

**VISUALIZING PATHWAYS: AN EXPLORATION OF THE
PROTEIN UNFOLDING PROCESS**

by

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ABSTRACT

Proteins are the essential macromolecular workhorses that govern most life processes. Understanding how proteins fold will better assist in protein structure prediction, protein design, and understanding the pathology of certain diseases. The notion and existence of protein folding and unfolding pathways is supported by a volume of research. It has further been suggested that the paths of folding and unfolding are the one in the same. With this in mind, the GeoFold suite was created in order to help researchers visualize the pathway of folding/unfolding. Since a protein's state space is more restricted from an unfolding approach, simulation time and memory costs can be cut down, allowing for the visualizing of large proteins. The result is a useful tool that allows for the visualization of the predicted dominant folding pathway of a protein of virtually any size.