

## Diabetic Foot Ulcers' Demethylation in Recombinant DNA

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### DESCRIPTION

Glucose is required in most functions, including movement, brain function, and growth, making it one of the most significant sources of energy production in the body. There are procedures that aid in controlling the body's glucose levels because of its significant significance. A crucial molecule that drives the conversion of glucose from the blood to liver, fat, and muscle tissue is insulin, which is made by pancreatic cells. Diabetes is a condition in which the body has high blood glucose levels as a result of impaired insulin activity. There are many different varieties of diabetes, but the three most prevalent types are gestational diabetes, diabetes type 2 (insulin dependent), and diabetes type 1.

#### Type 1 diabetes

These individuals are treated with insulin shots and other medications to aid the regulation of glucose levels since type 1 diabetes is brought on by a reduced or absent amount of insulin in the body. 10% of patients with diabetes have this kind, which mostly affects children or those under the age of 30.

#### Type 2 diabetes

The majority of the remaining 90% of diabetic patients have type 2 diabetes, which usually manifests in middle age; however, in some nations, like Iran, the age of onset has decreased recently. Diabetes type 2 symptoms include thirst, excessive hunger, polyuria, and high fasting blood sugar.

#### Gestational diabetes

Gestational diabetes is a transient condition that affects 2-4% of all pregnancies. Pregnancy diabetes is most commonly associated with older-than-35-year-old pregnancies and large fetuses. Diabetes can cause a number of consequences over time, including amputation of limbs, heart and renal disease, as well as ocular and neurological issues. Diabetes type 1 and type 2 prevalence are rising globally, but it is expected that these rates

will rise much more sharply in North Africa and the Middle East until the year 2030. The cost of the diabetes disease is high for both the patients and the healthcare system, placing a significant burden on society. An increase in awareness and routine checks can help reduce numerous health concerns, as they can with all diseases.

The most common chronic metabolic disorder, which is characterized by abnormalities in protein, lipid, and carbohydrate metabolism, is diabetes. Numerous consequences of diabetes can have a negative effect on quality of life, including heart and brain attacks, renal failure, amputation, blindness, and high blood sugar. In addition, the cost of the disease's diagnosis and treatment is high. According to the World Health Organization (WHO), the prevalence of diabetes type 2 is higher than that of type 1. The estimated global prevalence of diabetes at this time is around 9%, which shows a rapid increase over the last decade indicating an increase in prevalence. It is the responsibility of medical practitioners to investigate strategies for bettering disease outcomes as these numbers rise, and this study highlighted a crucial method for doing so.

Patients with a DFU had higher blood sugar levels compared to group 1, which did not have a DFU, and the average blood sugar level among those with diabetes was too high. TSP-1 to TSP-5 makes up the family of multifunctional secretion proteins known as thrombospondins. Additionally, a decrease in TSP-1 can lower TGF- $\beta$ , a tissue reconstruction factor.

Additionally, VEGF is highly expressed when TSP-1 is absent, which promotes the proliferation of endothelial cells in the blood vessels. Due to the significant role that thrombospondin-1 plays in inflammation, diabetic foot ulcers may result. If we could measure the serum level of TSP-1 when we experience inflammation, we might be able to use this information to diagnose diabetic foot ulcers or even further develop the method to use as a preventative medication. Last but not least, it's critical to keep in mind that a healthy diet and routine checkups can help diabetics prevent foot ulcers.

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