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Genetics of type-2 diabetes in Pakistani population

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Type-2 diabetes (T2D) has been the subject of numerous genetic studies in recent years which revealed associations of the disease with many susceptibility loci. We evaluated 10 genes (*TCF7L2*, *HHEX*, *ITGA2*, *CDKL1*, *ADRB3*, *PRKCB1*, *CETP*, *GNB3*, *LTA*, *LPL* and *PPARG*) for susceptibility of T2D in Pakistani population by performing a case-control study. A total of 350 subjects (Patients=280 and Controls=70) participated in the study. Genotyping was performed by PCR-RFLP and overall 6 SNPs from the study were found to be significantly associated with T2D. *ITGA2* (rs1062535-rs1139484-KT359366) was first time studied in south Asians which showed a significant association with T2D and a novel SNP was identified and got its accession number (KT359366). The loci from *HHEX*, *ITGA2*, *LTA*, *PPARG* and *ADD1* remain associated with T2D after SNP and genotype analysis ($P < 0.05$) while *GNB3* and *PRKCB1* were only associated in genotype analysis. Two haplotypes (GAT, GGC) from *ITGA2* were associated with T2D development while GGT ($p = 0.0001$) was protective against diabetes. No association was detected with *TCF7L2*, *CDKL1*, *ADRB3*, *CETP*, *GNB3*, and *LPL*. This data can be used for prevention and screening of population at risk, moreover can be helpful in large scale studies.

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