

VACCINE AGAINST DIABETES: IS THERE A POSSIBILITY

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Diabetes mellitus is a chronic debilitating non-communicable disease prevalent throughout the world. There are two different types of diabetes; the type 1 diabetes usually presents in children and young adults, and the type 2 diabetes, a most frequent age-related condition usually noted among the adults aged over 40 years. The type 1 diabetes results due to an immunological reaction against insulin and the insulin secreting cells. The type 2 diabetes can occur due to various factors that include genetic predisposition, lifestyle disorders, insulin resistance, and lack of adequate insulin production. Since lifestyle management is an adjustable risk factor for diabetes, many people with genetic predisposition could delay the onset of clinical diabetes. Further, there is an increasing need to understand the genetics behind the signalling pathways involved in the development of type 2 diabetes which could pave the way for formulating and implementing therapeutic and preventive strategies. The genetic reasons for the development of T2DM involve a complex interlinked signalling cascade. There are several genes which influence post translational modifications (ARAP1, ADCY5, SPRY2, FTO), some genes related to metabolism (RBMS, HNF4A, HNF1A, PROX1, PPARG, GCKR), some involved in the development of pancreas (GLIS, HNF1B, HHEX, IGF2BP2), and a few are related to insulin secretion (GRB14, CDKAL1, ZBED3, GIPR). There are also some genes (SLC30A8) involved in insulin storage, glycosylation (ST6GAL1), apoptosis (THADA), cancer (BCL11A), metal related gene (NOTCH2), and drug related genes (KCNJ11).

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