REPORT ON MY LABORATORY VISIT.

On the 3rd of September, 2015, I travelled to Professor Amadi Ihunwo's Neuroscience Laboratory , in the School of Anatomical Sciences, University of Witwatersrand, Johannesburg, South Africa on a "Research Visit to Another Laboratory" Grant by the committee on Aid and Education in Neurochemistry (CAEN) of the International Society of Neurochemistry (ISN) for the duration of three months (3th sept.-31th Nov, 2015). I was given a warm welcome and reception by the entire staff of the School of Anatomical Sciences in the University.

After my orientation to the various units in the school, I was exposed to a lot of histological and immunohistochemical procedures including brain removal, tissue processing, microtomy, slide coating, several immunohistochemical staining protocols and digital photomicrography. The immunostaining undertaken were for the cell proliferation marker (Ki-67, Double Cortin DCX, and proliferation cell nuclear antigen, PCNA), nerve growth factor marker(p-75NGF), and the glial fibrillary acidic protein (GFAP) marker for astrocyte on the seizure induced brain and on the *luffa aergyptiaca mill* extract administered rat brains. I was also trained on how to use stereology microscope with the Microbrightfield Stereoinvestigator software.

The results revealed that there was disruption of pyramidal cells layer in CA3 subfield of hippocampus and regional selectivity of pyramidal cell loss in this region, thus pointing to the fact that there was induction of seizure with mefloquine. However, there was some restoration of pyramidal cells with the groups treated with aqueous leaf extract of *Luffa aegyptiaca mill*. Our findings show that immunotoxic lesions as demonstrated by mefloquine seizure model of the CA1, CA3 and dentate gyrus of the hippocampus led to decrease neurogenesis in these regions, and an increased specifically around the subventricular zone of the lateral ventricle of the rat brain. The proliferating cells were identified by detecting endogenous proteins Ki-67 and PCNA expressed in mitotically dividing cells in this region. Following less expression of proliferating cells, p-75 NGF was used which was positively expressed. There was p-75NGF positive cells expression in the CA1, CA3, dentate gyrus and around the subventricular zone. But there were differences in the expression. We also observed GFAP-positive cells, an indication of astrocytes, in the dentate gyrus and all CA regions of the hippocampus in all the groups. Reactive astrocytes were observed with GFAP in the mefloquine induced seizure rats as compared to the control indicating neuroinflammation. There was reduction in reactive astrocytes in the rats treated with *luffa aergyptiaca mill* indicating neuroprotection.

This visit and training has added a new dimension to my Ph.D research and broadened my laboratory experience especially in Neuroscience research. My host supervisor, professor, Amadi Ihunwo has mentored me properly in neuroscience research technique, research paper writing and editing etc.

I will forever be grateful to ISN-CAEN for giving me this opportunity. I am also grateful to the school of Anatomical Sciences, University of Witwatersrand Johannesburg, South Africa for their hospitality. My gratitude to Mrs. Hasiena Ali, for all the technical assistance in the laboratory techniques and to my mentor, supervisor and host Supervisor, Professor Amadi Ihunwo for all he has taught me, his patience, love and care.

Thank you.

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David with the Host Supervisor, Prof. Amadi O. Ihunwo at the School of Anatomical Sciences, University of the Witwatersrand, Johannesburg.

David in the Immunohistochemistry laboratory