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# Coiled-Coil Domain

National Cancer Institute

## Source

National Cancer Institute. *Coiled-Coil Domain*. NCI Thesaurus. Code C13967.

A domain that stabilizes alpha helices in proteins through a very efficient burial of hydrophobic side chains so that polar water molecules do not access them. As a result, the helices are quite stable. In fact, many structural proteins (keratins, tropomyosin, laminin) that have to bear considerable stress have a coiled-coil domain. Two basic essential features are common: (1) the overall secondary structure is alpha helical, (2) the hydrophobic residues are arranged on one side of the helices. The typical positioning of the hydrophobic residues in the coiled-coil domain can be often recognized from primary structure of the protein. The helices can be parallel or antiparallel. The former is common when the helices belong to different polypeptides and the latter prevails in coiled coils made up from a single polypeptide chain. The number of helices in the coil varies usually between 2 and 4.