

**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.

Malignant melanomas account for only 5-11% of skin cancers, but cause 75-90% of deaths relating to all skin cancer diseases. As such, early detection and treatment alternatives have become increasingly important. A common problem in treating melanoma patients is predicting their individual prognosis. The early detection of a recurrence could significantly influence post-operative treatment decisions and improve patient survival. Early detection of malignant melanoma would be facilitated by the development of methods for the identification of known physiological markers of melanoma progression. We plan to develop methods for the detection of 5-S-cysteinyl-dopa (5-SCD), a known indicator of malignant melanoma. It has been shown that 5-SCD levels are significantly elevated in skin cancer patients. A rapid and economical method for measuring the level of 5-SCD in blood or urine would greatly influence treatment decisions and improve survival in skin cancer patients. Our method will utilize both synthetic organic chemistry and biochemical techniques to identify the critical components for the development of sensitive and specific methods for the detection of 5-SCD. These studies will be conducted by Cal Poly undergraduates and will provide them with techniques and skills that are relevant and valuable to the field of biotechnology.