



## Diabetes Associated Virus

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Diabetes mellitus characterized by high blood glucose is divided into 2 types as type 1 and type 2. Type 1 diabetes is a disease caused by the destruction of the insulin-producing cells in the pancreas. It is more prevalent in childhood and necessitates life-long management with daily insulin injections. Whereas type 2 diabetes is caused wither due to insulin deficiency or resistance and is controlled by treatments with many anti-hyperglycemic drugs. The worldwide prevalence of diabetes in elderly population is a major public health concern. Virus infection associated with diabetes mellitus has been reported in recent studies, while some have shown direct evidence of virus infection in diabetes.

The number of new cases of diabetes is rapidly increasing indicating that environmental factors play an important role in the process of diseases. Among major factors, Viral infections have been one of the alleged factors, in view of the fact that many viruses cause diabetes in animals by destructing the insulin-producing  $\beta$ -cells in the Islets of Langerhans present in pancreas. Few viruses have also been linked to cause human type 1 diabetes raising the possibility of developing vaccines against these viruses which can emergence of type 1 diabetes. This short communication aims to summarize the involvement of virus which affects diabetes.

Recently, it is believed that the main viral candidates causing type 1 diabetes in humans were enteroviruses. 100 and more different types of enterovirus have been identified in human. They are common in children and causes severe illnesses of the hand-food-and -mouth disease as well as paralytic disease such as polio. Two

recent studies have reported the association of enteroviruses with type 1 diabetes. One study Finnish Type 1 Diabetes Prediction and Prevention (DIPP) study is based on children taking part, which is a birth cohort study observing children at genetic risk for type 1 diabetes starting from birth till the clinical diabetes or 15 years of age [1].

The other study (VirDiab) includes children from five European countries with recently diagnosed diabetes. In this study group B coxsackieviruses were associated with the risk of type 1 diabetes while the 35 other enterovirus types tested did not show such a correlation. These findings suggest that group B coxsackieviruses may damage the insulin-producing cells by spreading to the pancreas [2].

This novel finding needs new method of treatment such as developing vaccines (diabetes vaccine) against these viruses to prevent type 1 diabetes because no precautionary treatments are presently available for type 1 diabetes. Given that the group B coxsackieviruses contains only 6 enterovirus types, single vaccine may be enough for all 6 types. Successful vaccines also have been available against another enterovirus group, called polioviruses, which includes 3 enterovirus types. Yet more research is however desired to verify the underlying association between group B coxsackieviruses and type 1 diabetes and also to discover the fundamental mechanisms of how these viruses can instigate the process of type 1 diabetes [3].

## Bibliography

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