Association of regulator of G protein signaling (*RGS5*) gene variants and essential hypertension in Mongolian and Han populations

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ABSTRACT. Genetic variants of the *RGS5* gene are believed to be risk factors for hypertension and cardiovascular diseases. In this study, we investigated the association between *RGS5* gene variants and hypertension in the Mongolian and Han populations. Peripheral blood was obtained from 429 unrelated Mongolian herdsmen and 416 Han farmers [including essential hypertension (EH) patients and controls]. Nine tagSNPs within the *RGS5* genes were retrieved from HapMap, and the samples were individually genotyped using the polymerase chain reaction/ligase detection reaction assay. The distribution of the allele frequency of rs12035879 differed significantly between hypertensive subjects and controls in the Han population, while the distribution of the allele and genotype frequencies of rs16849802 differed significantly between hypertensive subjects and controls in the Mongolian population. We

observed an association between rs16849802 and EH in the Mongolian population. The frequency of haplotype GAA was significantly higher in the EH group than in controls in the Mongolian population. However, the EH group and controls did not differ significantly in all 6 haplotypes in the Han population. The rs16849802 and haplotype GAA independently increased the risk of EH in Mongolian patients, and may be used as a risk factor for the prediction of high blood pressure.

Key words: Essential hypertension; Mongolian population; RGS5; Single nucleotide polymorphism

