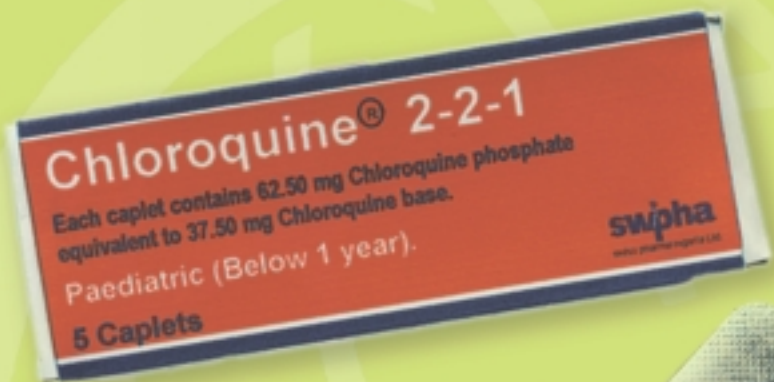


Multilateral Initiative on Malaria

Research Capability Strengthening





TDR/RCS/MIM/o1.1

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Multilateral Initiative on Malaria (MIM)

The Multilateral Initiative on Malaria (MIM) is an alliance of organisations and individuals, working together to maximise the impact of scientific research on malaria in Africa.

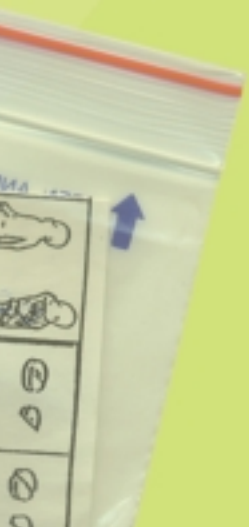
Malaria and the massive burden that it imposes in endemic countries remains a major public health challenge throughout Africa. Despite the severe morbidity, mortality, human suffering and socioeconomic loss that malaria causes across the continent, the repertoire of tools available for treatment and control of the

disease is limited. There is an urgent and increasing need for more effective use of existing control products and instruments and the development of new tools to control the disease. The development of a sustainable "malaria" community in Africa capable of developing and improving tools for malaria control is a priority.

The Multilateral Initiative on Malaria (MIM) addresses this specific priority.

MIM aims to:

- Raise international public awareness of the problem of malaria.
- Promote global collaboration and coordination between institutions in an effort to maximise impact of resources and avoid duplication of effort.
- Develop sustainable malaria research capacity in Africa – through international and pan-African scientific collaboration and training as a mechanism for human resource development.
- Ensure research findings are applied to malaria treatment and control – by stimulating and facilitating dialogues among scientists, public health professionals, policy makers and industry.



MIM/TDR activities

January 1997

The MIM was launched at the conference on "Malaria in Africa: Challenges and Opportunities for Cooperation" held in Dakar, Senegal. Scientists and decision makers from Africa, the USA and Europe met with funding organisations and identified scientific questions that required answers in order to successfully address the problem of malaria in Africa.

July 1997

A follow-up meeting in The Hague, The Netherlands, allowed funding organisations and research agencies supporting malaria research to discuss the strategy. A multilateral funding mechanism was set up by the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) to address research questions and develop a sustainable malaria research capacity in Africa.

October 1997

The MIM/TDR Task Force was established to manage partnership proposals. It comprises African scientists (engaged in basic and/or applied science) and investigators in developed countries with a focus on strengthening African research groups, with the aim of developing effective malaria control tools and improving relevant health policy strategies. The Task Force also promotes human resource development by supporting research activities, as an instrument for

capacity strengthening, in areas of broad application in malaria endemic countries. The goal is to develop products and mechanisms relevant to the understanding of the occurrence, distribution and control of malaria in Africa.

March 1998

The 1st meeting of the MIM/TDR Task Force was held in Geneva, Switzerland: first round of projects reviewed.

March 1999

Durban, South Africa,
2nd meeting.

March 2000

Ouagadougou, Burkina Faso,
3rd meeting.

March 2001

Harare, Zimbabwe,
4th meeting.





MIM/TDR: Research Capacity Strengthening Goal

To strengthen human resources for malaria research in Africa by facilitating partnerships and encouraging South/South and South/North linkages in order to identify, promote and support collaborative activities to develop and improve malaria control tools and relevant health policy strategies.



MIM/TDR partners

- National Institute of Allergy and Infectious Diseases (NIAID) at the National Institutes of Health (NIH).
- The World Bank.
- Special Programme for Research and Training in Tropical Diseases (TDR).
- WHO Regional Office for Africa (WHO/AFRO).
- The Rockefeller Foundation.
- Roll Back Malaria (RBM).
- Governments of Norway, France and Japan.

Other MIM partners in Capacity Building

- The Fogarty International Centre (FIC).
- National Library of Medicine (NLM).
- The Wellcome Trust.

Partners either pool funds to provide research grants for RCS through the MIM/TDR Task Force, or they provide other means of support such as funds for the functioning of the MIM secretariat and the development of training programmes.

MIM/TDR Task Force

The Task Force promotes research capacity building with a focus on the following research and development (R&D) priority areas (as identified at the Dakar meeting):

- **Antimalarial drug policy and chemotherapy** – development of strategies for rapid mapping of drug resistance; innovative approaches for preventing, retarding and reversing drug resistance; definition of criteria for replacing first-line drugs.
- **Epidemiology** – the use of new technologies to identify parasite diversity and its relationship with immune responses; analysis of the relationship between transmission, infection, disease patterns and deaths in order to design effective intervention strategies; development of methodologies to measure the impact of interventions and simple and rapid epidemiology mapping methods for malaria morbidity and mortality.
- **Pathogenesis & Immunology** – studies on parasite-vector-host factors involved in severe disease and malaria in pregnancy, with the aim of developing and promoting improved control and management strategies and evaluating potential vaccine candidates.
- **Entomology & Vector Studies** – Screening of natural local products for insecticidal and repellent properties, application of newly developed molecular tools for studies on vector biology, feeding behaviour, vectorial capacity, insecticide resistance and population genetics with the aim of identifying and developing effective strategies for vector control in focal, low and high transmission settings.
- **Health Systems & Social Sciences** – improvement of the home management of malaria based on community knowledge, practices and development of new products; improvement of collaboration between public and private health care providers and the exploration of health sector reforms to enhance malaria control strategies.
- **Natural products and Drug development** – identification and development of potential antimalarial drugs from natural products.
Promotion of systematic identification, chemical and biological screening, using in vitro and in vivo system, for the isolation of antimalarial compounds from natural products used by indigenous populations for treatment of fevers.

Multi-disciplinary cross-cutting innovative research projects, as well as programmes leading to establishment of networks with shared facilities for research and training, are encouraged by the Task Force.

MIM/TDR projects



‘Each project must be coordinated by an African national scientist, working in a research group in Africa and should include at least two African research partner institutions and one non-African partner’.

Capacity building and technology transfer to African institutions has been enhanced by application of a unique criterion in the selection of projects for funding – in addition to existing scientific merit and capacity building potential criteria. Each project must be coordinated by an African national scientist, working in a research group in Africa and should include at least two African research partner institutions (one established and one emerging) and at least one non-African partner (either an international institution in Africa or an institution in Europe, North America or Australia). The general format reflects a collaborative project within one or more countries or research programme, comprising partnerships in different regions or areas of expertise. Each project must describe in detail the plan for strengthening research capability through project activities, in addition to the rationale, objective and methodology of the research project. Grants are awarded on the basis of scientific merit, relevance, and support for partnerships that promote capacity building and human resource development in Africa.



MIM/TDR Task Force on Malaria Research Capability Strengthening in Africa

23 projects funded in 14 countries* (1998-2000)

INVESTIGATORS	INSTITUTION	COUNTRY	PROJECT TITLE
1998			
1. Doussou-Yovo	OCCGE	Cote d'Ivoire	Influence of environment modification for rice cultivation on malaria transmission and morbidity in rural forests
2. Ntoumi	International Center for Medical Research (CIRMF)	Gabon	Relationship between complexity of infections/disease/transmission & human red blood polymorphisms in two African countries
3. Macheso	Community Health Sciences Unit, Lilongwe	Malawi	Optimal antimalarial drug policies in Malawi: Monitoring and limiting evolution of resistance to widely used drugs
4. Doumbo	Université du Mali,	Mali	Surveillance and control of drug-resistant malaria
5. Mshinda	National Institute for Medical Research (NIMR)	Tanzania	Molecular epidemiology and modelling the spread of antimalarial drug resistance
6. Akanmori	Noguchi Memorial Institute for Medical Research, Accra	Ghana	Immunopathology of severe anaemia in <i>Plasmodium falciparum</i> infected children
7. Koram	Noguchi Memorial Institute for Medical Research, Accra	Ghana	Mapping response of <i>Plasmodium falciparum</i> to chloroquine and other antimalarial drugs in Ghana
8. Vulule	Kenya Medical Research Institute (KEMRI)	Kenya	Population structure of <i>Anopheles gambiae</i> and <i>Anopheles funestus</i> in Kenya and West Africa
9. Kokwaro	University of Nairobi	Kenya	Integrated training/research programme on clinical pharmacology of key drugs used to treat and manage falciparum malaria
10. Sharp	Medical Research Council (MRC)	South Africa	Develop/implement a molecular and biochemical capability for insecticide resistance monitoring and management in South Africa

11.	Mnzava	Medical Research Council (MRC)	South Africa	Mapping malaria risk in Africa (MARA)
12.	Adeniyi	University of Ibadan, Ibadan	Nigeria	Incorporating sociocultural/economic characteristics of mothers/care-givers in home management of childhood malaria
13.	Ajaiyeoba	University of Ibadan, Ibadan	Nigeria	Identification and clinical evaluation of potential antimalarial components from the Nigerian phytomedicine compendium
14.	Nwagwu	University of Ibadan, Ibadan	Nigeria	Antibodies that inhibit malaria merozoite surface protein-1 processing and erythrocyte invasion
15.	Oladebo	University of Ibadan, Ibadan	Nigeria	Intersectoral model for management, control and policy formulation on drug-resistant malaria in Nigeria

1999

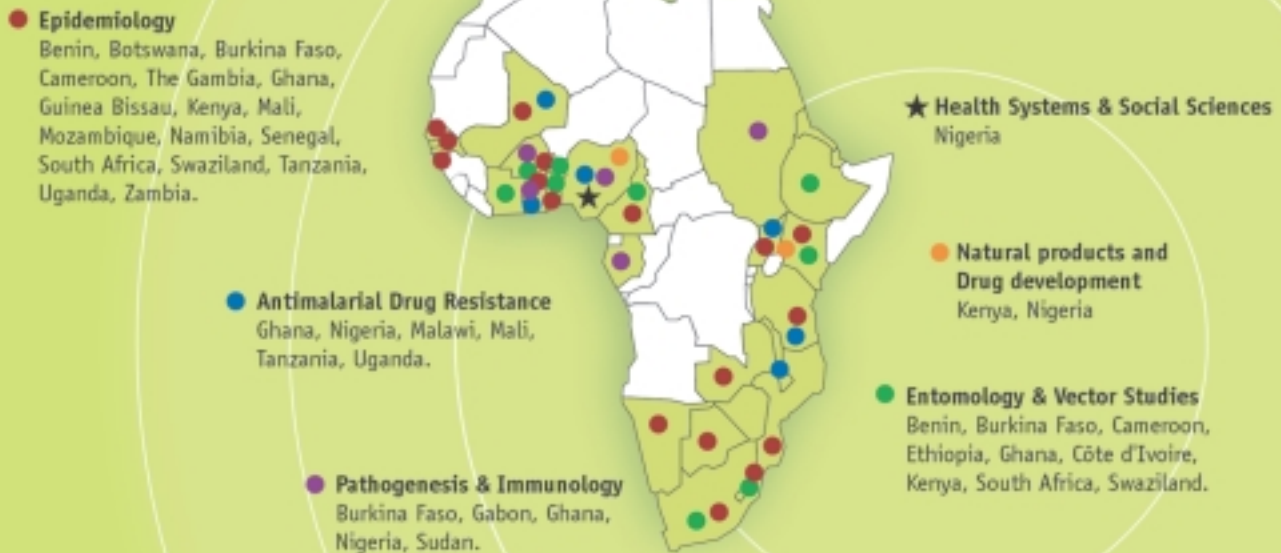
16.	Akogbeto	OCCGE, Cotonou	Benin	Network to study factors conditioning evolution of pyrethroid resistance in <i>Anopheles gambiae</i> s.l.
17.	Meda	OCCGE, Bobo Dilasso	Burkina Faso	Bioequivalence of two quinine formulations to treat childhood malaria: intravenous versus intrarectal administration
18.	Sanogo	Centre National de Lutte Contre le Paludisme (CNLP)	Burkina Faso	Relation between malaria transmission intensity and clinical malaria, immune response and plasmodic index
19.	Hassanali	International Centre of Insect Physiology and Ecology (ICIPE)	Kenya	R&D partnership in bioprospecting for anti-malarial, mosquito repellent & insecticidal plants in East Africa
20.	Oketch-Rabah	University of Nairobi	Kenya	Research and development of new botanical antimalarial drugs in East Africa

2000

21.	Thompson	Centro Nacional de Saude Manhica	Mozambique	Malaria transmission intensity and mortality burden across Africa (MTIMBA)
22.	El Bashir	University of Khartoum	Sudan	Description of clinical features & immunopathology of severe malaria in an area of unstable malaria transmission in Sudan
23.	Egwang	Med Biotech Laboratories, Kampala	Uganda	Capacity building in molecular, in vitro and clinical surveillance of antimalarial drug resistance in Uganda

*The partnerships involve a total of 24 African countries.

MIM/TDR projects and networks in Africa



The Antimalarial Drug Resistance network is emerging from 6 MIM/TDR projects with a focus on drug policy and chemotherapy. The network will systematically address the problem of *P. falciparum* drug resistance and establish the value of known and new markers of drug resistance in providing information useful for malaria control policy in Africa.

Other networks include Insecticide Resistance, Pathogenesis & Immunology and the MTIMBA and MARA projects (see previous page) documenting aspects of the epidemiology of malaria across Africa.

MIM/TDR

Research Capability Strengthening objectives

- Develop and establish strategies for rapid mapping of, preventing, retarding and reversing antimalarial drug resistance.
- Develop and evaluate methodology for improving home management of malaria.
- Establish a continental network on malaria mortality/morbidity surveillance to support control initiatives.
- Establish a network on vector biology, insecticide resistance and population genetics to develop effective control tools.
- Develop GIS system for malaria morbidity with maps produced on CD-ROM.
- Identify potential antimalarial compounds from natural products.
- Analyse the impact of agricultural activities on malaria transmission.
- Develop capacity for investigating relationships between parasite diversity, immune response, resistance, transmission, infection and disease patterns.
- Provide better understanding of parasite-vector-host factors involved in severe disease and malaria in pregnancy.





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