

Quinoline and non-quinoline haemozoin inhibitors that circumvent chloroquine resistance

Work conducted under the auspices of SAMI has focussed on the design of new quinoline and non-quinoline compounds that have dual activity, inhibiting haemozoin formation and inhibiting the *Plasmodium falciparum* chloroquine resistance transporter (PfCRT), the development of screening methods for inhibition of haemozoin formation and work towards validation of haemozoin as a drug target. This is essential information needed for the discovery of new compounds that inhibit haemozoin formation as potential new antimalarial drugs.

This is a multidisciplinary project, involving organic synthesis, inorganic chemistry of the haem molecule, physico-chemical studies, pharmacology and studies on the cell biology of the malaria parasite. Techniques used in these studies include among others: NMR spectroscopy, uv-visible absorbance spectrophotometry, uv-visible fluorescence spectrophotometry, scanning and transmission electron microscopy, electron energy loss spectroscopy and medium throughput screening methods.

In vitro and in vivo antimalarial screening and interactions with PfCRT are undertaken in collaboration with the Division of Pharmacology, Department of Medicine, University of Cape Town (Professor Peter Smith and Dr Lubbe Wiesner) and the School of Research Biology, Australian National University (Prof. Kieran Kirk and Dr Rowena Martin) respectively.