

## Abstract of Presentation

**Note: This paper should be typed in “Times New Roman” of 12pt.**

Presentation Title(Should be no more than 20 words):

Genomics studies of cardiovascular Diseases in Mexicans: The case of Essential Hypertension

Abstract : In Mexico, hypertension has a prevalence of 30.8% in Mexicans older than 20 years. It's a risk factor for myocardial infarction, heart failure, cerebral vascular disease, and renal failure. Different genetic variants have been reported to be associated with hypertension, including those in angiotensinogen (*AGT*), adrenergic beta-1 receptor (*ADRB1*), angiotensin-II receptor type 1 (*AGTRI*). All of these genes are involved in the regulation of blood pressure. In order to analyze association with hypertension of 20 SNPs of *AGT*, *ADRB1*, *AGTRI*, *CACNA1C*, *ACE*, and *ADD* genes, we conducted a case-control study in 360 cases and 150 controls >65 years old from Mexico City. Four polymorphism the *AGT* gene showed a significant association with hypertension in Mexican population: -6G>A (OR 4.64; CI 95%= 1.8-11.5;  $p = 0.00008$  in a recessive model); 4072C>T (OR 4.42; CI 95%= 1.74-11.2;  $p = 0.0009$  in a recessive model); 6309C>T (OR, 12775A>G (OR 5.6; CI 95%= 2.3-13.3;  $p = 0.00004$  in a recessive model); and 12775A>G (OR 5.2; CI 95%= 1.9-13.8;  $p = 0.00033$  in a recessive model). We examined the association between *AGT* variants and plasma *AGT* levels in case and control Mexicans. 9 were genotyped: C-532T (rs5046), G-217A (rs5049), A-20C (rs5050), A-6C (rs5051), C3389T (rs4762), C4072T (rs699), G6309A (rs2493132), C11535A (rs7079), and A1240G (rs943580). Plasma *AGT* levels were determined by ELISA. We observed differences in plasma *AGT* levels in control with genotypes of C3389T (CC:  $25.3 \pm 5.3$  vs CT:  $20.8 \pm 2.4$   $\mu\text{g/ml}$ ,  $p = 0.003$ ). Ten haplotypes covered 97% of the variability. The first haplotype was considered as the intercept for linear regression analysis. Significant associations detected by the single-SNP analyses were largely retained in the haplotype analysis. In hypertensive Mexicans the media of plasma *AGT* levels was  $26.8 \pm 8.3$   $\mu\text{g/ml}$ . We observed differences in plasma *AGT* levels with genotypes of A-20C (AA:  $27.3 \pm 8.8$ , AC:  $24.3 \pm 6.3$ , CC:  $23.3 \pm 8.6$   $\mu\text{g/ml}$ ; AA vs AC,  $p = 0.03$ ; AA vs CC,  $p = 0.14$ ) and with C3389T (CC:  $27.2 \pm 8.8$ , CT:  $22.4 \pm 5.8$ , TT:  $20.7 \pm 9.1$   $\mu\text{g/ml}$ , CC vs CT,  $p = 0.001$ ; CC vs TT,  $p = 0.06$ ). Ten haplotypes covered 98% of the variability. Haplotype (CGCTTCCCG) with 11% prevalence in the samples was associated with lesser plasma *AGT* levels ( $-5.0, -7.8 - -2.2$ ,  $p = 0.0004$ ), and was influenced by “T” in the fifth position. The association of these haplotypes with plasma *AGT* levels remained after the full adjustment for covariates (age, abdominal circumference, and body mass index). Also, the total effect of significant haplotype on plasma *AGT* level variance was 21%. Also, we conducted GWS with these samples to identify new genetics variants associated with hypertension in Mexicans.