



SMART Teams

Exploring the
Molecular World

Linear Amino Acid Sequences Fold into Secondary Structures

The linear amino acid sequence defines the primary structure of a protein. Regions of the linear polypeptide chain fold into stable α -helix and β -sheet structures to form the protein secondary structure.

α -Helix and β -Sheet Construction Kit Contents



11 α -Helix backbone pieces

10 β -Sheet backbone pieces (each has a green A on the α -carbon)

11 Hydrogen bonds

30 Sidechains

- | | | | | |
|------------|---------------|------------|---------------|------------|
| 1 each of: | arginine | glutamine | lysine | threonine |
| | asparagine | histidine | methionine | tyrosine |
| | aspartic acid | isoleucine | phenylalanine | tryptophan |
| | cysteine | | | |
| 2 each of: | alanine | glycine | | |
| 3 each of: | leucine | serine | valine | |
| 4 of: | glutamic acid | | | |

**Please note that there is not a model for proline.