

Sitagliptin-AntiCD4 Mab Conjugated T Cell Targeting Therapy for the Effective Treatment of Type I Diabetes

Authors : T. Mahesh, M. K. Samanta

Abstract : Antibody drug conjugate (ADC's) concept is a less explored and more trustable for the treatment of Type 1 diabetes (T1D). T1D is thought to arise from selective immunologically mediated destruction of the insulin-producing β -cells in the pancreatic islets of Langerhans with consequent insulin deficiency. It is evident that type 1 diabetes can be conquered, by 1) to stop immune destruction of β cells, 2) to replace or regenerate β -cells, and 3) to preserve β -cell function and mass. Many studies found that the regulatory T cells (Tregs) are crucial for the maintenance of immunological tolerance. Immune tolerance is liable for the activation of the Th1 response. The important role of Th1 response in pathology of T1D entails the depletion of CD4+ T cells, which initiated the use of anti-CD4 monoclonal antibodies (mAbs) against CD4+ T cells to interfere with induction of T1D. Insulin is regulated by Glucagon-Like Peptide-1 hormone (GLP-1) which also stimulates β -cells proliferation as the half-life of GLP-1 hormone is less due to rapid degradation by DPP-IV enzyme an alternative DPP-IV-inhibitors can increase the half-life of GLP-1 through which it conquers the replacement and reserve β -cells mass. Thus in the present study Anti-CD4 mAb was conjugated with Sitagliptin which is a DPP-IV inhibitor Drug loaded in Nanoparticles through Sulfo-MBS cross-linkers. The above study can be an effective approach for treatment to overcome the Passive subcutaneous insulin therapy.

Keywords : antibody drug conjugates, anti-CD4 Mab, DPP IV inhibitors, GLP-1

Conference Title : ICDM 2015 : International Conference on Diabetes and Metabolism

Conference Location : London, United Kingdom

Conference Dates : February 16-17, 2015