

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.

Aggression permeates our society and constitutes a major concern for our social fabric. Aberrant forms of aggression often associated with violent or abusive tendencies and/or personality disorders (e.g., generalized anxiety) have been linked to exposure to mild social stress, in particular social deprivation. Aggressive behavior also has been tied to changes in brain neurochemical processes, namely serotonin production. Our project aims to evaluate the potential for interactions between these two putative mechanisms – stress and serotonin production - to govern aggressive behavior. We have generated an experimental paradigm that uses social deprivation to induce aggressive behavior in a fish species (convict cichlids). Socially isolated fish also show changes in brain neurochemistry associated with the stress response. An interesting question that arises is how changes in brain stress profiles precipitate aggression. We will test whether alterations in brain stress profiles influences the enzyme responsible for serotonin production, which is known to directly affect the expression of aggressive behavior. This research is important for identifying possible molecular mechanisms associated with the development of aggression, which will help us to better understand the basis for hostile behavior and perhaps to generate more effective therapies for treating personality disorders characterized by deviant aggression. California is not impervious to these issues, being ranked 11th among US states in violent crimes in 2004, and having a total of 316,592 aggression-precipitated police reports in 2005. Understanding the fundamental, biological basis for aggressive behavior using state-of-the-art molecular neurobiological techniques might thus help us to alleviate the prevalence of societal aggression.