
SII -1**NMR Study on the Internal Dynamics of Ketosteroid Isomerase**

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The backbone dynamics of ketosteroid isomerase, a homodimeric enzyme with 125 amino acid residues per subunit, has been studied in the presence/absence of a steroid ligand and 5% trifluoroethanol (TFE) by ^{15}N relaxation measurements. The relaxation data were analyzed using the model-free formalism to extract the model-free parameters (S^2 , τ_e , and R_{ex}). The results show that a large number of the residues, particularly those involved in the dimer interaction, exhibit reduced order parameters (S^2) in the steroid-bound enzyme, indicating the increased high-frequency (pico- to nanosecond) motions in the interface region upon ligand binding. The results also show that the presence of 5 % TFE in free enzyme causes little change or slight increase in the order parameters for a number of residues in the dimer interface region. However, the majority of the residues in free enzyme exhibit reduced order parameters in the presence of 5 % TFE, indicating that the increase in entropy is partially responsible for the increased stability of KSI by 5% TFE.