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Protein stabilization plays a key role in signaling by bacterial chemoreceptor complexes

Bacterial chemotaxis proteins, which enable bacteria to direct their swimming towards favorable environments, form a remarkable membranebound sensor array. These proteins are of interest for understanding transmembrane signaling mechanisms and as potential targets for novel antibiotics. Our solid-state NMR and hydrogen exchange mass spectrometry have revealed that the receptor is partially disordered within functional complexes, and kinase activation involves stabilization of both the receptor and the kinase core. NMR experiments are in progress to study protein-protein interactions involved in signaling. This study reveals the mechanistic role of protein disorder and stabilization in signaling and control of catalysis.

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