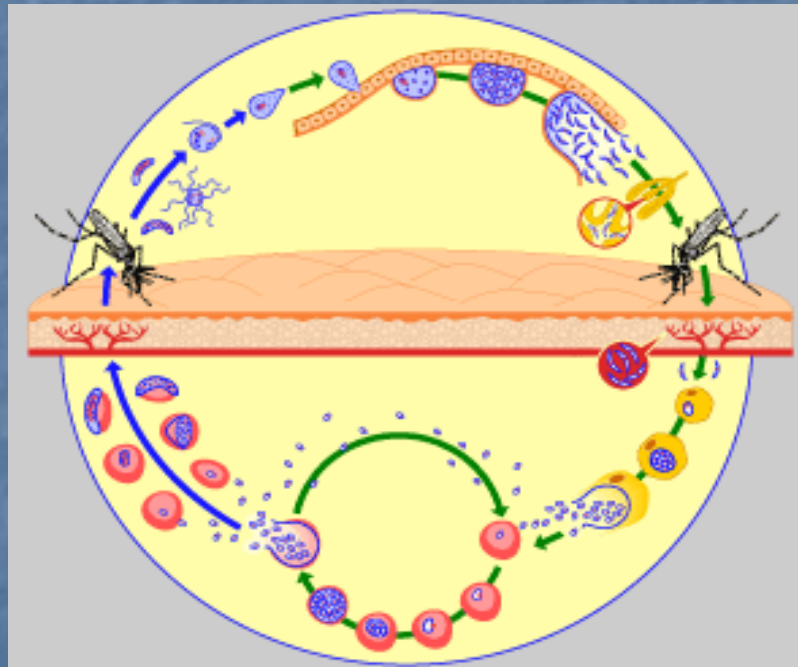


Virtual Malaria Institute Workshop 25 January 2005



Malaria – a TDR Category II Disease

- Control strategy available, but disease burden persists
- The research focus for category II diseases covers a whole spectrum of activities, but centres on development and testing of new disease control tools and strategies.
- Malaria, Schistosomiasis, Tuberculosis

TDR Malaria research priorities - New basic knowledge

- *Anopheles* genomics and population genetics and genetic manipulation for malaria vector control
- Bioinformatics and applied genomics for identifying targets for drugs, vaccines, and diagnostics, and elucidating of pathogenesis and risk factors
- Impact of health sector reform, globalization and inequality of access to treatment and prevention
- Understanding mechanisms of resistance to drugs and insecticides

TDR Malaria research priorities - New and improved tools

- Discovery and development of new drugs, including combinations and drugs for use in pregnancy
- Discovery and development of malaria vaccine candidates
- Development of non-invasive approach to diagnostics for use close to the home

TDR Malaria research priorities - New and improved intervention methods

- Improve existing treatment and prevention methods for new indications in children and pregnant women
- Development of methods / tools to improve access to prevention, early treatment and referral of malaria
- Development and evaluation of combination therapies for drug resistant malaria

TDR Malaria research priorities - New and improved strategies

- Developing strategies for cost-effective implementation and scaling up of new methods to treat and prevent malaria, focusing on home management of fever, deployment of rectal artesunate and intermittent preventive treatment
- Provision of evidence for policy changes on combination treatment and prevention of malaria complications

Advanced (Gene-based) Technologies



Epidemiology



Vaccines



**Drug discovery
and
development**



Pharmacogenomics

What do we mean by “advanced gene technologies”?

- Modern gene technologies include structural and functional genomics, proteomics, transcriptomics
- Other “-omics” derivatives include metabolomics, glycomics, lipidomics, interactomics etc....
- A key requirement for bioinformatics, and computational biology (linked to structural biology)
- Supporting technologies include combinatorial chemistry, chemi-informatics etc

Existing initiatives in advanced gene technologies

- African Centre for Gene Technologies (ACGT) created by CSIR and UP to build critical mass in this domain
- Initiatives in CT (capar) and KZN (linked to EcoBio)
- Proposal for creation of a National Functional Genomics platform
- National Bioinformatics Network

The current situation in malaria research in SA

- Coordination in epidemiology and vector control
- Lack of coordination or critical mass in the application of advanced gene technologies and opportunities arising from the “-omics” revolution
- Lack of capacity to validate drug targets and develop drug leads
- Lack of capacity to take drugs or vaccines to market

Benefits of a Virtual Malaria Institute

- Build capacity in Africa
- Integrate social and epidemiological information with new intervention strategies
- Link researchers working on different topics in malaria
- Raise substantial additional funding
- Work towards agreed and defined goals
- Bring advanced gene technologies to bear on all aspects of malaria research

The concept

- Draw together groups with specific knowledge in malaria research into a “Virtual malaria institute”
- Coordinate the application of advanced gene technologies to malaria research
- Create a critical mass to attract funding and achieve real solutions to the malaria problem

Mission

Malaria Initiative for Africa

- The Malaria Initiative for Africa will facilitate an integrated programme of malaria research and capacity development in South Africa and the rest of Africa in order to improve malaria prevention and control. Modern research tools will be applied to malaria research. Outputs will include the identification and validation of drug and insecticidal targets, development of drug and insecticidal candidates, improved diagnostics, and new tools for gathering epidemiological information.

Funding Agencies that support malaria research

- United States National Institutes of Health [NIH]
- Wellcome Trust
- United States Centres for Disease Control and Prevention (CDC)
- Multilateral Initiative on Malaria in Africa (MIM)
- Medicines for Malaria Venture (MMV)
- The Rockefeller Foundation
- The Gates Foundation
- European Union (EU)
- WHO/TDR
- WHO/AFRO
- The Global Fund to fight AIDS, tuberculosis and malaria