Primary Structure

Kinds of Amino Acids (4)

Non-polar	Glycine	Alanine	Valine	Leucine	Isoleucine	Phenylalanine	Proline	Methionine	Tryptophan
Polar and neutral	Serine	Cysteine	Tyrosine	Asparagine	Glutamine	Threonine			
Polar and acidic	Glutamic Acid	Aspartic Acid							
Polar and basic	Histidine	Lysine	Arginine						

The peptide chain is written from the N-terminus to the C-terminus. (1)

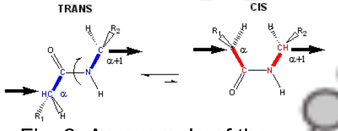


Fig. 2: An example of the difference between cis conformation and trans conformation in an amino acid. Cis means the alpha carbon is on the same side as that of an adjacent amino acid while trans means that alpha carbon is on the opposite side.
Picture: (5)

Internal carbons tend to be in the *trans* conformation. (1)

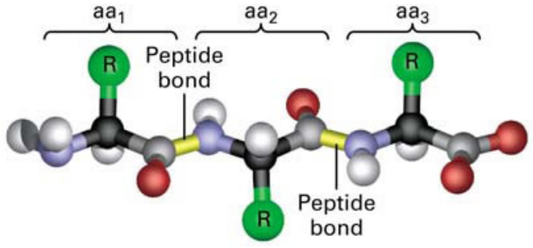
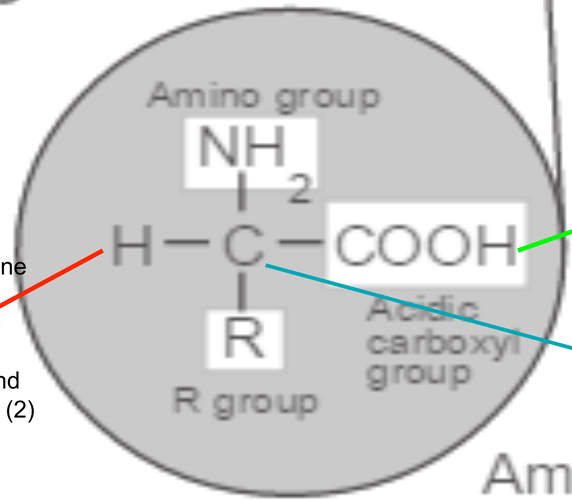


Fig. 1: The general 3D structure of the primary structure of a protein. Note that not everything is in the same plane. Also note the torsion angles; the measurements of these angles will vary between -180 degrees and 180 degrees depending on the R group. (1) However, it will never go to a conformation that is geometrically impossible in the secondary structure. (1)
Picture: (3)

The peptide bonds are resonance bonds, which are stronger than single bonds but weaker than double bonds. This results in the whole structure being slightly more rigid, but not too rigid. (2)

Terminal carbons, the carbons that end a peptide chain, are in the *cis* conformation. (1)



The R group and lone hydrogen are in a different plane than the Amino Group, thealpha carbon, ahd the carboxyl group. (2)

The alpha carbon, Amino group, and carboxyl group are planar. Adjacent alpha carbonx between amino acids are also planar. (2)

This is the alpha carbon, meaning it's the carbon off of which the R group is bound.

Bibliography:

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3) Mehta, Sweety. (2013). [Diagram.] Retrieved from: http://pharmaxchange.info/press/2013/10/oxidation-of-odd-carbon-chain-length-fatty-acids/.

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5) *Trans arrangement of the alpha Cs*. [Diagram], Retrieved from: http://biowiki.ucdavis.edu/Biochemistry/Proteins/Protein_Conformation

Background image:
[Untitled diagram of the 2D structure of the primary structure of a protein.] Retrieved from http://www.genome.gov/Pages/Hyperion/DIR/VIP/Glossary/Illustration/amino_acid.cfm?key=amino%20acids

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