An Investigation on Type 1 Diabetes using Manassantin B: A Potential and Novel Cure

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Type 1 Diabetes is a serious disease and characterized by the lack of the hormone, insulin, in the bloodstream, which causes the glucose concentration level to become instable. Insulin is a hormone that regulates the storage of glucose so that the glucose concentration does not rise above the optimal range in the bloodstream. Manassantin B is a lignin isolated from the plants, Saururus Cernuus and Saururus Chinensis, and its complete pharmacological effects are currently unknown. The purpose of this study was to examine the effect of Manassantin B on insulin secretion in high glucose-treated pancreatic beta cells. First, the protein expression levels of AMPK, AKT, and Glut2 in high glucose-treated pancreatic beta cells will be examined and is expected to improve. Also, the cell viability and apoptosis of Manassantin B will be investigated. The results showed that Manassantin B increased Glut2 protein expression, upregulated the phosphorylation of AMPK, inhibited the phosphorylation of Akt cells, and induces apoptosis through the cleaved PARP (poly-ADP ribose polymerase) protein and not the Caspase 3 protein in MIN6 cells. Manassantin B had proven to increase the Glut2 protein and AMPK activation in high glucose- and normal glucose-treated MIN6 cells, which increases the uptake of glucose into the pancreatic beta cell, an important initiation step for insulin secretion. This shows Manassantin B's potential in increasing insulin secretion in insulin-suppressed pancreatic beta cells and becoming a drug for Type 1 Diabetes. Further studies could be conducted by performing an in vivo study and an insulin ELISA assay.

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