

NON-TECHNICAL ABSTRACT: (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.)

Infectious diseases remain one of the leading causes of death worldwide. New infectious diseases are continually being identified and many known pathogens (which were under control) are again becoming a threat. To help combat these diseases past and current research has emphasized the importance of antibiotics from naturally occurring compounds. Natural product research has focused on marine invertebrates, algae and plants, and has led to the discovery of new antibiotic classes. Also, it is accepted knowledge that skin bacteria of animals and humans acts as the first barrier against invading microbial pathogens. In the southern San Joaquin valley, the non-native North American Bullfrog (*Rana catesbeiana*) and the California Toad (*Bufo boreas halophilus*) seem to be thriving, whereas in general, amphibian species are in worldwide decline. Bacteria from the skin of amphibians have been shown to produce antibiotics that protect their host from pathogenic fungi. One reason for the success of the bullfrog and the toad may be due to antifungal compounds produced by the bacterial species associated with their skin. Given that bacteria associated with the skin of amphibians are able to protect their host against pathogens and that antibiotics from naturally occurring compounds have been used to combat infectious diseases, ***we hypothesize that we will find powerful antifungal metabolites produced by bacteria of the skin of amphibians.*** The main purpose of the experiments outlined in this proposal is to determine if bullfrogs and/or toads, carry antifungal producing bacteria that may be providing these amphibians with a competitive edge. Antifungal bacterial isolates detected in this project may have the potential to widely impact global amphibian conservation and but more importantly their metabolites might be useful for novel chemotherapeutics to combat human diseases.