
ENDOCRINOLOGY AND METABOLISM RESEARCH GROUP

Background/Synopsis of the Research Group

Aim: The strategic goal of the CREM is to enhance the quality of research and training in endocrinology and metabolism at the University.

Mission: To lead in the study and support of integrative research in the field of endocrinology and metabolism to advance our understanding of the biological mechanisms that regulate endocrine system / metabolism and how they are dysregulated in attendant disorders, such as obesity and diabetes.

Research Areas

The major focus areas among the CREM investigators include:

- Pregnancy and fetal development
- Nutrition and endocrinology
- Gene-environment interaction in health and disease
- Glucose and energy homeostasis
- Diabetes and obesity

Description of Notable Research findings /Outstanding Research findings

GRANT HISTORY, FINDINGS AND RELEVANCE

- University of Lagos Mini Grant (CRC No. M 2010/05). Glycemic control and pancreatic beta cell protective effects of alpha lipoic acid in diabetes.

The outcome of this research work showed that oral administration of ALA improves glucose regulation, increased the activities of endogenous antioxidants in combating oxidative stress under diabetic condition in experimental rats.

- TETFUND Research Grant (CRC/TETFUND/No. 2011/14). Impact of chloroform extract of Carica papaya seed on pregnancy outcome and postnatal development in rats.

In utero exposure to Omega-9 MUFA (the active component of Carica papaya seed) imposes negative effects on sperm variables and increases the level of sperm DNA fragmentation and oxidative stress.

- University of Lagos Grant (CRC No 2013/03/Code No 11-004-5104). Characterization of Mineral composition of commonly consumed local foods in Nigeria.

The physiologic roles of mineral nutrients are as varied as their composition and the deficiency of these micronutrients in Nigerian dishes and their possible health effects were highlighted in this study. These data will serve as an important tool in future national and international food consumption surveys to target provision of dietary advice, inform health workers, dieticians, clinicians and researchers among others.

- TETFUND Research Grant (CRC/TETFUND/No. 2014/04) DNA methylation analysis of BRACA 1 and BRACA 2 genes of breast cancer patients attending radiotherapy clinic in Lagos University Teaching Hospital, Lagos Nigeria.

The aim of this ongoing study is to elucidate methylation possibilities of genes extracted from cancer cells and the reversibility after radiotherapy

- TETFUND Research Grant (CRC/TETFUND/No. 2014/03). Mechanism of maternal magnesium deficiency on adiposity and insulin resistance in rat pups.

Magnesium (Mg), the 4th most common cation in the body, modulates energy metabolism, carbohydrate oxidation, and glucose transport across the cell membrane. Mg also regulates insulin at levels such as secretion, receptor- binding, and activity. This study examines the mechanism by which maternal Mg deficiency predisposes the offspring to insulin resistance and glucose tolerance in rats.

- University of Lagos Grant (CRC No. 2015/13). Influence of Genistein on maternal and foetoplacenta oxidative stress Dynamics and Placental architecture in rats.

The outcome of the research work will elucidate possible mechanism via which antenatal exposure to genistein precipitate a reduction in foetal and placenta weight and an increase in resumption of developing foetus.

- University of Lagos Grant (CRC No. 2015/12). Impact of prenatal and perinatal folic acid supplementation on glucose tolerance, insulin resistance and methylation of INSR gene in rat offerings.

Recent studies suggest that increased exposure to folate early in life may increase the risk of adverse health outcomes in the offspring. Thus, the objectives of this study are

to evaluate the effect of increasing doses (2x, 4x and 8x basal dietary requirement) of folic acid supplementation provided in utero and during lactation would modulate; body adiposity, glucose tolerance and insulin sensitivity, concentration of insulin and adipokines, and, methylation of INSR in the adult offspring.

- University of Lagos Research Grant (CRC No. 2016/05). The interaction of Chloroquine and selected trace elements on oestrous cycle, ovulation and female reproductive system in female Sprague-Dawley rats.

The outcome of this work will establish the possible link between chloroquine and disruption of female reproduction. It will evaluate the various changes experienced that culminates into infertility.

Team members and their speciality

NAME	DEPARTMENT	SPECIALTY
Dr. A.O. MORAKINYO	Physiology	Nutrition and Metabolism
Dr. T.A. SAMUEL	Biochemistry	
Dr. F.O. AWOBAJO	Physiology	Epigenetics and foetal programming
Dr. O.T. OYELOWO	Physiology	Environmental factors and foetal programming
Dr. M.Y. HABEEBU	Radiobiology, Radiation and Radiotherapy	Cancer
Dr. Odukoya	Pediatrics	Pediatrics Endocrinology
+ FLOATING MEMBER FROM ENGINEERING		



CVs

Selected Publications:

Morakinyo AO, Samuel TA, Adekunbi DA and Adegoke OA. (2015). Niacin improves adiponectin secretion, glucose tolerance and insulin sensitivity in diet-induced obese rats. *Egyptian Journal of Basic and Applied Sciences* 2:261-67.

Morakinyo AO, Adekunbi DA, Ajibola WR and Adegoke OA. (2015). Dietary Cocoa (*Theobroma cacao*) and Turmeric (*Curcuma longa*) Consumption: A Comparison of Metabolic Effect in High-Fat Fed Rats. *University of Lagos Journal of Basic Medical Sciences* 3 (5):24-31.

Awobajo F.O., Olawale A.A., Agiode M., Adegoke A.O. (2015) Changes in stress index, blood antioxidants and lipid profile between trained and untrained young female adults during treadmill exercise test: A comparative study. *Nigerian Journal of clinical and experimental Bioscience Nigeria J. Exp Clin Biosci* 3: 1-7.

Awobajo F.O., Oyesola O. A, Amah G.O, Olakitan H.A and Akinyemi T. M. (2014) Cigarette smoke pollution promotes oxidative stress imbalance and hormonal

changes affecting pregnancy outcome in rats. *Journal of African Association of Physiological Sciences* 3 (2): 110-117.

Awobajo F.O., Oyelowo O.T., Alugo O.A. (2015). Changes in hematological indices, serum calcium, phosphate and iron levels in ovariectomized rats treated with diethylstilbestrol. *University of Lagos Journal of Basic Medical Sciences* 3(6): 14 – 17.

