

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.

This project addresses how plants control the rate of biosynthesis of nutritionally important compounds by gaining an understanding of how plants control formation of the basic biochemical precursors for their biosynthesis. More specifically, this project will establish how plants control the breakdown of six-carbon sugars to the three-carbon precursors for amino acid, carotenoid, tocopherol and oil biosynthesis. We will test the hypothesis that sugar breakdown is regulated by expressing different forms of the last enzyme in the sugar-degrading pathway, pyruvate kinase, by producing highly purified forms of those enzymes and measuring their regulatory properties. Plant genetic engineering of agricultural crops (including major crops grown in California) for improved animal and human nutrition is an active focus of agricultural biotechnology companies, and the effort in this proposal may lead to technologies with significant commercial utility for enhancing the feed and food value of crop species.