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## Triggering central role of antioxidant defense in the management of Diabetes in potential therapy by stem cells, Silymarin and Silibinin in diabetic rats: An overview

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**Objective:** In this presentation we will give insight for novel evidence(s) raised from our research group studies in last five years about triggering central role of restoring as well as augmenting antioxidant defense by using adult bone marrow hematopoietic rich stem cells (HSCs), Silymarin (SM) and Silibinin (SB) to produce remarkable antidiabetic activities in STZ-diabetic rats. Two strategies were adopted to activate pancreatic cell therapy via possible regeneration of pancreatic cells, stimulation of  $\beta$ -cells, and enhancement of insulin release.

**Materials & Methods:** Protocol I: HSCs were transplanted into tests of STZ-diabetic rats to evaluate its effectiveness on blood glucose, insulin level, antioxidant capacity and oxidative stress biomarker (MDA), before and after transplantation. Also, all biochemical parameters were determined and monitored their levels following orchidectomy of the grafted tests. Protocol II: SM and SB oral treatments of diabetic rats (75mg/kg/2weeks) were performed. Blood and liver samples were collected from non-treated diabetic and treated-diabetic rats by both natural agents. Blood glucose, glycosylated haemoglobin, insulin, lipid profile were determined in all animals. Also, hepatic MDA, GSH and SOD were measured for all animals.

**Results & Conclusions:** HSCs, SM and SB treatments have made statistically significant improvement of glucose, insulin, lipid profile, antioxidant status and lipid peroxidation biomarkers. Hypoglycemic action in all different treated groups were attributed to stem cells, SM and SB stimulating action(s) of  $\beta$ -cells for insulin secretion, and their ability to augment and restore antioxidant defense properties, in addition, diminished oxidative stress properties. We provided- first- comparative antidiabetic assessment between SM and SB as potential adjuvant for prevention and treatment of Diabetes in rats.

### Biography

Mohamed El-Far, Professor, worked in biochemistry field for 40 years, and published over 80 peer-reviewed papers. He received Fulbright and British council fellowships several times as well as German DAAD grant to establish PDT Program at Munchen. He is serving on the editorial boards and as Hon. Editor to three international journals. He acts as UNESCO expert in science and technology. He served as visiting Professor to University of California as well as Utah laser center also Mayo Clinic for several years. He also served as a visiting Professor to Cardiff and Swansea Universities, UK. He is a member of International Photodynamic Association and Royal Society of Chemistry, UK. He was selected recently as expert and consultant for biochemistry in the national committee of Supreme Council of Universities in Egypt; this is the highest nation honor.

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