Title: Dynamic Coupling and Allosteric Behavior in a Non-Allosteric Protein

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Long-range intraprotein interactions give rise to many important protein behaviors. In an effort to understand such linkages, we have undertaken NMR studies of small, globular proteins that enable us to study the effects of mutation and ligand-binding on the structure and dynamics in these systems. Because proteins are highly dynamic molecules, the experimentally detected motions serve as excellent reporters of energy transmission through the network of interactions. Through these dissections we find that the impact of even conservative perturbations to a protein can propagate to distal regions of the structure, even in a non-allosteric protein such as the serine protease inhibitor eglin c. These findings have implications for understanding canonical allostery, protein stability, protein design, and drug design.