

**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. During the last years the importance of natural immunity in host defense against microbial invasion has been recognized and the key players in this system have been identified as specialized cells that ingest and kill microbes, the cells lining all body surfaces and the antibiotic proteins produced by all these cells. However, lipids make a substantial part of all body fluids and though lipids, in particular fatty acids, have been shown to demonstrate antibacterial activity and have been reported to be altered in certain chronic infectious diseases, a direct role of host-derived lipids in natural host defense has not been proposed yet. In interdisciplinary research, we wish to demonstrate that the inherent antimicrobial activity of body fluids is diminished after lipid removal and we aim to identify the lipids involved. These new data, together with our preliminary data on synergistic activity between selected fatty acids and lysozyme, a major protein in body fluids, will allow us to apply for NIH funding for further research in this area. This research has major implications for public health: a new understanding of chronic infectious diseases and the interaction between host and microbes, new drug development and dietary recommendations. Though all these potential benefits will reach beyond California, the closeness of the CSULA campus to biotech companies in California will likely promote a closer and successful collaboration between the investigators providing the basic research and the industry enabling the biomedical application.