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Identification of new therapeutic targets by genetic dissection and reconstitution of autoimmune diseases in mice

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Abstract

Most of the autoimmune diseases are regulated by multiple genes. However, little is known of the hierarchical genetic regulation of autoimmunity. Recently, we found that the introduction of PD-1 deficiency resulted in the reduction of the number of genetic factors involved in the development of type I diabetes in NOD mice, a mouse model of type I diabetes. In this project, we try to identify all genetic factors required for the development of type I diabetes to unravel the whole regulatory mechanism of type I diabetes. We will also analyze other autoimmune diseases including myocarditis and vasculitis. Based on these genetic studies, we will identify new therapeutic targets of autoimmune diseases.