

**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.

Amino acids are biologically very important compounds; they are the building blocks of proteins. However, of the several hundred amino acids found in nature only approximately 20-30 amino acids would be considered common. The vast remainders rarely occur in nature and even though they may occur naturally are usually called unnatural amino acids. These amino acids can be important components in biologically interesting compounds such as anticancer, antiviral and pain relievers. Since these compounds are very rare, to make drugs or other interesting compounds containing them these amino acids have to be made from other sources. Adding a piece of complexity to this problem is the fact that almost all amino acids exhibit handedness. Much like a right hand cannot fit well into a left-handed baseball glove, the correct handedness of the desired amino acid is required. Most usual chemical methods are not able to make one handedness of a molecule and not the other. This project proposes to investigate the use of a derivative of ferrocene, an iron containing compound, to make biologically interesting unnatural amino acids. These amino acids can then be used in making drugs for treatment of a variety of diseases, including cancer and viral infections.