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Structure of a Methionine-Rich Segment of *Escherichia coli* Fifty Four Homologue Protein

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The methionine-rich segments of the Fifty four homologue (Ffh) protein of *Escherichia coli* and its eukaryotic counterpart SRP54 are thought to bind signal sequences of secretory proteins. The structure of a chemically synthesized 25-residue-long peptide corresponding to one of the proposed methionine rich amphiphilic helices of Ffh was determined in water and in aqueous trifluroethanol (TFE) solution using CD and NMR. Distance geometry calculations based on NMR constraints show that an appreciable α-helix conformation exists even in water and that this peptide assumes a stable α-helix along most of its length in aqueous TFE solution, indicating that this segment of Ffh protein has a very strong propensity to form α-helical structure.