

### **Explanation on Hardy-Weinberg equilibrium**

In this study, by  $\chi^2$  test, it was indicated the genotype distribution of -850C→T SNP (rs1799724) deviating from HWE in control group. One or more of the assumptions on the deviation from HWE in control group might be inbreeding, the population structure and even genotyping error. The control subjects randomly collected and the genotyping data strictly checked by us was able to exclude the factors from mating among relatives and experimental errors. The elements, which produced the deviation, might be population stratification or other else such as the size of sample being small.

If the genotype distribution in the control group misses the HWE, a false negative conclusion of which the investigated polymorphism is no significance could be drawn because the sample's genotype distribution dose not represent the real genotype condition in healthy population. The significances of -850T allele, observed in our previous two studies in China populations (both fulfilling the HWE), were evidently higher than that in this study ( $P < 0.001$ ). Therefore, we speculated that the deviation of -850C→T SNP genotype from the HWE in the health group was one of factors which reduced the significance.