EXECUTIVE SUMMARY [NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]:
State **in layman's terms** the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project relevant to California.

Devastating disorders such as Alzheimer's Disease and Bovine Spongiform Encephalopathy have at their root the failure of proteins to fold properly into their native structure. How proteins adopt these complex, biologically relevant states from unstructured ensembles is not well understood; the role small molecule- and metal ion-binding partners play in this process is even less clear. This study will use a newly identified protein from a bacterial metal-resistance system as a model compound for understanding how proteins find their native state and how they use other atoms and molecules to help them fold. Students will learn to use sophisticated tools to unravel the mysteries of protein conformational change with the goal of learning how to manipulate protein structure.