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SYMPOSIUM

Genetics Factors Contributing to Type 2 Diabetes across Ethnicities

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Abstract

Type 2 diabetes mellitus (T2DM) is among the many common diseases with a strong genetic component, but until recently, the variants causing this disease remained largely undiscovered. With the ability to interrogate most of the variation in the genome, the number of genetic variants has grown from 2 to 19 genes, many with multiple variants. An additional three genes are associated primarily with fasting glucose rather than T2DM. Despite the plethora of new markers, the individual effect is uniformly small, and the cumulative effect explains little of the genetic risk for T2DM. Furthermore, the success is largely restricted to European populations. Despite success in mapping genes in Asian populations, success in United States minorities, particularly African Americans, has been limited. The genetic findings highlight the role of the β cell in diabetes pathogenesis, but much remains to be discovered before genetic prediction and individualized medicine can become a reality for this disease.

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Abbreviations: (GWA) genome-wide association, (MODY) maturity onset diabetes of the young, (ns) nonsynonymous, (OR) odds ratio, (SNP) single nucleotide polymorphism, (T2DM) type 2 diabetes mellitus

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