The emergence of human genome project brings hope of personalized medicine as patients with identical clinical symptoms may respond differently to the same drug therapy. Genetic polymorphisms in drug-metabolizing enzymes, transporters, receptors and other drug targets have been linked to differences in the efficacy and toxicity of many drugs between two individuals. Pharmacogenomics is the study of genetic factors that mediate a person's drug response. Pharmacogenomic analysis promises to identify disease susceptibility genes thus discovering new drug targets. This may lead to an individualized application for drug therapy and bring new insights into disease prevention. The emerging discipline of pharmacogenomics attempts to apply the innovative technologies of genome sequencing in order to better understand drug response to produce more effective drugs with fewer side effects on the basis of individual patient's genetic make up and making personalized medicine an economically viable possibility.