

Global Experts Meeting on

**DIABETES, HYPERTENSION, METABOLIC SYNDROME**

July 30-31, 2018 Melbourne, Australia

**Joseph Fomusi Ndisang**

University of Saskatchewan College of Medicine, Canada

**Heme oxygenase is a molecular switch that can be upregulated against Diabetic nephropathy**

Heme Oxygenase (HO) is a cytoprotective protein. Our recent studies indicate that up-regulating heme-oxygenase potentiates several components of insulin signaling such as IRS-1, PI3K and PKB and improve glucose metabolism by reducing insulin/glucose intolerance, increasing insulin sensitivity and the inability of insulin to enhance GLUT4 in animal models of type-1 and type-2 diabetes including streptozotocin-induced diabetic rats and Zucker Diabetic Fatty Rats (ZDF). These were associated with the suppression inflammatory cytokines like TNF- $\alpha$ , IL-6, IL-1 $\beta$  and chemokines such as MCP-1 and MIP-1 $\alpha$  and the attenuation of pro-oxidative/inflammatory transcriptions factors and mediators including NF- $\kappa$ B, activating-protein (AP)-1, AP-2 and c-Jun-N-terminal-kinase and 8-isoprostane. Correspondingly, HO reduced renal histological lesions such as glomerulosclerosis, tubular necrosis, tubular vacuolization, interstitial macrophage infiltration as well as pro-fibrotic/extracellular-matrix proteins like collagen and fibronectin that deplete nephrin, an important transmembrane protein which forms the scaffolding of the podocyte slit-diaphragm allowing ions to filter but not massive excretion of proteins. These were accompanied by the reduction of proteinuria/albuminuria, but the potentiation of creatinine clearance, suggesting improved renal function. Collectively these data suggest an important role of HO in the preservation of kidney function in diabetes.

**Biography**

Joseph Fomusi Ndisang is an Associate Professor in the University of Saskatchewan College of Medicine, Department of Physiology. He has received Postdoctoral training in Physiology at the University of Saskatchewan College of Medicine, PhD in Pharmacology and Toxicology from the University of Florence, Italy and Doctor of Pharmacy degree from University of Florence, Italy in 1995. He has received several distinguished awards and distinctions.

[joseph.ndisang@usask.ca](mailto:joseph.ndisang@usask.ca)