To investigate the influence of polymorphisms in \textit{PRDM16} and \textit{PDE4D} genes which are involved in thermogenesis process on obesity and blood lipids profile in Saudi population

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\textbf{Aim:} The aim of this study was to investigate the influence of polymorphisms in \textit{PRDM16} and \textit{PDE4D} genes which are involved in thermogenesis process on obesity and blood lipids profile in Saudi population.

\textbf{Methods:} A case control format was used that involved 89 obese individual and 84 non-obese (control). The \textit{PRDM16} (rs2651899) and \textit{PDE4D} (rs295978) polymorphisms were genotyped using KASP\textsuperscript{TM} (Competitive Allele-Specific PCR) method.

\textbf{Results:} Participants with the mutated genotypes, AA and AG, of \textit{PRDM16} (rs2651899) polymorphism were significantly more likely to be obese as compared to participants with wild type genotype (OR=21, 95\% CI=5.4190 to 84.4231, P value<0.0001 and OR=44.6, 95\% CI=11.5984 to 172.0157, P value<0.0001, respectively). This polymorphism found to be significantly affecting the participants blood lipids profiles. In contrast, \textit{PDE4D} (rs295978) polymorphism was not associated with risk of obesity and had no effects on blood lipids profile.

\textbf{Conclusions:} We found that the \textit{PRDM16} polymorphism (rs2651899) is a risk factor for obesity and influence blood lipids profiles significantly in Saudi population. While the \textit{PDE4D} (rs295978) polymorphism didn't show significant effect on risk of obesity or blood lipids profiles.

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