

Peptide Bond

Raheel Qamar, PhD.

Professor of Biosciences

COMSATS Institute of Information

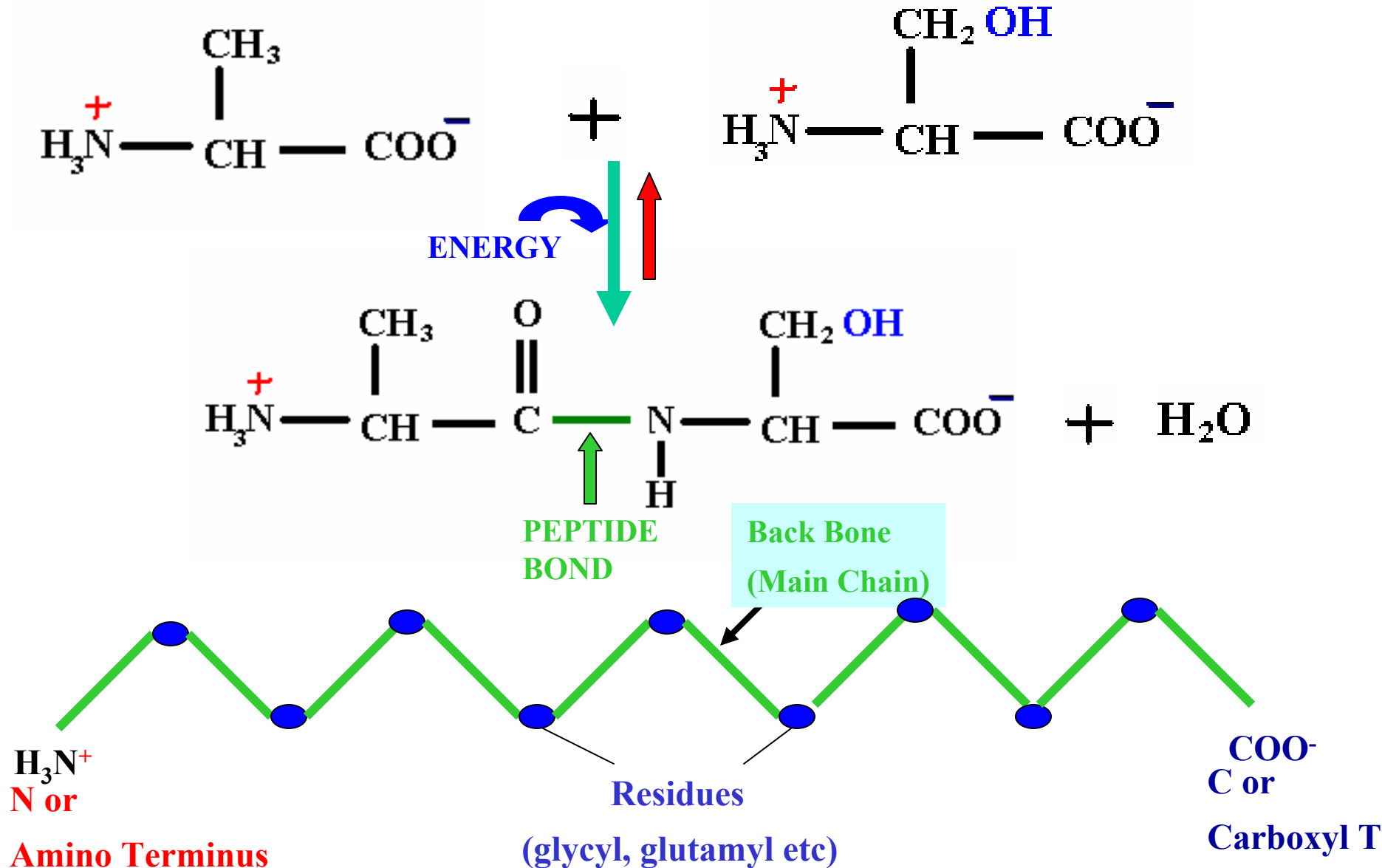
Technology

Islamabad

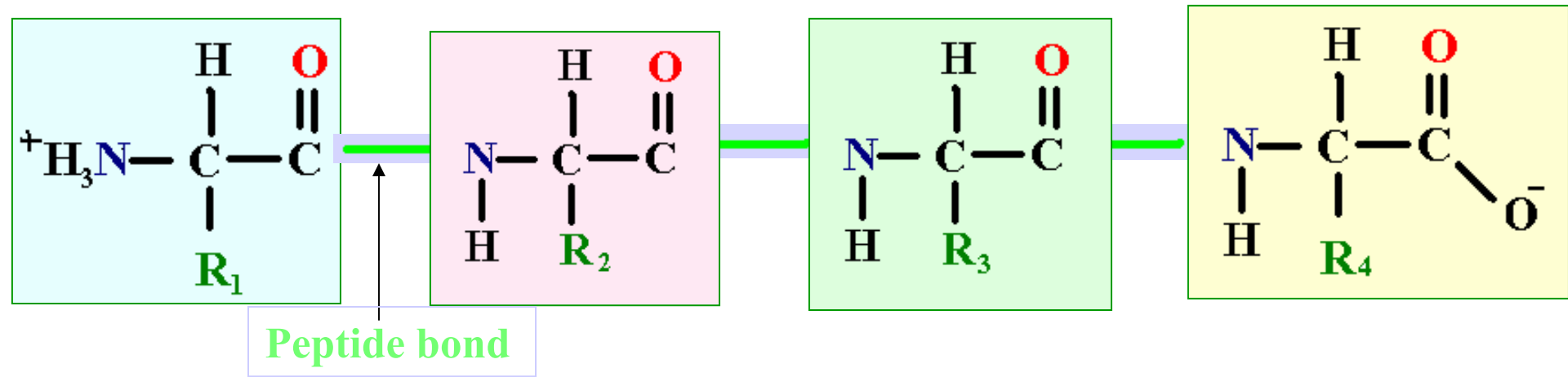
Protein Structure

- Peptide Bonds
- Primary Structure
- Secondary Structure
- Tertiary Structure
- Quaternary Structure
 - a. Globular Proteins
 - b. Fibrous Proteins
- Protein Folding
- Protein Denaturation

Proteins are Built from a Repertoire of 20 Amino Acids



Components of a Polypeptide Chain

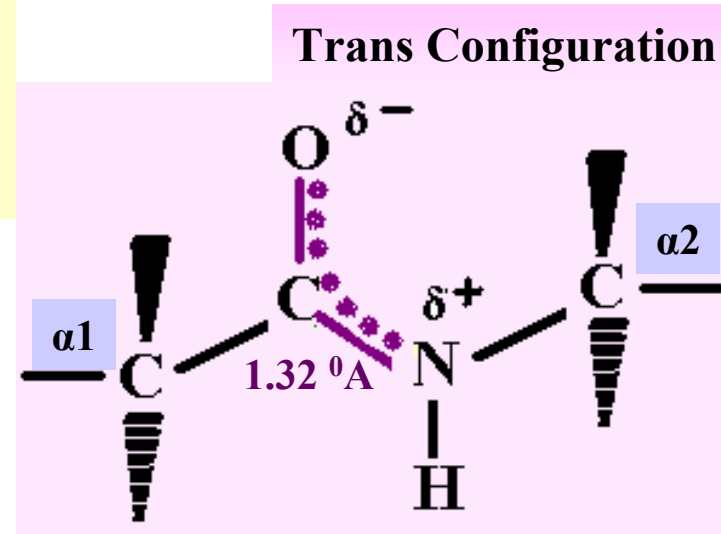
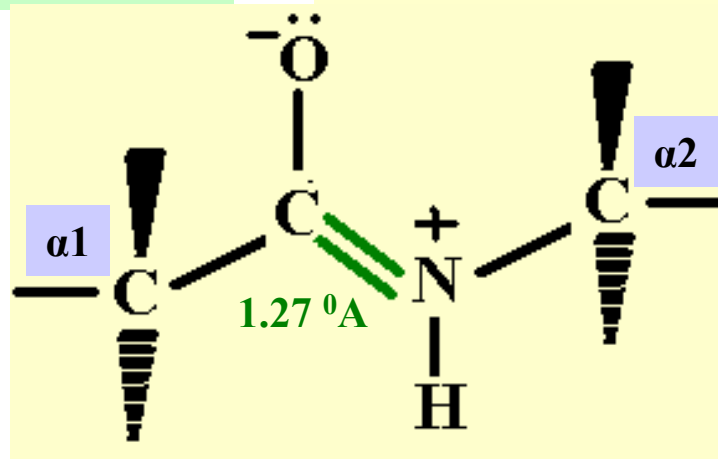
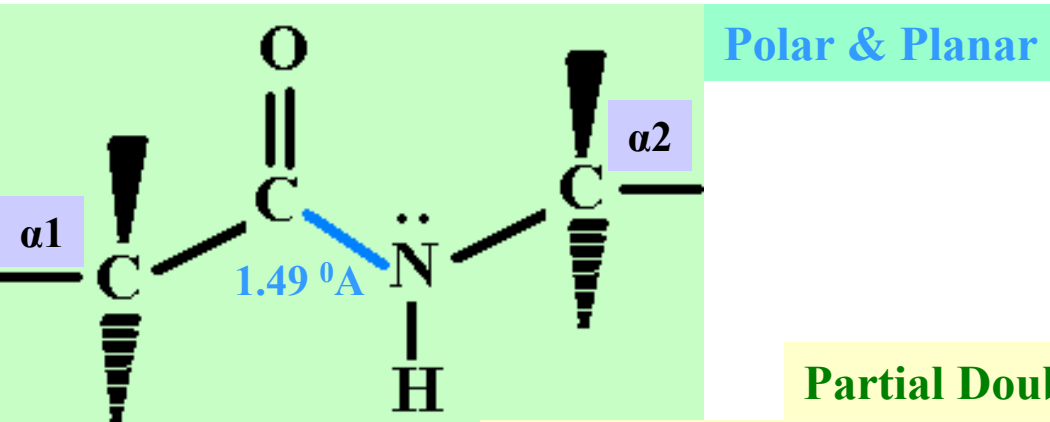


Amino
terminal
residue

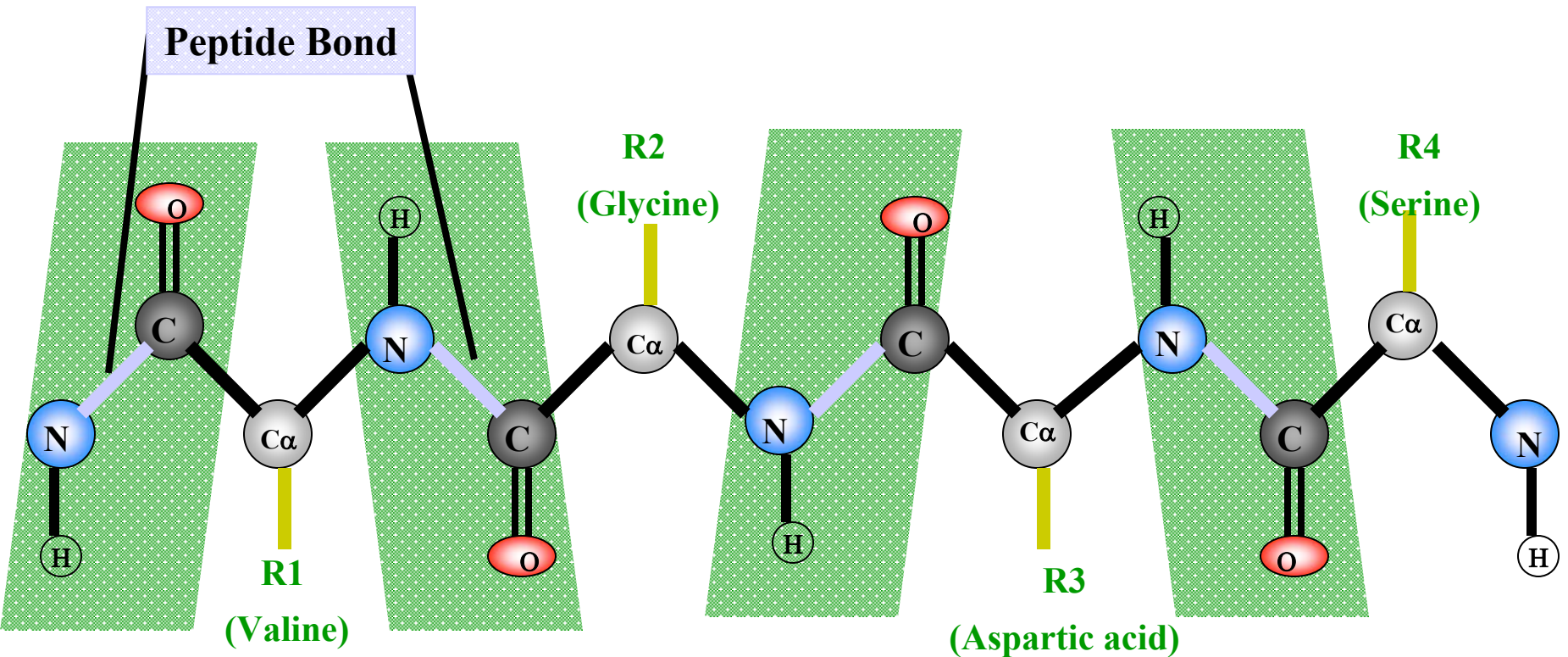


Carboxyl
terminal
residue

Peptide Bonds

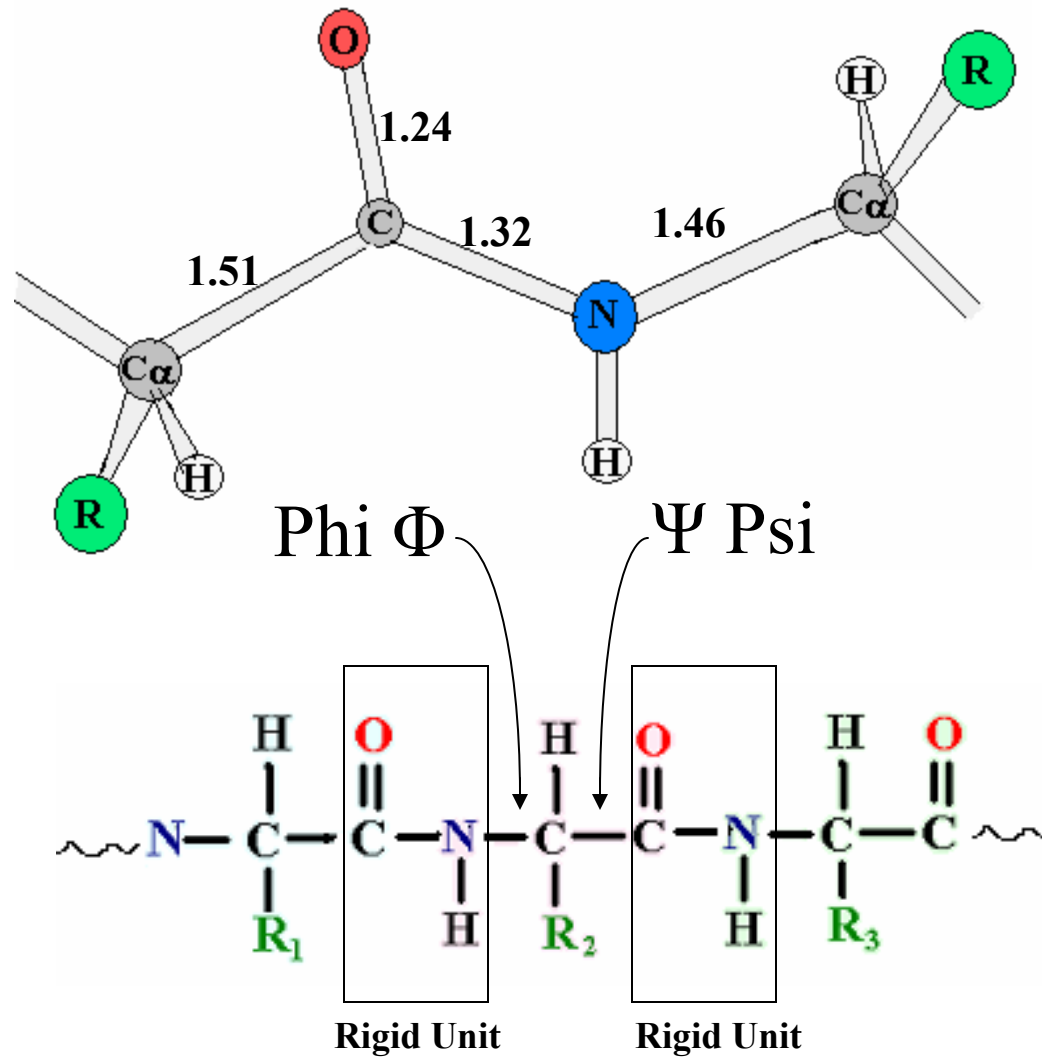


A Polypeptide Chain

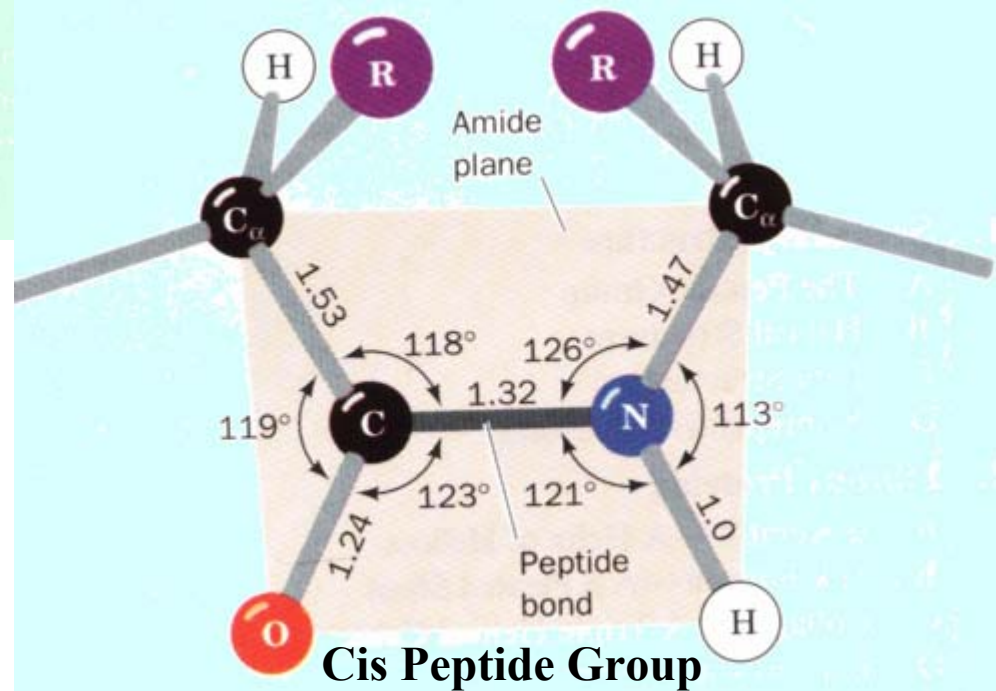
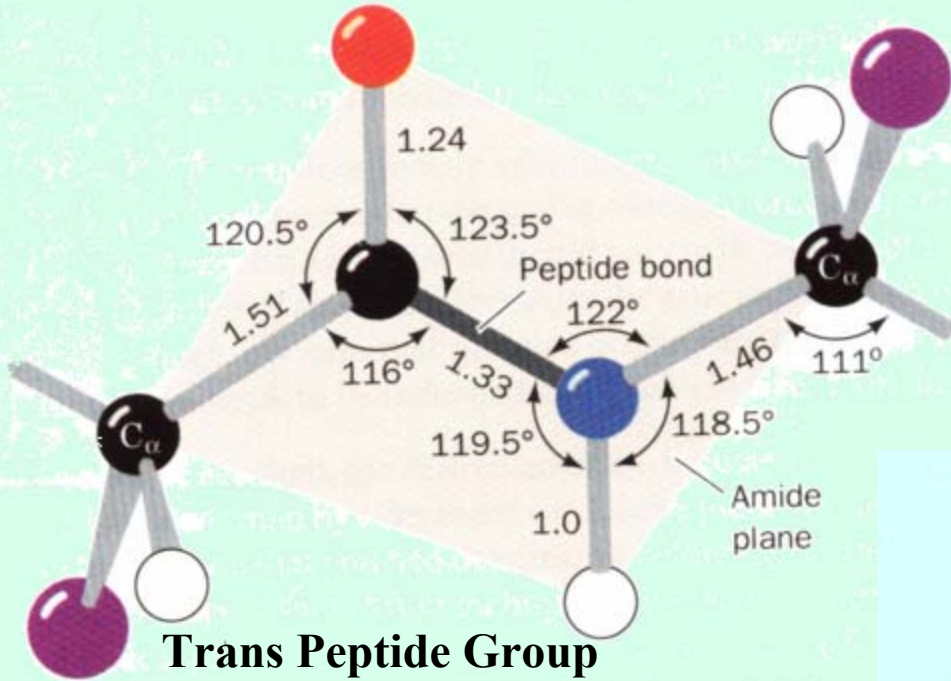


Valine & Glycine in Trans Configuration

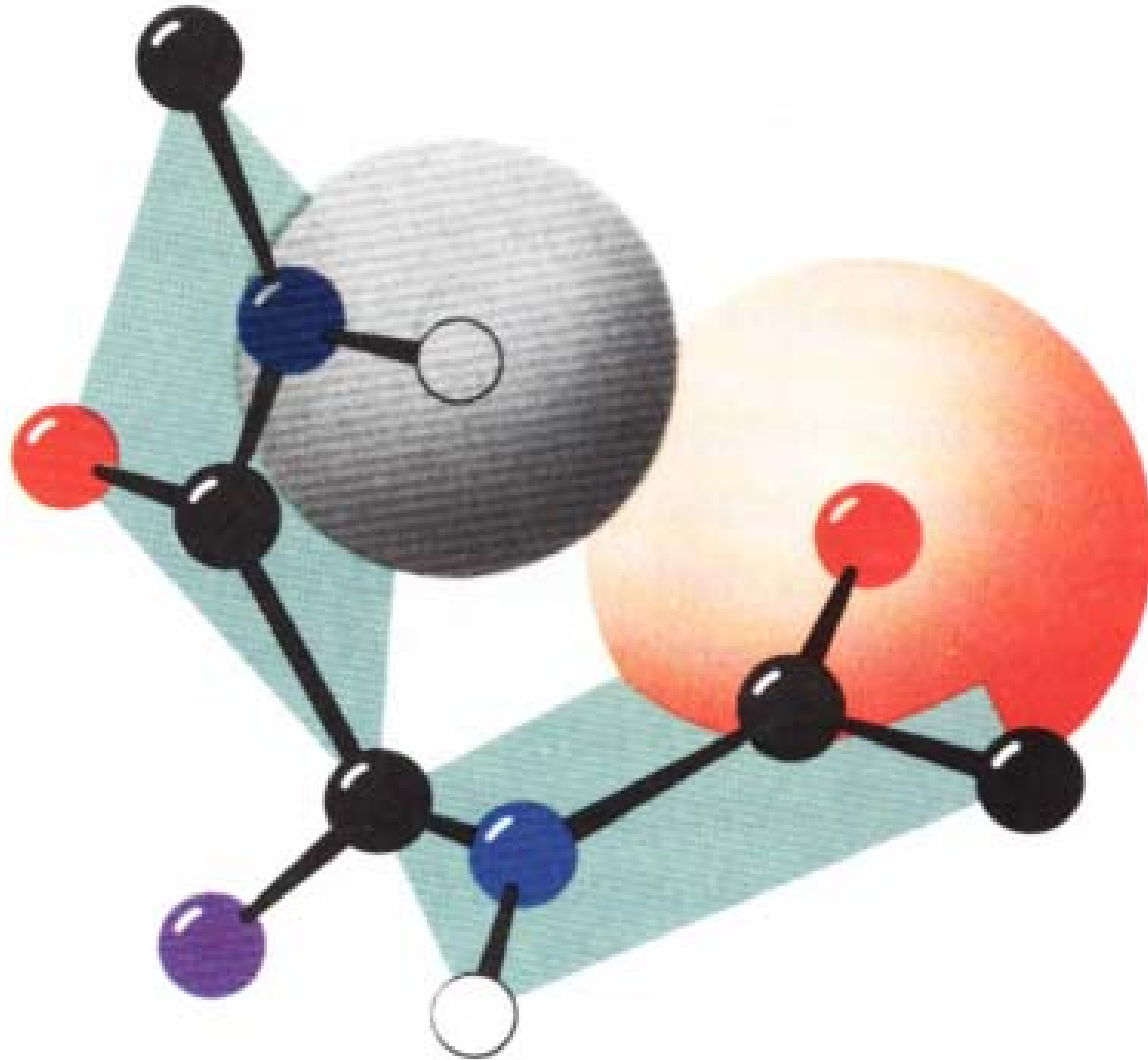
Peptide Group



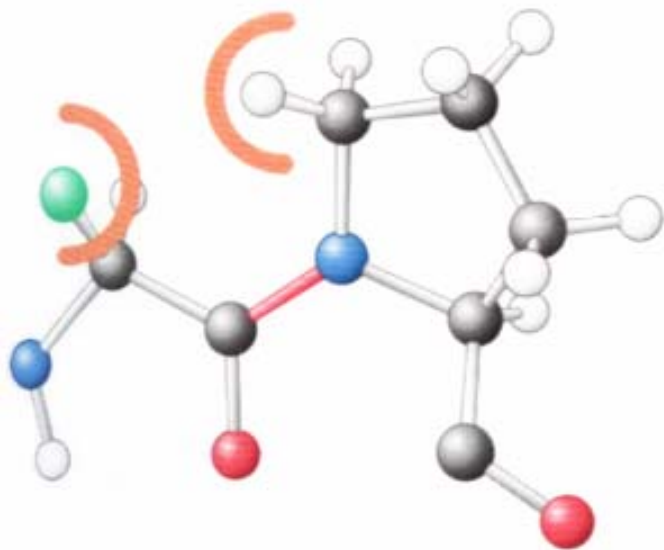
The Standard Dimensions in Trans & Cis Peptide Group



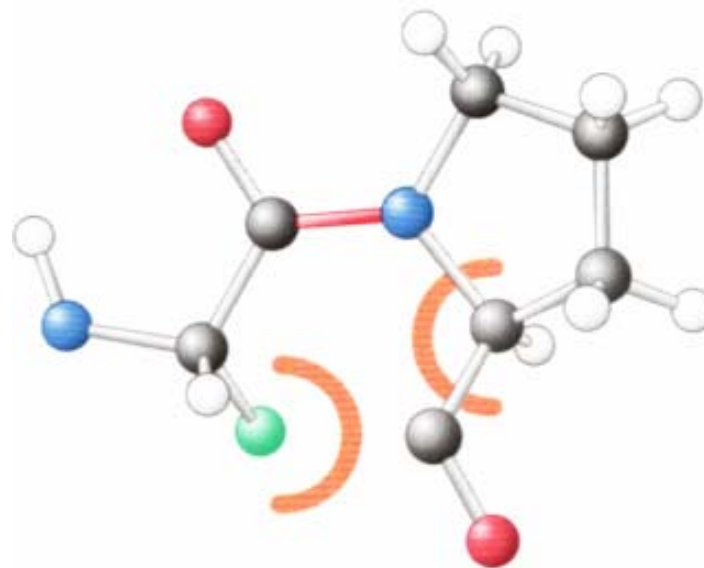
Steric Hindrance between adjacent peptide units



Pro Trans & Cis Configuration



Trans

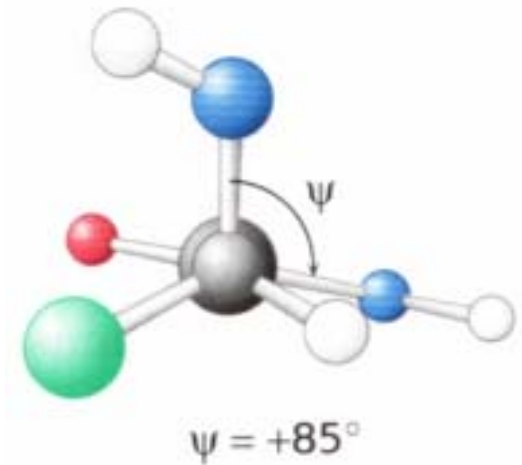
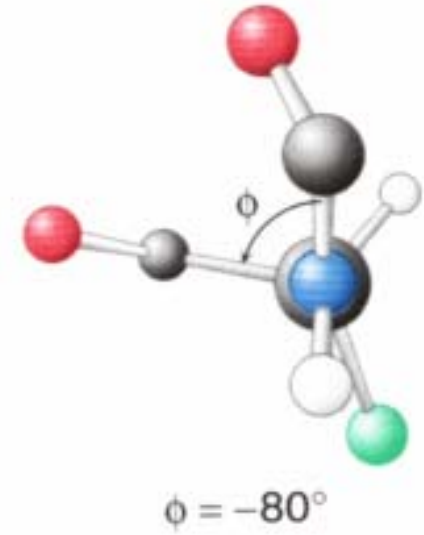
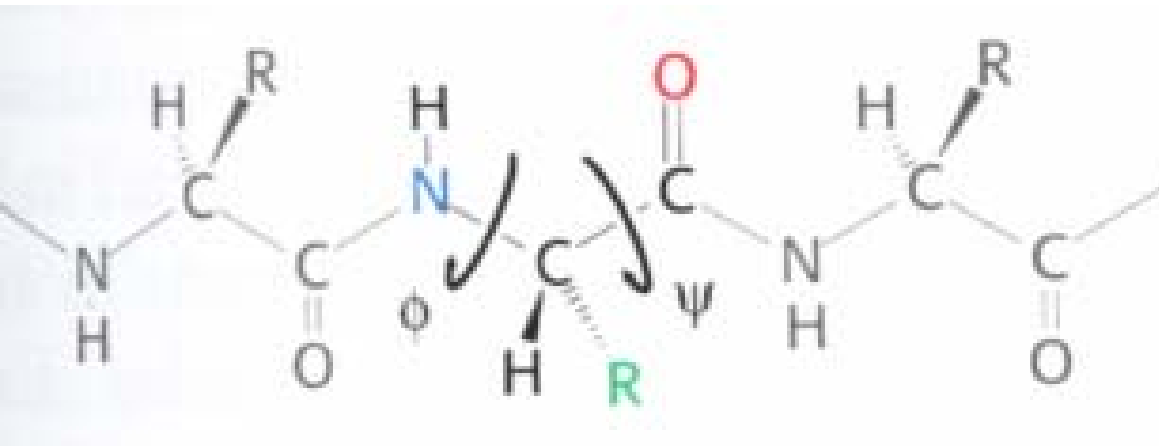


Cis

Characteristics of the Peptide Bond

- Partial Double-Bond
- Rigid & Planar
- Trans Configuration
- Uncharged but Polar

Φ Ψ Angles and Rotation about Bonds on a Polypeptide



Ramachandran diagram

