

In search for the genes responsible for stomach and liver cancers in Korea

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From the sequence information of the human genome, we are about to enter the era that enables us to find detailed function of the genes/proteins that may be related with human diseases. Elucidation of each gene function will be necessary to understand human life, causes of the diseases in human and to develop novel therapeutics or diagnostics for human diseases in post-genome era. In Korea, we realized the importance of the elucidation of the each gene function and its relationship to the human diseases, and thus developed our strategy to characterize the function of unknown genes/proteins and to develop the future innovative diagnostics and therapeutics. Ministry of Science and Technology of Korea has launched the 21st century Frontier Research and Development Program including Korea Functional Genome Project to support the innovative researches for the future. The center for the functional analysis of human genome of Korea has been established to carry out this mission and will be supported by the Korean government for the next 10 years. The research goal of the center is to identify the target genes and/or proteins that can be used for novel therapeutics or diagnostics to cure or prevent the diseases prevalent among the Korean population such as stomach and liver cancers by promoting genome-based researches in Korea. Research areas include large-scale isolation of disease-associated genes and proteins, SNP mapping of Korean population, and functional analysis of the genes or proteins associated with diseases using cellular system, model organisms, or animal system or by analyzing structure of the proteins or protein-protein interactions. Collection of unigenes and full-length cDNAs from the stomach and liver cancer cell lines and tissues are in progress and DNA chips prepared from these genes sets are used to analyze the expression profiles of the genes in stomach and liver cancer tissues from the Korean patients. I will discuss the outcome of the results and the future direction of the Korea Functional Genomics.