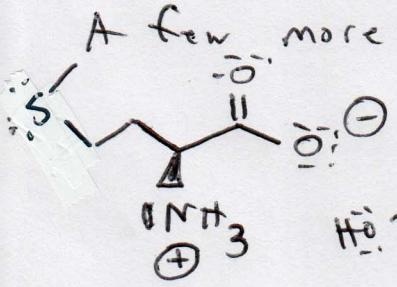
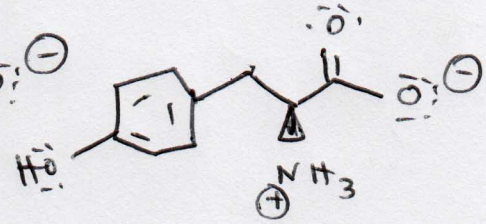
Lab Quiz #2 → Merrifield resin synthesis
- di-tert-butyl dicarbonate
- DCC

Exam #3 - Amino acids
- D vs L amino acids
- pI + acid/base properties
- Electrophoresis
- Ion exchange chromatography } Ninhydrin
- Synthesis of amino acids
- Protein structure
- Sequencing - Edman degradation, methionine

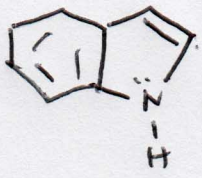
A few more amino acids:



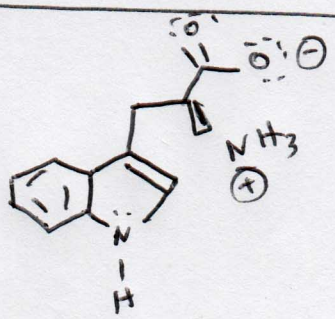
L-methionine



L-tyrosine



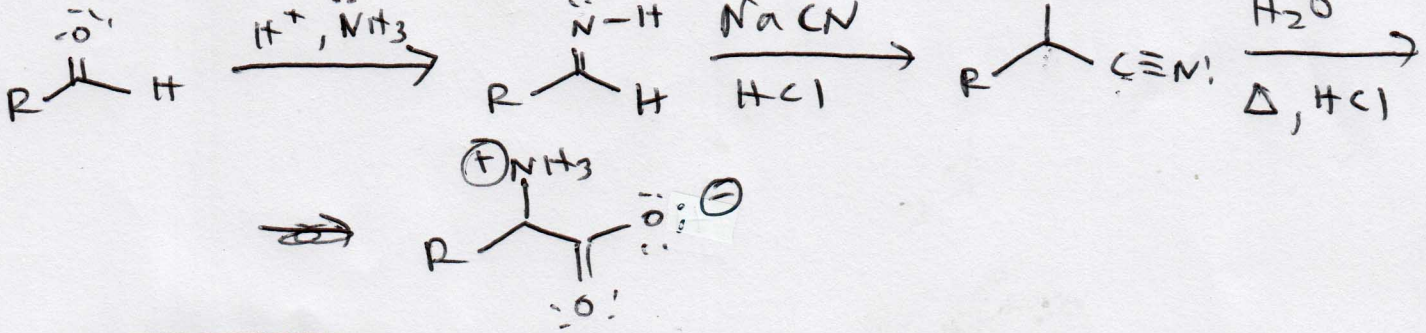
indole



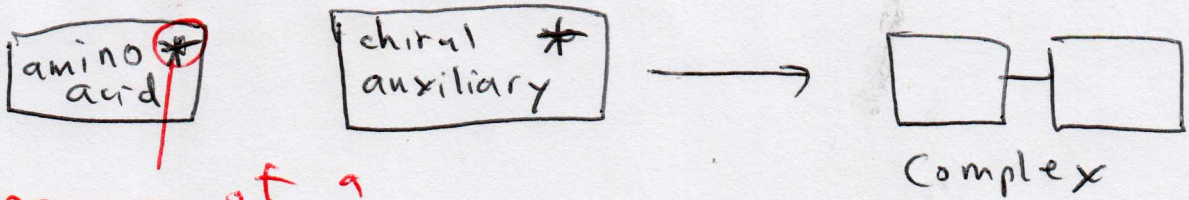
L-tryptophan

Synthesis of amino acids

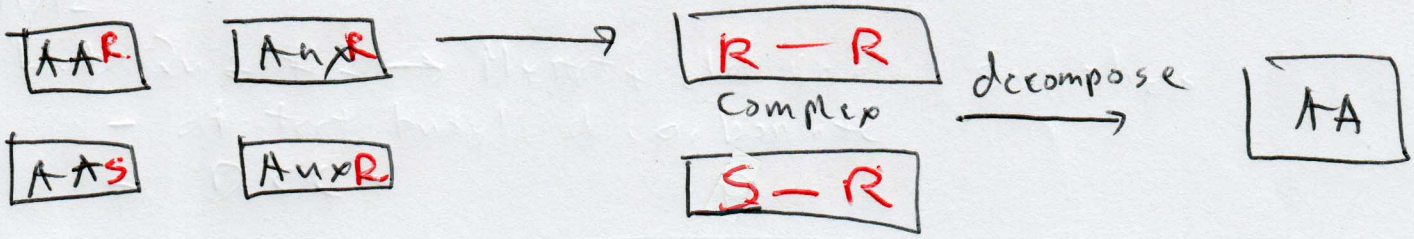
Strecker Synthesis



Separating chantiomers



presence of a stereocenter

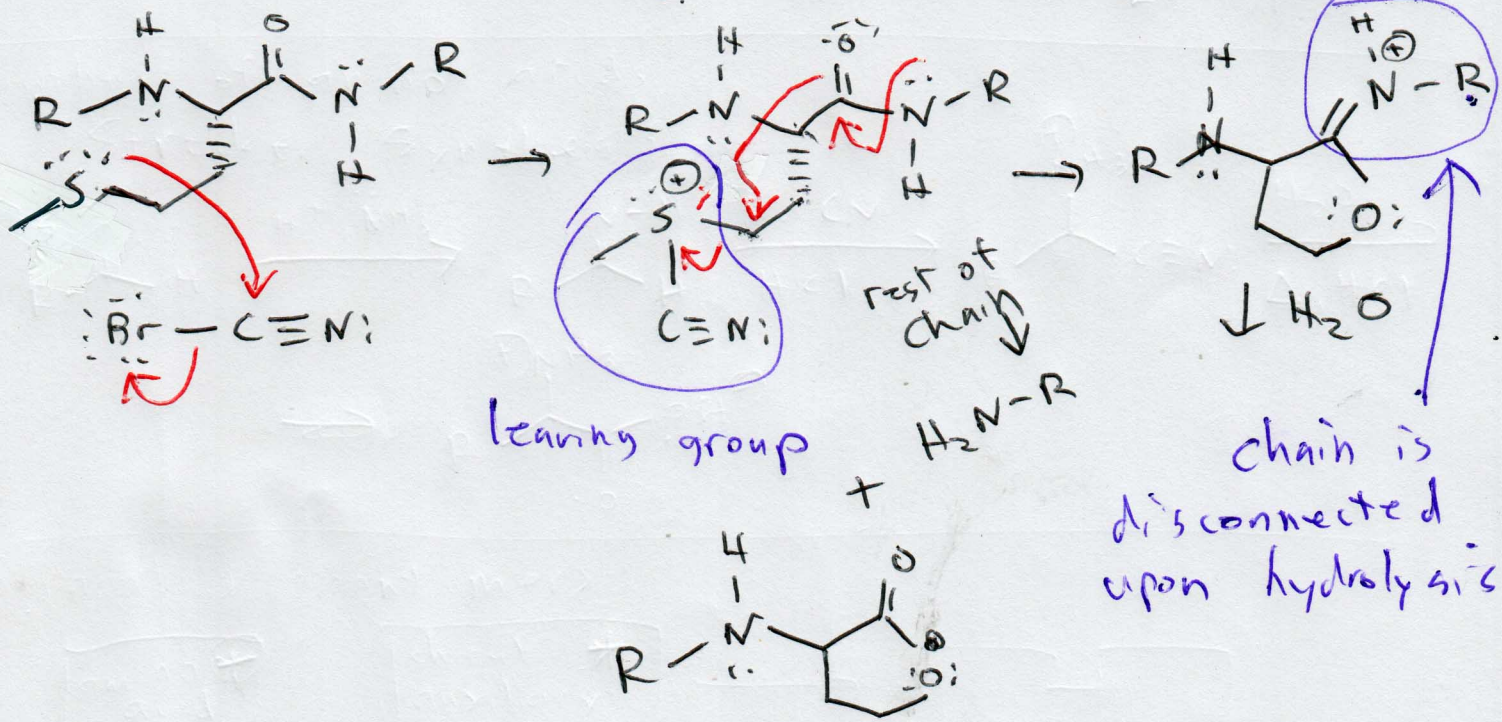


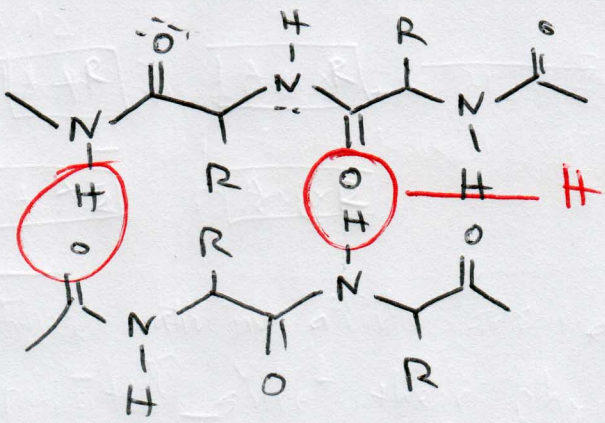
Since amino acids are enantiomers, they cannot be easily separated since their physical properties are identical (except optical rotation, which cannot be used to separate the compounds). If a mixture of enantiomeric amino acids is reacted with some other compound that has one stereocenter, diastereomers are produced. Since diastereomers have different physical properties, they can be separated. If the amino acid can be released from the complex it forms, the enantiomeric amino acids can then be separated.

Protein structure: 1°, 2°, 3°, 4°

1° – sequence – order of amino acids

:Br – C≡N: cyanogen bromide

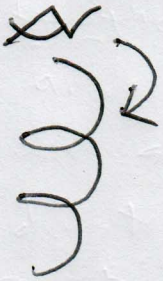




H-bond interactions

2° structure – features of a protein caused by H-bonding interactions

α-helix – clockwise helix for L-amino acids



p. 1012

β-pleated sheets p. 1013

Coils p. 1013

3° structure – Protein attempts to adopt a lowest-energy structure. Aside from hydrogen bonding, the conformation of a protein is caused by hydrophobic/hydrophilic (or lipophilic/lipophobic) interactions of the amino acid side chains with their surrounding environment-

denaturing – destroying the 3° structure of a protein

4° structure - macromolecular structure – the assembly of large protein units into a complex ⟶ hemoglobin

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