

OPRM1 gene mutations and glucose homeostasis

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Prevalence of T2DM is increasing and significant differences exist among different ethnic groups with subjects of Asian origin being at a relatively high risk for T2DM. The incidence of obesity, an important risk factor for T2DM, is significantly lower among Asians in comparison to Caucasians (Abate et al., 2001). Genetic differences as well as dietary factors have been implicated to explain these regional differences. It is well known that factors such as age, physical activity, diet and visceral obesity, play a major role in the disease aetiology of T2DM (Tilburg et al., 2001). Understanding of etiology and mechanisms causing increased insulin resistance in Asian Indians can lead to more effective prevention and treatment of diabetes not only in this ethnic group but also in other populations worldwide. Several investigators have reported the linkage of T2DM to 6q24-q27 (LOD 2.26) at 163.5 cM, closest to marker D6S1035, suggesting a role of OPRM1 gene, based on its chromosomal location, in T2DM susceptibility. Further, Ruchat et al. (2008) have proposed that molecules expressed both in the pancreas and hypothalamus, such as OPRM1, could form an integrated brain-liver system, which may sense glucose levels and therefore contribute to the development of T2DM. The prevalence of T2DM in Raica community has been reported to be very low (0.5%) in comparison to other ethnic groups from the same region (12%) (Aggarwal et al. 2007). Taking a clue from these reports, the present study was undertaken to delineate allele frequencies of C17T (Ala6Val) and A118G (Asn40Asp) variants in Raica, Non-Raica, Diabetics and Non-Diabetic subjects from North-West region of Rajasthan, India.

Biography

Anuradha Pal is a full time Ph.D student at BITS, Pilani Hyderabad Campus. Ms Anuradha joined in October 2007 as a CSIR-JRF and was promoted to SRF in 2009. She holds a Master's degree in genetics from Delhi University and was a recipient of the All India Post Graduate Scholarship, awarded by the Delhi University. As an awardee of the "Canadian Commonwealth Scholarship" offered by the Foreign Affairs and International Trade, Canada she was invited to complete a part of her Ph.D thesis work at Concordia University - Montreal, Quebec, Canada. She is expected to finish her Ph.D by the end of 2013.

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