

**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.

Sydenham's chorea is a rare autoimmune brain disorder of children that occurs following an episode of streptococcal pharyngitis, more commonly referred to as strep throat. Disease causing antibodies from patients with Sydenham's chorea bind to the surface of human neuronal (brain) cells. This binding sends an inappropriate signal through the brain cell causing the movement and neuropsychiatric symptoms that are associated with the disorder. The purpose of this study is to identify the proteins the antibodies bind to on the surface of the neuronal cell. To identify these proteins we will use phage display technology. Phage display uses bacterial viruses known as phage to express human brain proteins with thousands of brain proteins being expressed on different phage particles. Chorea causing antibodies then bind to brain proteins on the surface of a select few phage particles. The DNA that codes for the selected brain protein is easily retrieved for DNA sequencing and identification by genetic database analysis. Identified proteins will be confirmed as specific for Sydenham's chorea by antibody binding studies. This study will increase our understanding of how antibodies in Sydenham's chorea cause the disorder and will provide valuable insight into disease mechanisms of related disorders including obsessive-compulsive disorder, Tourette's syndrome, and attention deficit/hyperactivity disorder that affect children in California and throughout the world.