



# Polymorphisms of the angiotensin II type 1 receptor gene affect antihypertensive response to angiotensin receptor blockers in hypertensive Chinese

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Genet. Mol. Res. 12 (2): 2068-2075 (2013)

Received March 28, 2012

Accepted December 18, 2012

Published June 21, 2013

DOI <http://dx.doi.org/10.4238/2013.June.21.2>

**ABSTRACT.** The renin-angiotensin-aldosterone system plays a key role in regulating blood pressure by maintaining vascular tone and the water/sodium balance. Many antihypertensive drugs target the renin-angiotensin-aldosterone system, but the effect differs considerably among hypertensive patients. We investigated whether genetic variants of the angiotensin II type 1 receptor are associated with blood pressure response to angiotensin II receptor blockers in hypertensive Chinese patients. After a 2-week single-blind placebo run-in period, 148 patients with mild-to-moderate primary hypertension received monotherapy with 80 mg/day telmisartan and then were followed up for 8 weeks. The 1166A/C, 573T/C, -810A/T, and -521C/T polymorphisms of the *AT1R* gene were determined through PCR and RFLP analysis. The relationship between these polymorphisms and changes in blood pressure was observed and evaluated after 8 weeks of treatment.

Patients with the AT1R -521CC genotype had a significant reduction in diastolic blood pressure compared to those carrying the T allele. No significant reduction in blood pressure was found in individuals with the 1166A/C, 573T/C, or -810A/T polymorphisms of the *AT1R* gene. We conclude that only the AT1R -521CC genotype is associated with a significant decrease in blood pressure in response to telmisartan treatment in Chinese hypertensive patients.

**Key words:** Essential hypertension; Angiotensin II type 1 receptor; Single nucleotide polymorphism; Angiotensin receptor blocker