

**EXECUTIVE SUMMARY [NON-CONFIDENTIAL, 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. Do not include proprietary or confidential information. This may be distributed before the funding decision has been finalized.

Protein crystallography, which provides crucial atomic resolution details about the structure of macromolecules, is the linchpin of post-genomic biotechnology and drug discovery, yet formal training in this field, particularly at the undergraduate level, is practically non-existent. This project takes an existing experiment in the senior biochemistry laboratory at CSU Fullerton and develops it into a contemporary comprehensive experiment in structure determination and analysis using protein crystallography. This experiment provides much-needed training for the future biotechnology workforce in California, and it also contributes new scientific knowledge about an essential enzyme in carbohydrate metabolism, lactate dehydrogenase.