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**Heme oxygenase is a novel strategy against cardio-renal complications in diabetic animals****Joseph Fomusi Ndisang**

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In diabetic subjects, dysfunctional insulin signaling and impaired glucose metabolism are associated with alterations and function of the heart and kidneys. We recently reported that up-regulating Heme Oxygenase (HO) potentiates insulin signaling and improve glucose metabolism in different animal models of type-1 and type-2 diabetes. Particularly, HO-inducers suppressed inflammatory/oxidative mediators such as cytokines (TNF- $\alpha$ , IL-6, IL-1 $\beta$ ), chemokines (MCP-1, MIP-1 $\alpha$ ), macrophage-M1 infiltration, NF- $\kappa$ B, AP-1, AP-2, cJNk and 8-isoprostane but potentiated insulin-signaling proteins (IRS-1, GLUT4, PI3K, PKB) and reduced insulin/glucose intolerance. These were associated with reduced cardiac lesions (hypertrophy, collagen deposition in cardiomyocytes and left ventricular longitudinal muscle-fiber thickness) and renal lesions (glomerulosclerosis, tubular necrosis, tubular vacuolization and interstitial macrophage infiltration and pro-fibrotic/extracellular-matrix proteins like collagen and fibronectin that deplete nephrin, a protein which forms the scaffolding of the podocyte slit-diaphragm for filtration). Correspondingly, improved cardiac hemodynamics and reduced proteinuria was observed suggesting improved cardiac and renal functions. These data suggest that HO may be explored in the search for novel and effective remedies against cardio-renal complications.

**Biography**

Joseph Fomusi Ndisang is an Associate Professor in the University of Saskatchewan, College of Medicine, Department of Physiology. He has received his Postdoctoral training in Physiology at the University of Saskatchewan College of Medicine from 2000-2005. He has obtained a PhD in Pharmacology & Toxicology from the University of Florence, Italy, 2000. He obtained a Doctor of Pharmacy degree from University of Florence, Italy in 1995. He has received several distinguished awards and distinctions including: (i) Fellow of the Canadian Cardiovascular Society (FCCS) in 2016, (ii) Fellow of the American Heart Association (FAHA) in 2011; Currently, Dr. Ndisang is an Editor for Frontiers in Bioscience (impact factor 3.8) and Executive Guest Editor for Current Medicinal Chemistry (impact factor 3.7) Research Interest: His research is mainly focused on investigating the role of the heme oxygenase system in hypertension, diabetes (types-1 and -2), and obesity.

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