

Vector Borne Disease



Entomology

We study insect vectors of human disease to improve the health of Papua New Guineans and provide valuable data on tropical disease transmission.

We work on projects related to the ecology, behaviour, genetics and transmission of potential mosquito vectors in PNG.

Our studies include:

- Vector competence
- Mosquito immunity and transmission of malaria and filariasis
- Ecology of infectious disease
- Entomological evaluation of long lasting insecticide-treated nets
- Treatment options for filariasis with combination drugs to compare their efficacy.
- Transmission of *Plasmodium vivax* from blood sample of an infected person to mosquitoes.

Molecular Parasitology

We conduct epidemiological studies and support several drug trials and immunology studies by performing very sensitive assays for the detection and typing of malaria parasites.

In addition, we study the genetics of malaria parasites, antimalarial drug resistance, and human genetic factors that play a role in malaria-susceptibility and severity. We have facilities to culture malaria parasites in the lab and use these cultures for example to test the sensitivity of parasite strains to certain drugs.

Drug Study

Our studies include:

- Trials of new artemisinin combination therapies for the treatment of malaria.
- Pharmacokinetic studies of new antimalarial drugs for use in pregnancy
- A short course, high dose primaquine treatment for liver stages of *Plasmodium vivax* infection
- Drug resistance monitoring

Data Management

The Information Technology (IT) and Data Management section is responsible for providing IT support to the staff and Data management services for the projects that are conducted by the VBDO as well as other projects within the Madang site.

We provide the following services:

- Assist in Field form designs (CRF's) in collaborations with Principal Investigators (PI) and Study coordinator's
- Database designs and programming
- Data entry
- Data cleaning (Queries, query resolution, etc)
- Data reporting and presentations to PI's and Study coordinators
- Hard and Electronic Copy archiving

Contact us

PO Box 60, Goroka, EHP 441,

T 532 2800 / 422 2909 F 532 1998/ 422 3289

E info@pngimr.org.pg

W www.pngimr.org.pg

About Us

The Papua New Guinea Institute of Medical Research (IMR) is a world class research facility looking at ways to improve the health of the people of PNG.

Our headquarters is in Goroka in the Eastern Highlands and we have laboratories and research sites across PNG, including in Alotau, Hides, Karkar, Madang, Maprik and Port Moresby.

The institute was established in 1968 as a statutory body. It is governed by a 14-member council that reports to the Health Minister.

It is headed by the Director, supported by two deputy directors, for science and corporate affairs.

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Our Research

IMR's research targets malaria, pneumonia, filariasis, respiratory disease, sexual health, malnutrition and much more.

We employ more than 500 staff – many are national and international experts in their fields.

Our research is divided into five sections:

- Infection and Immunity
- Vector Borne Diseases
- Population, Health and Demography
- Sexual and Reproductive Health
- Environmental and Emerging Diseases



Vector Borne Diseases Unit

We conduct studies in order to understand and find new methods to diagnose, treat and prevent malaria, filariasis and other mosquito borne diseases.

The major studies include: clinical trial of new drugs for malaria and filariasis, malaria vaccine discovery, effects of long lasting insecticide-treated bed nets and monitoring of drug resistance.

We conduct in-depth studies of *Plasmodium vivax*; one of the four malaria parasites, and clinical trials on prevention of malaria in infants and pregnant women

We have close links with PNG national and provincial malaria and disease control programs, and work with partners in Australia, Europe, USA and Asia.

Our teams are:

- Malaria Immunology and Microscopy
- Entomology
- Molecular Parasitology
- Data Management
- Drug Study

Malaria Immunology and Microscopy

We collect and study human blood samples to diagnose malaria infections by light microscopy and investigate immune responses to blood-stage malaria parasites during infancy, childhood and pregnancy.

Our research is focused the changing epidemiology of *P. falciparum* and *P. vivax* malaria in Papua New Guinea and it's impact on the acquisition and maintenance of clinical immunity.

Our on-going and recent studies include:

- Assessing the impact of control interventions on the epidemiology and transmission of *P. falciparum* and *P. vivax* in Papua New Guinea
- Understanding the impact of malaria exposure during pregnancy on infant morbidity and immunity
- Discovery of novel *P. falciparum* and *P. vivax* antigens for 2nd generation vaccines and surveillance of malaria control activities
- A trial of Intermittent Preventative Treatment during Pregnancy (IPTp)
- The contribution of hypnozoites to the burden of *P. vivax* illness and infection
- Cellular immunity to *Plasmodium vivax* and *P. falciparum* in early childhood
- A trial of Intermittent Preventative Treatment during Infancy (IPTi) trial
- Immunology and Genetics of Severe Malaria in Papua New Guinean children
- Identification of novel and immunogenic *Plasmodium* antigens for malaria vaccine development
- Monocytes and malaria in pregnancy
- Placental sufficiency and low birth weight in pregnancy-associated malaria
- Immunology of *Plasmodium vivax* Malaria in Pregnancy (PregVax)