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The Development of a Novel Therapeutic for the Treatment of Sickle Cell Disease

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Poster Presentation P53

**THE DEVELOPMENT OF A NOVEL THERAPEUTIC FOR THE
TREATMENT OF SICKLE CELL DISEASE**

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Sickle Cell Disease is a genetic disorder caused by a single point mutation that affects the hemoglobin of red blood cells. This mutation allows the protein to interact with other molecules of hemoglobin, forming aggregates that take on a gel like consistency within the cells. The protein aggregation deforms the cell, changing it from a normal biconcave disc form to a 'sickled' shape, leading to improper flow through capillaries. Despite the fact that the molecular mechanism for the illness has been known in detail since 1957, no truly effective treatment has yet been discovered. As a novel approach for the treatment of this ailment, we have taken advantage of a peptide screen in order to discover ligands that can bind to the protein surface and disrupt the protein-protein interactions responsible for aggregation. Our initial library is based on the natural peptide sequence of the mutation binding site.