

## The Effects of a 60 Nucleotide Insertion Polymorphism of Adenylyl Cyclase 6 on End Stage Renal Disease

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Abstract: End Stage Renal Disease is almost four times more prevalent in African Americans than it is in white Americans. African Americans also have the highest rate of hypertension-related ESRD. Although it is suggested that this particular group may have a racial predisposition to developing hypertension-related renal failure, the exact genetic correlation is unknown. Recently, an insertion polymorphism of 20 amino acids was discovered in the adenylyl cyclase 6 protein belonging to a sole African American male who exhibited extremely high blood pressure. An insertion of this size in the adenylyl cyclase 6 protein, as it is directly related to vasoconstriction of the heart, could have profound effects. In this research project, I set out to determine if the AC-6 insertion is common within the African American population, and if the insertion contributes to hypertension related disorders such as End Stage Renal Disease. Through the implementation of the molecular biology techniques of the Polymerase Chain Reaction (PCR) and gel electrophoresis, 148 DNA samples (95 HT-ESRD samples and 63 HT-ESRD controls) were screened for this insertion. Out of the 148 samples, three (1 sample and 2 controls) were found to contain the insertion.