Prevention of Type 1 diabetes.

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Type 1 diabetes is an immune mediated disease that can become clinically apparent at all ages. The hallmark of the disease is a progressive selective loss of pancreatic beta cells, that tends to be slower the older the patient. At clinical diagnosis, a variable number of beta cells is still present. Cyclosporine was the first immunosuppressive agent that was shown to preserve residual beta cell function after clinical diagnosis but adverse events related to daily intake precluded widespread application. More recently, a short treatment with humanized CD3 monoclonal antibodies preserved residual beta cell function during 18 months in adult patients with recent-onset hyperglycemia. Their mechanisms of action remains to be elucidated, but from work in NOD mice it is speculated that induction of regulatory T-cells might be of importance. Adverse events were a moderate flue syndrome and transient EBV mononucleosis. New prevention studies have to examine the efficacy and safety of CD3 monoclonal antibodies in children with recent onset diabetes and in relatives at high risk for clinical disease. Such individuals can now be identified by measurement of a combination of humoral autoimmune and hormonal disease markers.