\text{H}-\text{N}$  in adjacent spirals of the coil.
- There are a large number of H-bonds in the helix giving a stable structure.
- Proteins can have other less common secondary structures, but they still have H-bonding.

### Tertiary structure

- The helix is folded into a characteristic 3-D shape known as the tertiary structure.
- This is held together by various bonds between R groups in the amino acid groups.