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RESEARCH SUMMARY:

Dr. Sanghera's laboratory is focused on efforts to understand the interplay between environmental and genetic factors involved in type 2 diabetes (T2D) and cardiovascular disease pathogenesis. Rising epidemic of cardiometabolic diseases is a growing public health problem among the immigrant populations in the US, particularly in the ethnicities that have migrated from rural areas to westernized urban environments. The reasons underlying these conditions are not understood. The aim of Dr. Sanghera's research is to identify genetic susceptibility underlying T2D, insulin resistance, obesity, and dyslipidemia using a South Asian cohort of Punjabi origin from Northern India and the US Asian Indians who are first generation immigrants and residents of states of Oklahoma, Texas, and California. United States of America. Asian Indians have high predisposition for developing central obesity associated with metabolic and cardiovascular diseases when exposed to western diet and obesogenic environment. The long-term goals of Dr. Sanghera's research are; 1) to identify the underlying molecular mechanisms associated with these disorders, 2) to improve the classification of the disease process by identifying genome-wide patterns associated with ethnic variation, and 3) to discover new gene-based targets based on ethnic origin and environmental and cultural differences which can inform the design of early prevention and treatment therapy among immigrant populations. Dr. Sanghera's laboratory is currently employing genome-wide linkage, genome-wide association, and linkage disequilibrium approaches on family- and population-based datasets, and also examining the functional role of novel variants with insulin resistance, beta-cell dysfunction using tissue-specific gene-expression and miRNA studies.