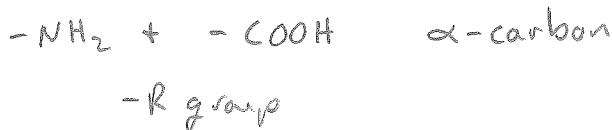


# Chp 11 Proteins: Structure + Function

Read: Sickle-Cell

## 11.1 Amino Acids

\* 20 amino acids



$$(12) \quad (7) \quad (2) \quad (6) \quad (12)$$

$$45, 47, 49, 51, 54$$

(2) (2)  
58, 59

## \* Amino Acid Equilibria and pH

## -zwitterion

buffer-shift with pH change

43

## \* Amino Acid side chains

- side groups      Polar, nonpolar

## \* Essential Amino Acids

## 10 amino Acids

- animal / vegetable

- RDA requirement

## 11.2 Chirality and Amino Acids

(10) (4) (16)  
60, 61, 62

- prefixes: R, S, D, L

30

## \* Fischer Projections

- 4 -

## \* Properties of Enantiomers

- racemic mixture

### 11.3 Peptides

- di, tri, poly protein

(3) (12) (6) (9)  
64, 65, 67, 69

#### \* the Peptide Bond

- bonding

30

#### \* small peptide

- N-terminus + C-terminus

- naming tripeptides

### 11.4 Protein Architecture

#### \* 3-D shapes of Proteins

- native conformation
- residues

(2) (2) (4) (6) (8) (4)  
73, 74, 75, 76, 77, 78

(5) (4) (3) (2) (3) (8)  
79, 80, 81, 82, 83, 84

#### \* Primary structure

(4) (4) (2) (4)  
85, 86, 87, 89

#### \* Secondary structure

- $\alpha$ -helix
- ribbon drawings

61

- $\beta$ -Pleated sheets

#### \* Tertiary structure

- prosthetic groups

- disulfide Bridges, salt Bridges, H-Bonding, Dispersion Forces

- cofactor or coenzyme

#### \* Quaternary structure

- subunit

- denaturation of a protein

- types of proteins

Fibrous

- Keratins
- Elastins
- Collagens

- Globular

- membrane

## 11.5 Enzymes

- How do they work?

- substrate

(2) (1) (4) (3) (1)  
90, 91, 92, 93, 94

(2) (2) (3) (4) (4)  
95, 97, 98, 99, 100

Enzyme-substrate complex

- active/binding site

(3)  
101

31

lock + key model

Cofactors / coenzymes

- pH + Temperature dependence of Enzymes

- Enzyme Inhibitors

- nonspecific / specific

- competitive

- noncompetitive

- feedback inhibition

## Chem in Med - ACE Inhibitors

(3) (2) (2) (2)  
102, 103, 104, 105

(2) (3) (3) (2)  
106, 107, 108, 109

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