



Genetic polymorphism and human cancer

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It has been known for a long time that there are large variations in human susceptibility to cancers, and in an individual's response to cancer chemotherapeutic drugs. Understanding of the mechanisms of such variations is critically important for cancer prevention by identifying and protecting the susceptible subpopulations, as well as for cancer treatment by improving efficacy and safety of chemotherapy. The rapid advancement of molecular biology and the success of Human Genome Project in recent years have greatly stimulated this line of research. Age netic polymorphism is defined as a DNA sequence variation that exists in more than 1 percent of the population. It is now widely believed that genetic polymorphism could play an important role in cancer susceptibility and drug response. In this presentation, I am going to review the basic concepts of genetic polymorphism and commonly used approaches, as well as to discuss the problems and future directions. Finally, I will introduce our current studies on genetic polymorphism of carcinogen-metabolizing and DNA repair enzymes, which include identification and functional characterization of novel genetic variants, and ongoing collaborative projects on the risk of esophageal and gastric cancers in Chinese populations.

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