

**FORENSIC RESEARCH AND TECHNOLOGY**

September 18-19, 2017 Houston, USA

**Adiponectin regulation of AMPK on oleanolic acid treated sprague dawley rats****Mukwevho E, Matumba M G and Nyakudya T T**

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**A**MPK is known to control glucose and lipid metabolism, two main candidates critical in the development of type-2 diabetes (T2D). Studies have shown that AMPK can be activated by adiponectin. Patients suffering from T2D are known to have low adiponectin concentration in their blood plasma. In this study, we have assessed one of the anti-diabetic compounds oleanolic acid (OA), if it could produce desirable effect in upregulating adiponectin concentration and the subsequent regulation of AMPK. Sprague dawley rats were fed with high fructose diet (HFD) to induce T2D, and the rats that developed insulin resistance were considered as diseased, they were then treated with OA. Analysis of adiponectin concentration in blood plasma was done, AMPK gene expression and subsequent genes that play vital role in glucose and lipid metabolism (GLUT-4 and CPT-1) in skeletal muscle tissue was also performed. The results showed 1.19 fold increases in blood plasma adiponectin concentration after OA administration. Furthermore, AMPK gene expression showed 3.98 fold increase and GLUT-4 gene expression was increased by 1.5 fold whereas CTP-1 gene expression was increased by 1.59 fold. These results clearly indicate that OA produced good effects in ameliorating insulin resistance since it was able to upregulate all the genes and adiponectin concentration which are well known to be abnormally suppressed in a situation of T2D. In conclusion, these studies further confirms that OA can be used as an effective therapeutic agent to ameliorate T2D and these studies also suggest that OA's mechanism of action could be through AMPK pathway.

**Biography**

Mukwevho E is working as a Professor of Biochemistry at the School of Chemical and Physical Sciences, at the NWU in South Africa. He has graduated for his PhD from University of Cape Town in June, 2010. He teaches Biochemistry in both undergraduate and postgraduate, especially Metabolism and Analytical Biochemistry. He has also obtained Certificates in Project Management and in Financial Management from UCT, both in 2012. He is currently registered for MBA with NWU Graduate Business School.

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