

Tackling *Plasmodium knowlesi* malaria: landscape of current research in *Plasmodium knowlesi*



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BACKGROUND

Plasmodium knowlesi is the fifth species that can cause malaria in humans and was declared an emerging public health threat in 2004. 13 years later, this species still holds many unanswered questions, such as its transmission mechanism or its complete geographic distribution; threatening the effectiveness of malaria control and elimination strategies. In the last years, the number of cases reported has increased in South East Asia and *Plasmodium knowlesi* is currently the first cause of malaria in Malaysia. In 2017, the WHO convened a *Plasmodium knowlesi* Evidence Review Group (ERG).

METHODS

The aim of this study was to describe the landscape of current research in *Plasmodium knowlesi*, compare it to determined needs and identify the main research gaps. In close collaboration with the WHO ERG, data related to ongoing research activities was collected, quality checked and validated through systematically searching online databases of grants and through direct contact with expert researchers.

The results have been published in the MESA Track database³; an online database which captures research projects and institutions' research portfolios in malaria elimination and eradication.

RESULTS

20 projects were validated and published and 41 experts were contacted.

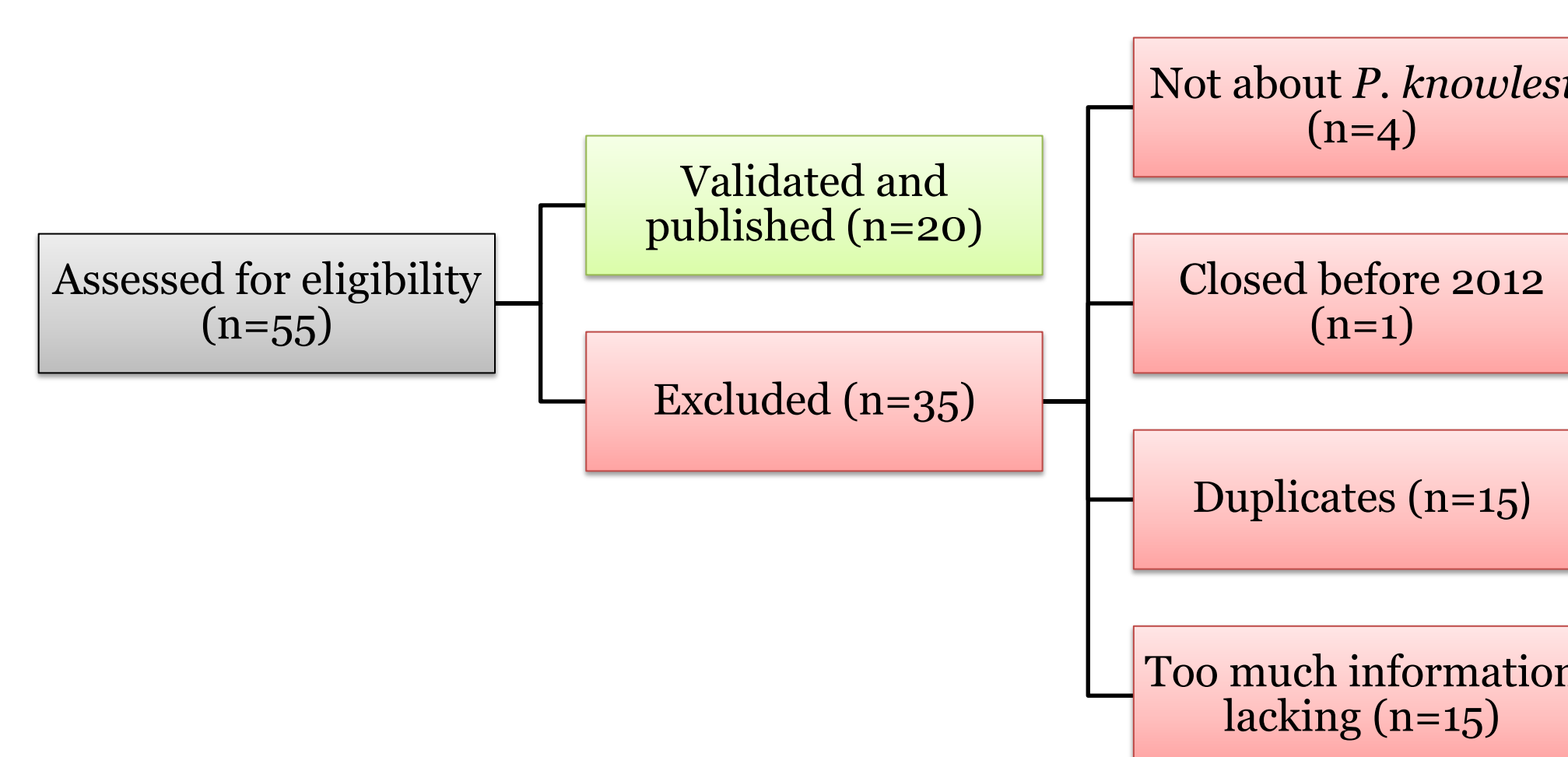


Figure 1. Eligibility flow diagram. As a result of the systematic search and consultation with experts, 55 projects were identified and assessed for eligibility. 20 projects were validated and published.

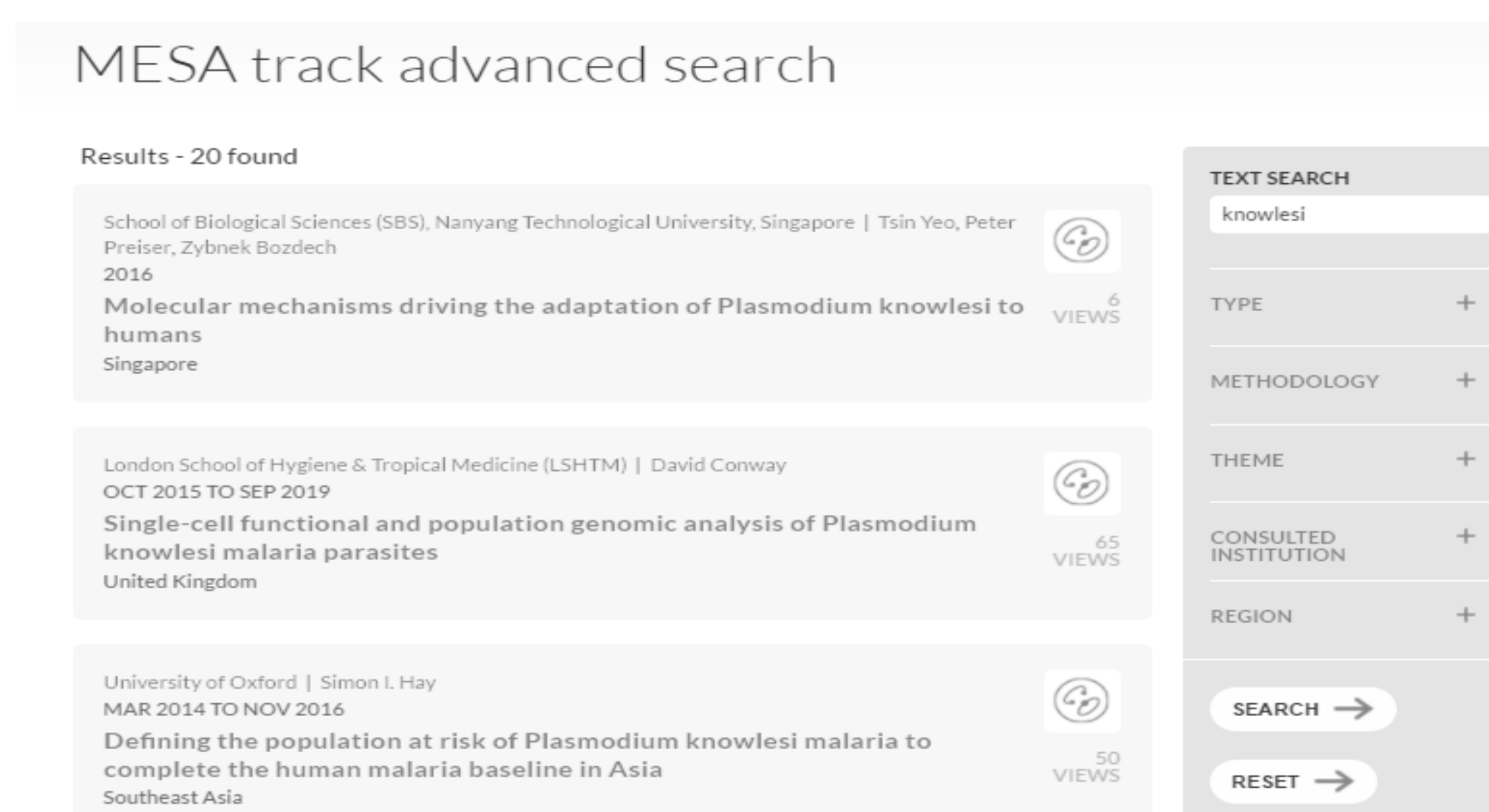


Figure 2 MESA Track database *knowlesi* advanced search³
³<http://www.malariaeradication.org/mesa-track/advanced-search?keywords=knowlesi>

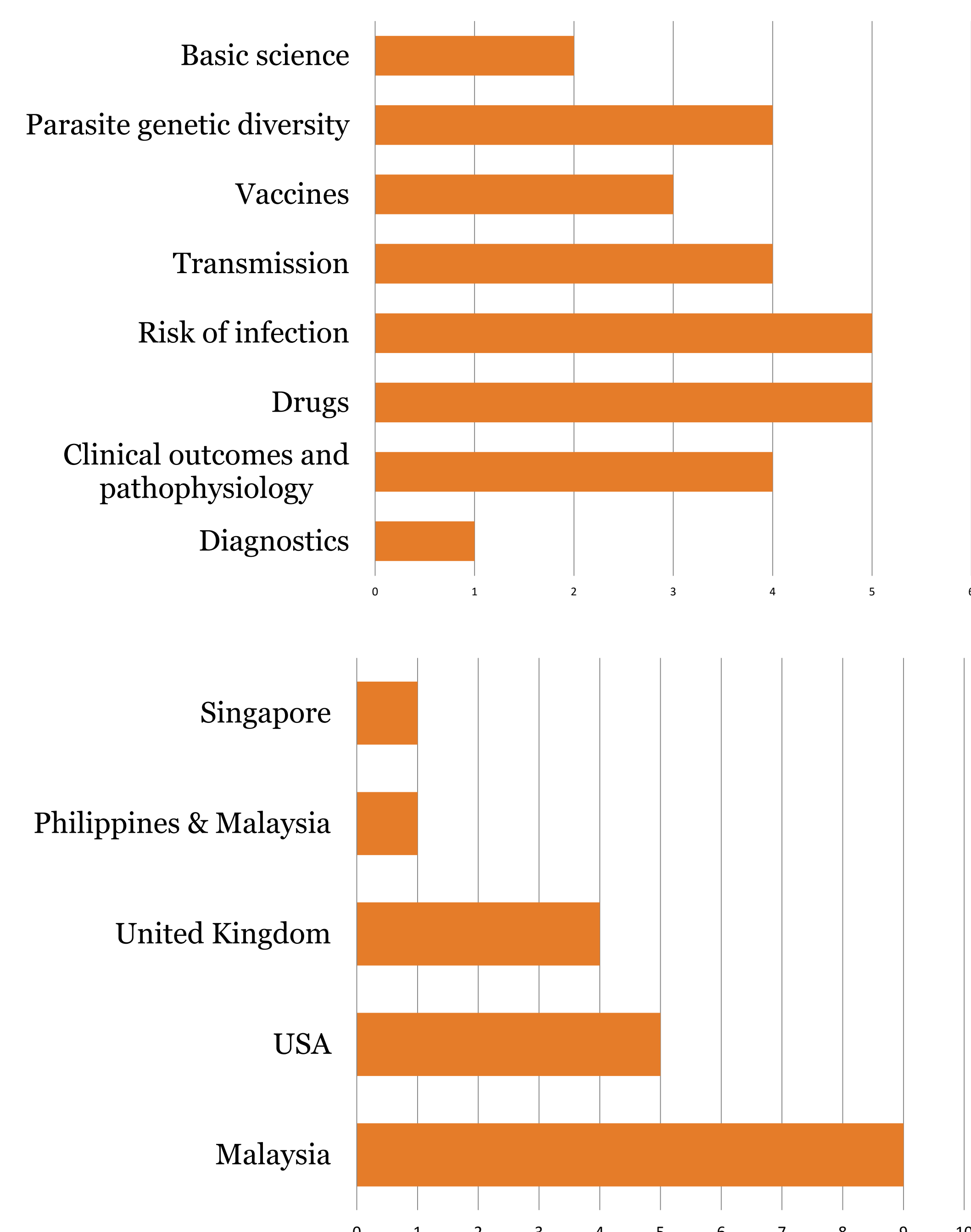


Figure 3. Number of projects by theme. Note that some projects may have more than one theme.
 Figure 4. Number of projects by geographic location.

4 main research gaps have been identified:

Evidence of human to human transmission	• 4 projects
Distribution of infection in humans and risk of infection	• 5 projects
Feasible and effective diagnostic methods	• 1 project
Vector control strategies	• 0 projects

The WHO ERG identified four main research priorities, which were presented at the Malaria Policy Advisory Committee (MPAC) held in March 2017:

1. Evidence of human to human transmission
2. New laboratory diagnostic methods
3. Entomology
4. Clinical management

Figure 5. Research gaps identified and number of projects addressing them.

CONCLUSIONS

While the scientific community collects evidence on whether human to human transmission is taking place, one of the main research gaps at the moment, efforts must also be placed in other areas, such as vector control strategies or new and suitable diagnostic methods.

Much research is taking place in order to fill all the remaining gaps related to this species of *Plasmodium*, but further evidence is still needed in order to have the knowledge and the tools to properly fight against *Plasmodium knowlesi*.