

Molecular characterisation of the hidden splenic parasite reservoir in human malaria

GLOBAL AND TROPICAL HEALTH MASTER BY RESEARCH PhD

Malaria is parasitic disease and a significant global health problem causing over half a million deaths each year. Hidden reservoirs of infection represent additional obstacles in malaria elimination. We recently discovered a large hidden biomass of malaria parasites in the human spleen and the presence of novel intrasplenic parasite lifecycle, a major paradigm-shift in understanding this illness. The fundamental biology underlying the hidden splenic malaria reservoir remains understudied.

This project will use unique spleen and blood samples from a cohort of individuals with current or past malaria infections in Indonesia. You will study the genetic diversity of the hidden splenic reservoir and compare transcriptomics profiles of parasite populations in the spleen and circulating blood. You will apply advanced molecular and phenotypic techniques (including qPCR, NGS, single-cell RNAseq, flow cytometry, spatial profiling) and analyse data using bioinformatic pipelines and advanced statistical methods.

This work will provide seminal knowledge advancements on the mechanisms of splenic parasite survival, will search for unique signatures of splenic malaria parasites, and may reveal novel parasite populations/forms related to dormancy and their susceptibility to treatment. Findings may contribute to future improvement of malaria detection, prevention and treatment strategies.

This project requires an individual with fluent Bahasa Indonesia and a background in molecular biology and/or bioinformatics.

Eligibility Criteria and Scholarship Provisions

Eligibility: The successful applicant will be eligible to enrol full-time in either a Master by Research or PhD.

Scholarship Provisions: Research scholarship opportunities are available through Charles Darwin University

<https://www.cdu.edu.au/research-and-innovation/higher-degree-research/scholarships>

International students are also encouraged to apply for scholarships offered in their home country for overseas postgraduate studies.

Physical Location

Menzies School of Health Research, Darwin, Australia

Exeins Health Initiative, Jakarta, Indonesia

Papuan Health and Community Development Foundation, Timika, Indonesia

Other collaborating laboratories

Application Process:

Applicants should submit the following to Dr Steven Kho (steven.kho@menzies.edu.au):

- Brief summary of why they want to complete the project
- Current CV
- Copies of certified academic transcripts

For more information on scholarships and how to apply follow the link below:

<https://www.cdu.edu.au/research-and-innovation/future-research-students>

The 2024 CDU RTP scholarship round closes for international students on 30th September 2023 and Domestic students on 31st October 2023.

<https://www.cdu.edu.au/research-and-innovation/higher-degree-research/scholarships>