

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. The synthesis of proteins is an absolute requirement for growth and development in biological organisms, yet our understanding of the core machinery (the ribosome) in plants remains limited. One component of every ribosome is a protein known as S15a. In the genetic model plant, *Arabidopsis thaliana*, there are distinct forms of S15a, referred to as Type I and Type II. I hypothesize that these distinct forms of S15a have different functions within the ribosome. In this proposal we aim to determine the specific cellular location of the two forms of S15a. The significance of this proposal is three fold: 1) all of the work proposed will be performed by student research assistants, giving students hands-on research experience potentially providing California with future scientists, 2) the results from proposed experiments will be used to lay the foundation for future extra mural funding requests and be included in a manuscript which will be submitted to a peer reviewed journal and 3) the proposed experiments will add significantly to our understanding of the composition of plant ribosomes. Furthermore, not only are both Type I and II S15a found in *Arabidopsis*, they are also maintained in important crop species (such as corn, rice and cotton) indicating that this study may be of agronomic importance, particularly in Bakersfield which is at the southern boundary of California's rich agricultural central valley. Together, these data will provide a landmark for the analysis of plant ribosomes and has the potential to widely impact agriculture through the prospect of higher crop yield.