

Does the sequence of your potassium channel genes predispose you to disease?

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Voltage-gated potassium (Kv) channels are found in most of the cell types in every living organism. This abundance is testament to their physiological importance. Increasing numbers of sequenced genomes has subsequently lead to increased numbers of known or putative Kv channel genes and proteins, providing a resource for extensive bioinformatic analysis. Kv DB (Kv channel database) is a collation of information that has been a) gathered from sources such as ENSEMBL, Uniprot and dbSNP, and b) produced by computational analysis of multiple Kv protein sequences alongside structural information from the PDB. This information will be accessible via the Kv DB website, which will also contain tools for further computational analysis of submitted sequences or searches by sequence similarity etc. The presence of single nucleotide polymorphisms (SNPs) within Kv channels will be included in the database. The final aim of this work is to provide a method for predicting whether a SNP will have a neutral or deleterious effect on the Kv channel it resides in. Kv DB will be a valuable resource for Kv channel researchers and a tool for understanding genotype-phenotype relations as applied to single nucleotide variations within Kv channels in humans.