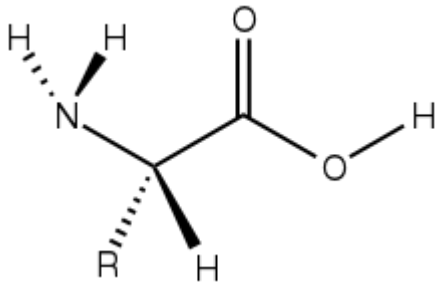
4.3.1

Amino Acids

Amino acids, defined as simply as possible, are organic molecules that contain two functional groups: a carboxyl group (-COOH) and an amino group (-NH_2) and a side chain (R group). The side chain is specific to each amino acid and determines the function of the amino acid.The most common type of amino acid is known as the α-amino acid so named because the amino group and the carboxyl group are bonded to the same carbon.The center carbon of an α-amino acid is a car boxylic acid (an organic acid that contains a carboxyl group). *Note: *not every amino acid has the amino and carboxyl groups bound to the same carbon (ie, Y-aminobutyric acid; GABA), but the most common amino acids (n = 20), encoded by the human body, are all α-amino acids*.



Most amino acids rotate light (optically active) with exception of glycine, which has a single hydrogen atom at its R group, making it look the same in the mirror despite rotation (achiral).

Despite all this explanation of optical rotations, all chiral amino acids in eukaryotes are L-amino acids and follow priority rules for an S absolute configuration, with one exception, the exception being cysteine. Cysteine is still an L-amino acid but with an R configuration because even though the side chain is in the same location as other amino acids, the chain contains Sulphur which has a higher priority than Oxygen.