

Characterisation of placental malaria in olive baboons (*Papio anubis*) infected with *Plasmodium knowlesi* H strain

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Pregnant women have increased susceptibility to malaria infection. In these women, malaria parasites are frequently found sequestered in the placental intervillous spaces, a condition referred to as placental malaria (PM). Placental malaria threatens the health of the mother and the child's life by causing still births and reduction in gestational age. An estimated 24 million pregnant women in Sub-Saharan Africa are at risk. Mechanisms responsible for increased susceptibility in pregnant women are not fully understood. Pregnancy malaria studies have been limited by the lack of a suitable animal model. This research aimed to develop a baboon (*Papio anubis*) model for studying PM. The pregnancies of three adult female baboons were synchronized and their gestational levels confirmed by ultrasonography. On the 150th day of gestation the pregnant baboons were infected with *Plasmodium knowlesi* H strain parasites together with four nulligravid control baboons. Parasitaemia was monitored from two days post inoculation until the 159th day of gestation when caesarean section was done on one baboon in order to obtain the placenta. Two baboons aborted their conceptus. Smears prepared from placental blood demonstrated the presence of *Plasmodium knowlesi* parasites in all the three sampled placentas. These new findings show that *P. knowlesi* sequesters in the baboon placenta. In addition, this study has characterized haemoglobin, eosinophil, Immunoglobulin G and Immunoglobulin M profiles in this model. Thus a non human primate (baboon) model for studying PM has been established. The established baboon - *P. knowlesi* model for studying human placental/pregnancy malaria now offers an opportunity for circumventing the obstacles experienced during human studies like having inadequate tissue for analysis, inaccurate estimation of gestational age, moral, ethical and financial limitations.

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