Kim and Minor mutated position 53 of protein GB1 to all 20 possible amino acids, and then measured the melting temperature for all of the resulting proteins.

This analysis revealed that certain amino acids are more favorable in β-sheets than others.

Specifically, residues that are brand at the β-carbon of the amino acid tend to stabilize a β-sheet structure.

This observation is consistent with the concept of amino acid propensities. That is, every amino acid has a certain preference for being in a β-sheet, α-helix, or turn region.

For β-sheet vs. α-helix propensity are opposed to each other. That is, the reason a residue has a high β-sheet propensity, is because it has a low α-helix propensity, and vice versa.

image from: https://bioweb.uwlax.edu/Default.htm