

## Genetic association analysis of ADIPOQ gene variants with type 2 diabetes, obesity and serum adiponectin levels in south Indian population

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**Methods:** The study comprised of 1,100 normal glucose tolerant (NGT) and 1,100 type 2 diabetic, unrelated subjects randomly selected from the Chennai Urban Rural Epidemiology Study (CURES), in southern India. Fasting serum adiponectin levels were measured by radioimmunoassay. The variants were screened by polymerase chain reaction-restriction fragment length polymorphism. Linkage disequilibrium was estimated from the estimates of haplotype frequencies.

**Results:** Of the 8 variants, four SNPs namely, +276 G/T (*rs1501299*), -4522 C/T (*rs822393*), -11365 C/G (*rs266729*), and +712 G/A (*rs3774261*) were significantly associated with T2DM in our study population. The -3971 A/G (*rs822396*) and -11391 G/A (*rs17300539*) SNPs association with T2DM diabetes was mediated through obesity (where the association with type 2 diabetes was lost after adjusting for BMI). There was an independent association of +276 G/T (*rs1501299*) and -3971 A/G (*rs822396*) SNPs with generalized obesity and +349 A/G (*rs2241767*) with central obesity. Four SNPs -3971 A/G (*rs822396*), +276 G/T (*rs1501299*), -4522 C/T (*rs822393*) and Y111H T/C (*rs17366743*) were significantly associated with hypoadiponectinemia. The haplotypes GCCATGAAT and AGCGTGGGT haplotypes conferred lower risk of T2DM in this south Indian population.

**Conclusion:** The adiponectin gene variants and haplotype contribute to the genetic risk towards the development of type 2 diabetes, obesity and hypoadiponectinemia in the south Indian population.

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