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ABSTRACT BOOK

HB-8 Cloning and Characterisation of Lactate Dehydrogenase Gene from *Plasmodium knowlesi* in bacterial system

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ABSTRACT

Glycolysis is essential for Plasmodium survival during its intra-erythrocytic stage in the human host. As a consequence, enzymes in the glycolytic pathway have been proposed as ideal therapeutic targets for malaria pharmaceuticals. Specifically, lactate dehydrogenase, which is the final enzyme in glycolysis, has been validated as a good drug target. We have cloned and characterised recombinant lactate dehydrogenase from *Plasmodium knowlesi* in a bacterial system. Synthetic *P. knowlesi* lactate dehydrogenase (*Pk*-LDH) gene was obtained from GenScript®. *Pk*-LDH gene was successfully amplified from the pUC57 vector and a PCR product with the size of 951bp was cloned into pEASY-Blunt E1 expression vector. The ligated product was subsequently transformed into Trans1-T1 Phage Resistant Chemically Competent Cell. A sequence alignment analysis, which was conducted to compare the sequence similarity of *Pk*-LDH to LDH from other human malaria parasites revealed open reading frame of 316 amino acids of *Pk*-LDH and showed 97.8% homology to *P. vivax* LDH and 90% homology to *P. malariae*, *P. falciparum*, and *P. ovale* LDHs, respectively. The purified recombinant *Pk*-LDH will later be utilised for inhibition studies in future antimalarial drug design and discovery research, specifically for *P. knowlesi.*