Mapping Of Act Resistance Gene (*Kelch13*) IN *Plasmodium Falciparum* Isolates From Malaria Infected Patients Attending Public Health Facilities In Kano State, Northwest Nigeria.

The current malaria management in Nigeria still heavily relies on Artemisinin combination therapy (ACT). However, demonstrated mutations in the *Plasmodium falciparum kelch13* gene has given rise to delayed parasite clearance. This study is aimed at mapping the ACT resistance gene (*Kelsh 13*) in *plasmodium falciparum* isolates from malaria infected patients attending a public health facility in Kano state, Nigeria. Blood samples from 100 malaria infected individuals aged between 0 to more than 30 years were examined to confirm the malaria parasite density using microscopy technique. The genomic profile of the *pfk13* gene conferring artemisinin resistance in *P. falciparum* in the patient by targeted sequencing of the *pfk13* gene was conducted. Genomic DNA was extracted from 30 whole blood samples from patients that visited two selected public health facilities. The *pfk13* gene was amplified by nested polymerase chain reaction (PCR), and amplicons were sequenced to detect known and novel polymorphisms across the gene. Consensus sequences of samples were mapped to the reference gene sequence obtained from the National Center for Biotechnology Information (NCBI). Twenty-eight samples were successfully amplified and analyzed for the *pfk13* gene with amplicon size of 849bp. The results revealed that 10 (35.7%) of the 28 amplified isolates possessed mutant *pfk13* gene. Only two (G496G and L598L) of the 39 single nucleotide polymorphisms (SNPs) detected in the mutant *pfk13* gene have been reported in other endemic countries. Of the SNPs, 16 were synonymous while 23 were non-synonymous mutations. No previous validated mutation associated with artemisinin resistance in this study. However, a correlation of this study with *in vivo* and *in vitro* phenotypes is needed to establish the functional role of detected mutations as markers of artemisinin resistance in Nigeria. This baseline information will be useful in tracking and monitoring *P. falciparum* resistance to artemisinin in Nigeria for proper management of drug resistance in malaria therapy.

Keyword: Malaria, Artemisinin, Resistance, Patients