

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.

Glycodendrimers are branched sugar-containing polymers that have shown enormous potential in various medical applications due to their ability to interact with proteins with strong affinity, and block protein-carbohydrate interactions between host cells and infectious agents. The proposed research seeks to synthesize two new highly extended, water-soluble dendrimer polymers for use in the formation of novel glycodendrimers as anti-viral drugs. These dendrimers will have greater water solubility and longer spacer arms between the core of the molecule and the points of attachment for biologically active carbohydrates, than that found in commercially available dendrimers. The increased water-solubility will make the dendrimers more amenable for use in living systems, where water is the main component in blood and tissues, and protein-carbohydrate interactions occur. The longer spacer arms will aid in the formation of the glycodendrimers, because more room will be available for the carbohydrates to access and react with the ends of the spacer arms. Additionally, the dendrimers should have low toxicity in living systems because the make-up of the building blocks used in the construction resemble a known non-toxic compound, polyethyleneglycol (PEG). The success of this project could ultimately result in the development of a new class of anti-viral drugs, and serve to prolong the lives of those infected with HIV.