Group, it is conformationally rigid. The sulfur-containing side-chain of cysteine

(Cys or C) is also hydrophobic and is highly reactive, capable of

Reacting with another cysteine to form a disulfide bond.

Hydrophobic, aromatic amino acids Phenylalanine (Phe or F), tyrosine (Tyr or Y) and tryptophan (Trp or W) are hydrophobic by virtue of their aromatic rings.

Polar, charged amino acids.

The remaining amino acids all have polar, hydrophilic side-chains, some of

Which are charged at neutral pH. The amino groups on the side-chains of the basic amino acids arginine (Arg or R) and lysine (Lys or K) are protonated and thus positively charged at neutral pH. The side-chain of histidine

(His or H) can be either positively charged or uncharged at neutral pH.

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In contrast, at neutral pH the carboxyl groups on the side-chains of the acidic

Amino acids aspartic acid (aspartate; Asp or D) and glutamic acid (glutamate;

Glu or E) are de-protonated and possess a negative charge.

Polar, uncharged amino acids.

The side-chains of asparagine (Asn or N) and glutamine (Gln or Q), the

Amide derivatives of Asp and Glu, respectively, are uncharged but can participate in hydrogen bonding. Serine (Ser or S) and threonine (Thr or T) are polar amino acids due to the reactive hydroxyl group in the side-chain, and

Can also participate in hydrogen bonding.