PREVALENCE OF *PLASMODIUM FALCIPARUM KELCH13* POLYMORPHISMS IN MALAYSIA (2008 - 2017)

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Abstract. Artemisinin combination therapies (ACTs) are recommended by the World Health Organization for treatment of uncomplicated malaria caused by *Plasmodium falciparum*. However, artemisinin resistance in the Greater Mekong Subregion was detected in 2008 and has since spread to the other parts of the region. Mutations in the propeller domain of *P. falciparum* kelch-13 protein (pfk13) serve as molecular markers for partial artemisinin resistance (delayed parasite clearance). Prevalence of *pfk13* propellar domain mutations/substitutions in 125 archived diagnostic blood samples in Malaysia from 2008 to 2017 were determined by nested-PCR and direct sequencing. Pfk13, C580Y and P553L mutations, previously confirmed and validated as markers for artemisinin resistance, were found in two samples; N537I and A675V mutations, classified as candidates/associated with delayed parasite clearance, in three samples; and eight novel substitutions, with seven sequences containing two amino acid changes. These findings constitute baseline data and further investigations are needed to correlate amino acid changes present in *pfk13* propellar domain with delayed parasite clearance, *in vitro* and *ex vivo* parasite artemisinin sensitivity.

Keywords: *Plasmodium falciparum*, artemisinin resistance, genotyping, *kelch13* mutation, Malaysia

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