TREATING AND PREVENTING TYPE 2 DIABETES WITH "ZYGOSIDS" - A NOVEL FAMILY OF DRUGS NOW ENTERING CLINICAL TRIALS

M. Chevion[1,2], V. Vinokur[1], D. Chevion[2]
[1]*Department of Biochemistry and Molecular Biology, The Hebrew University of Jerusalem, Israel*
[2]*HQ, Concenter BioPharma, Israel*

Background: Inflammation is a major player in T2D; Iron Accumulation within pancreatic beta-islets and peripheral adipose tissues show causal roles in the outbreak of T2D; Zinc is necessary for synthesis, packaging and secretion of insulin. Often, Zinc deficiency exists in pancreatic cells, which also contain excessive labile iron. Purpose: Demonstrating the efficacy of `Zygosids` in preventing and treating T2D. Zygosids show anti-inflammatory properties, iron chelation capacities and Zinc chaperoning into cells abilities. Methods: *Psammomys obesus* (Sand Rat) model of diet-induced T2D were fed high energy diet (HED), and became diabetic by Day-25 (blood glucose level (BGL) 300 mg/dl). Treatment with Zygosids (i.p. injections of 2/6 mg/kg/treatment, 3-times/week) began on Day-27 and continued until Day-63. In another experiment, prophylactic treatment began on Day-1, when animals were transferred to HED. Weight and BGL monitored and more tests conducted at end of experiment. Results: Treating diabetic animals for 12-15 days caused complete restoration of BGL to normal range (100 mg/dl); restored normal body weight, serum insulin, ALT, LDL, and triglycerides levels; reduced the NAFLD-histology score; reduced insulin resistance (GTT experiment). Prophylactically, a dose-dependent inhibition of BGL-elevation and ameliorated hyperinsulinemia were observed. MoA of Zygosids is summarized as “Restoring Insulin Resistance to Normal” by: Suppressing the inflammatory response, and Chaperoning zinc into cells containing excessive labile iron; Depositing zinc in these cells and simultaneously chelating, removing and excreting excessive labile iron out of the body; Conclusions: Zygosids demonstrated exceptionally high therapeutic efficacy in prevention and treatment of T2D. Importantly, no adverse effects were detected.