

## **Association of the Leptin Receptor Q223R (Rs1137101) Polymorphism with Obesity in a Sample Population from Kandy**

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A very limited amount of data is available on the role of genetic factors in the development of obesity in Sri Lankans. The Q223R (rs1137101) single nucleotide polymorphism of the leptin receptor (*LEPR*) gene has been associated with obesity measures in various ethnicities globally. We investigated the association of the Q223R polymorphism with obesity measures and biochemical parameters in sample of adult subjects from the Kandy district of Sri Lanka. 535 subjects (age 18-70 years) from the general population were recruited through multi-stage random sampling. Body mass index (BMI), waist circumference (WC) and waist-to-hip ratio (WHR) was obtained by standard methods. DNA extracted from whole blood was genotyped using real-time PCR and allelic discrimination. Fasting blood sugar (FBS) levels and lipid profile parameters were quantified. The *LEPR* variant 'G' allele frequency was 0.54. The *LEPR* polymorphism was associated with BMI ( $p=0.04$ ) and WC ( $p=0.02$ ) measures in obese ( $BMI \geq 25 \text{ kgm}^{-2}$ ) subjects with the variant allele conferring a greater risk of obesity. Residency in urban areas attenuated the protective effect of the non-risk genotype (AA) in the development of obesity. No significant associations were observed with FBS or lipid profile measures. The *LEPR* Q223R polymorphism is associated with BMI and WC and the effect of the variant is more pronounced in obese subjects. Area of residence (urban/rural) moderates the association between *LEPR* Q223R polymorphism and obesity in Sri Lankans.

**Key words:** Obesity, genetics, polymorphism, leptin receptor, Sri Lanka.