EVALUATION OF A BIOACTIVE PEPTIDE (REG3 DELTA) FROM MOUSE FOR THE IMPROVEMENT OF GLYCEMIC LEVELS IN MOUSE MODELS OF TYPE1 DIABETES

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Increasing prevalence of diabetes mellitus is becoming a major health issue. It is paramount to find improved ways to prevent, treat and cure this disease. Contemporary research is exploring various approaches, like stem cells based, in-vivo trans-differentiation and regeneration / neogenesis of insulin producing cells in the pancreas. The latter approach holds a great potential for sustained production of indigenous insulin. Previously, several growth factors and proteins have been reported to induce the regeneration or reversing hyperglycemic states in combination or alone. Regeneration (Reg) family of proteins like Reg3 protein has been associated with pancreas regeneration biology. Hence, one member of this family, Reg3 delta has been explored to find if it can improve or reverse hyperglycemia in mouse model of diabetes. In this study, we administrated the synthesized Reg3 delta peptide to normal healthy and Alloxan induced diabetic mice for 30 days. A 3mg/kg dose of the peptide was given on alternate days and their body weight and blood glucose levels were measured weekly. Additionally gene expression of six genes Reg3δ, Reg3β, IGF-1, IGF2bp2, PDX-1, Ngn3 and MapK8 was analyzed by qPCR. As a result, normoglycemia conditions were restored in diabetic mice which were treated with Reg3 delta peptide. And their gene expression particularly IGF-1, PDX-1 and Ngn3 were up regulated in diabetic group treated with Reg3δ peptide. Hence, this peptide holds the potential for diabetes treatment through modulation of pancreas biology.