

**Table 1.** Summary of meta-analyses of the reviewed candidate genes (MC4R and PPAR $\gamma$ ) in the study of obesity. Modified and updated from Loos et al. (2009) [17]

Gene	Variants	Total sample size	Trend of association	Obesity phenotype associated with the variant	References
<i>MC4R</i>	Val103Ile	7 713	-	Ile-allele was associated with a reduced risk of obesity	Geller <i>et al.</i> (AJHG 2004) [87]
		29 563	-	Ile carriers have a reduced risk of obesity	Young <i>et al.</i> (IJO 2007) [88]
		39 879	-	Ile carriers presented a reduced risk of obesity.	Stutzmann <i>et al.</i> (HMG 2007) [89]
		55195	-	Ile-allele carriers have a reduced risk of obesity	Wang D <i>et al.</i> (Obesity) [90]
	Ile251Leu	11 435	-	Leu carriers have a reduced risk of obesity	Stutzmann <i>et al.</i> (HMG 2007) [89]
<i>PPAR<math>\gamma</math></i>	Pro12Ala	29 424	+	Ala carriers have an increased BMI in Whites	Tonjes <i>et al.</i> (Diabetes Care 2006) [91]
		19136	+/=	Ala carriers have an increased BMI only in subjects with BMI $\geq$ 27kg/m <sup>2</sup> No association with BMI in subjects with BMI<27kg/m <sup>2</sup>	Masud, <i>et al.</i> [40]

BMI: Body Mass Index

*MC4R*: Melanocortin 4 receptor

*PPAR $\gamma$* : Peroxisome proliferator-activated receptor  $\gamma$