

Chem 431A-L12

admin: Quiz

Last lecture:

Structure and properties of the 20 amino acids

Acid base properties of amino acids

Oligopeptides

Today:

1) levels of protein structure

2) separation of proteins

Lecture:

<p>1) properties of proteins - variable amino acid composition (acid hydrolysis, problems)</p> <p>2) conjugated proteins (prosthetic groups, glycopr, lipopr, metallopr)</p> <p>3) 4 levels of protein structure (1°, 2°, 3°, 4°)</p> <p>4) Working with proteins: purification dialysis, fractionation, chromatography (ion-exchange, size exclu, affinity), electrophoresis (SDS-PAGE, isoelectric focusing)</p>	<p>1° structure = amino acid sequence; determined by genetic sequence. 2° structure = stable arrangements along length of chain. 2 general types: α-helix and β-sheet structures. 3° structure = 3-dimensional folding of the chains 4° structure = arrangements of more than 1 polypeptide chain "subunit".</p> <p><i>Chromatography:</i> (for prep) has <i>mobile</i> and <i>stationary</i> phases. <i>Elution</i> of proteins results in bands. Column chromatography types: a) ion-exchange: say, cation exchange (<i>catex</i>) columns have fixed (-) charges on stationary ph. + proteins move slower than - proteins. b) size exclusion: large proteins elute faster, small ones slowed by small cavities in stationary phase. c) affinity: select'n by spec. pr binding to stat.ph.</p> <p><i>Electrophoresis:</i> (for analysis) uses of gel and strong electric field (high volts). <i>electrophoretic mobility</i> $\mu = v/E = Z/f$ separates according to size with SDS-PAGE <i>isoelectric focusing</i> here, ampholytes set up along a pH gradient and situate themselves at pH=pI. Proteins migrate along this gel and situate themselves likewise.</p>
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