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Lost in translation? Progress in immunotherapy for type 1 diabetes

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Although Type 1 diabetes mellitus is clinically considered an endocrine disorder and patients require insulin supplementation for survival, it is at its origin an autoimmune disorder. Research over the past few decades indicate that a combination of the adaptive and innate immune system attacks and destroys the pancreatic beta cells – thus rendering the body unable to produce insulin. Both cells (i.e., T cells and B cells) and soluble mediators (i.e., inflammatory cytokines) appear to have critical roles in the initiation and progression of this process. In the past, non-selective immune suppressants and immune modulators have been shown to stabilize or even reverse the disease. But as Type 1 diabetes occurs primarily in children, these harsh, non-specific treatments cannot be adopted clinically. In the past decade there has been advancement of technology and success of novel biologic agents, such as monoclonal antibodies and fusion proteins, for other immune mediated disorders. Due to the specificity and low side effect profile of these agents, a number of trials have been undertaken using them to target specific, putative intermediates in diabetogenesis. Although many of these therapies have been very useful in other immune and inflammatory disorders, there has been limited success in Type 1 diabetes. This discussion will review the promise, progress and difficulties in using novel immune therapies in Type 1 diabetes and give a look to what's ahead.

Biography

Mark R Rigby received his MD and PhD at the University of Massachusetts. His PhD studies focused on the immunology of Type 1 diabetes. He then conducted clinical training at Johns Hopkins University in Pediatrics and Critical Care. He is now on faculty at Indiana University. He is the national Protocol Chair of an NIH sponsored study using a drug called alefacept (LFA3-Ig) to try to reverse disease in newly diagnosed Type 1 diabetes and has been involved in many other basic and clinical research projects related to understanding the pathogenesis of and treating this condition.

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