"Molecular epidemiology network for promotion and support of delivery of life vaccines against Theileria parva and Theileria annulata infection in Eastern and Northern Africa"

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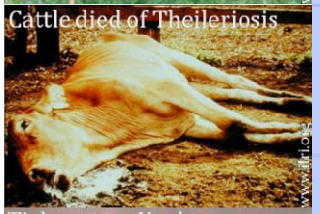
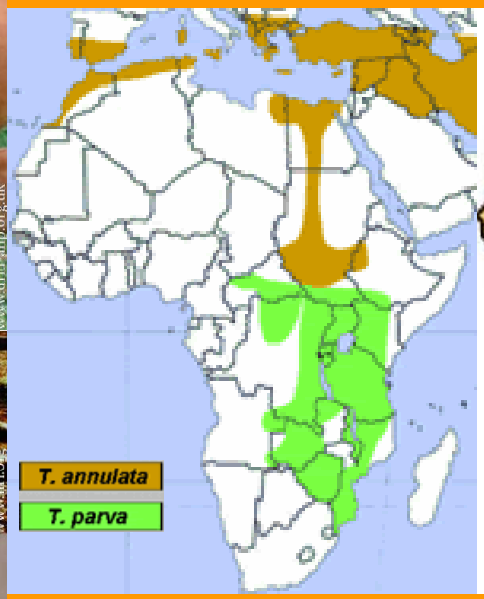
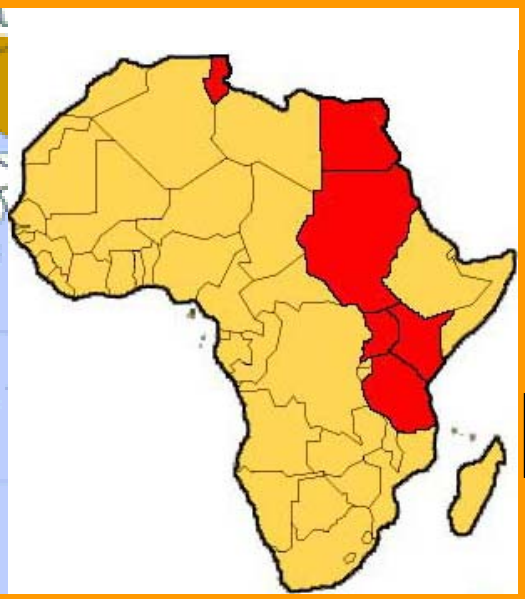
Project Aims







Development of Live Vaccines for the Control of Theileriosis

- **Parasite Prevalence**
  - Serology
  - PCR based
- **Parasite Diversity**
  - sequencing of candidate genes
  - mini - /microsatellite markers
- **Molecular Epidemiology Data**
  - of parasites in the field
  - background necessary for vaccine development
- **Attenuation**
  - attenuation markers
  - *in vivo* assessment
  - validation of markers
- **Vaccination Trials**
  - live and attenuated
  - combined with recombinant antigens
- **Live Vaccines for the Control of Theileriosis**

Technology Transfer and Creation of Networks

- **Training**
  - Masters students
  - PhD Students
  - of trainers
- **Staff exchange**
  - Germany
  - ILRI
  - Partners in the region
- **Scientific networks**
  - exchange of data
  - exchange of technology
  - veterinary services
- **Knowledge transfer**
  - decision makers
  - end users

- **Linking**
  - FAO
  - IAEA
  - EU-Projects
  - other networks

Creation of a technology platform

- for capacity building
- to establish vaccines for the control of theileriosis
- to contribute to poverty alleviation by improving food security

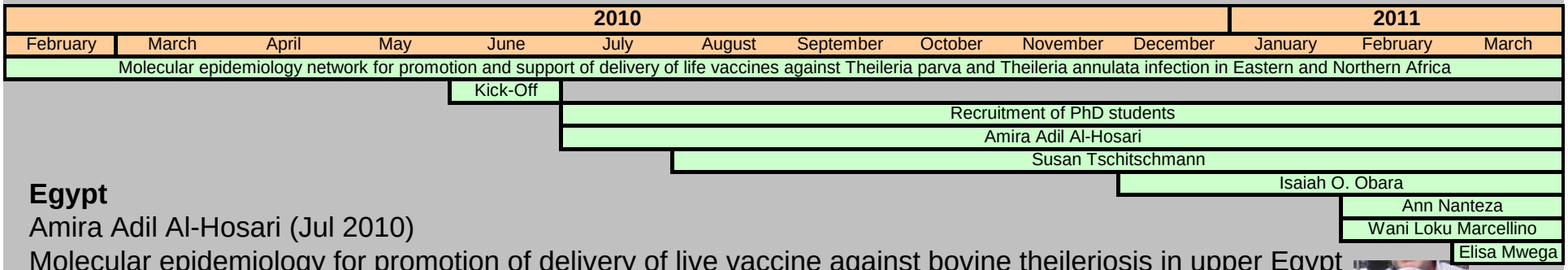
Results

- **Kick-off meeting, Berlin, June 23-24, 2010, Veterinary Faculty, FU Berlin**
  - representatives from all partner institutes
  - inclusion of external experts (Dirk Geysen, Andrew Tait (absent))
  - presentation and discussion on individual projects
  - discussion on recruitment of PhD students
  - discussion on possible modalities for graduation of PhD students
    - graduation in own country or in Germany using a sandwich programme
  - discussion on training and capacity building activities to be carried out in different partner countries

- Sudan: First Technical Workshop on Diagnostic Tools
- Egypt: Second Technical Workshop on Diagnostic Tools
- Munich: Technical Workshop on Tick and Bovine Cell Culture and Assessment Symposium
- Kenya: Technical Workshop on bioinformatics and population genetics
- Borstel: Technical Workshop on Immunology and Second Assessment Symposium
- Berlin: Technical Workshop on Epidemiology and Socio-Economic Impact

Results

Recruitment of PhD students



Egypt
Amira Adil Al-Hosari (Jul 2010)
Molecular epidemiology for promotion of delivery of live vaccine against bovine theileriosis in upper Egypt

Germany
Susan Tschitschmann (Aug. 2010)
Identification and characterisation of potential attenuated *T. annulata* live vaccine markers

Kenya
Isaiah O. Obara (Dec. 2010; delayed due to rededication of a PostDoc to a PhD position)
Genotyping of *Theileria parva* isolates from cattle and buffalo in Southern Sudan and Kenya

Sudan
Wani Loku Marcellino (Feb 2011; delayed due to political reasons)
Molecular epidemiology on Tick Borne Diseases in Southern Sudan with particular emphasis on ECF

Tanzania
Elisa Mwega (delayed due to completion of MSc thesis)
Molecular Characterisation of *Theileria parva* isolates present in buffalos and cattle in Tanzania

Uganda
n.d.
Vaccine and Diagnostics improvement: Genotyping and application of genomics to *T. parva* pathogens in Uganda

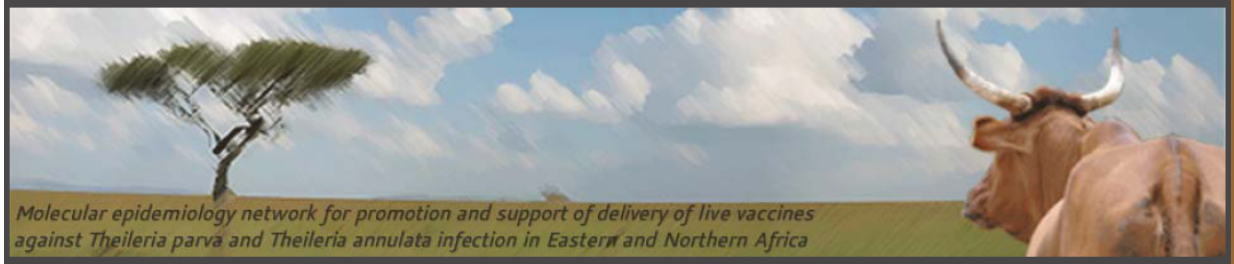
Tunisia
n.d.
Improvement of the use of live attenuated vaccines by increasing the efficacy using a combinatorial approach of live attenuated and subunit vaccine

Results

- **Collaboration between African partners to combine efforts for achieving the aims of the project**
  - Uganda & Kenya will cooperate on comparative genomics
  - Sudan & Kenya will collaborate on the molecular analyses of *T. parva* in South Sudan
  - Egypt & Germany will cooperate on the molecular analyses of *T. annulata* strains

DFG German-African Cooperation Projects in Infectiology

HOME THE NETWORK ABOUT ACTIVITIES PhD STUDENTS FORUM DOWNLOADS LINKS CONTACT US IMPRINT



Welcome

Welcome to the website of the "Molecular epidemiology network for promotion and support of delivery of life vaccines against *Theileria parva* and *Theileria annulata* infection in Eastern and Northern Africa".

This network has been founded within the German-African Cooperation Projects in Infectiology, funded by the Deutsche Forschungsgemeinschaft (DFG) and was launched 1st of June 2010.
The general objective of the project is to ensure food security and to improve food safety by developing new and improving existing vaccination against bovine theileriosis caused by *T. annulata* and *T. parva*. The anticipated project aims to contribute to poverty alleviation by increasing farmers' incomes and enhancing the national economies. In addition, the project aims at capacity building and technology transfer to developing countries in Africa.

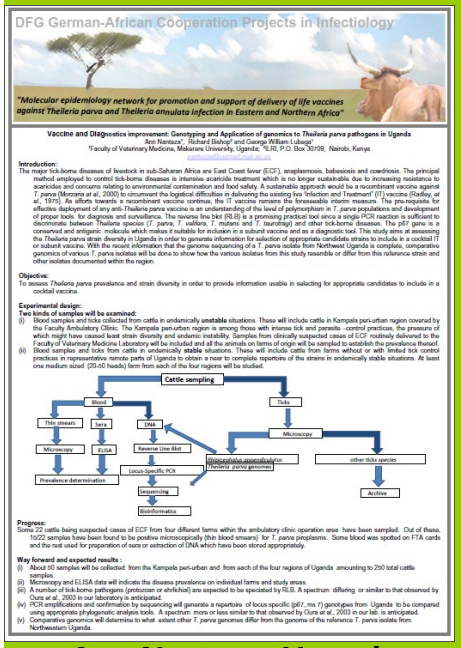
The network consists of partner institutes in Germany, Egypt, Tunisia, Kenya, Uganda, Tanzania and Sudan. Together we aim to molecularly characterize parasite strains in the affected African regions and to identify strains of *T. parva* and *T. annulata* suitable for the development of live vaccines. The project will result in the transfer of technologies required for specific diagnosis of the diseases, disease surveillance, management and control by producing vaccines.

This website is currently under construction. We would like to make it an information and knowledge exchange platform for project members and other interested persons.
For all questions and suggestions concerning the networks website, please contact Britta Petersen (bpetersen@fz-borstel.de).

Deutsche Forschungsgemeinschaft DFG

Results

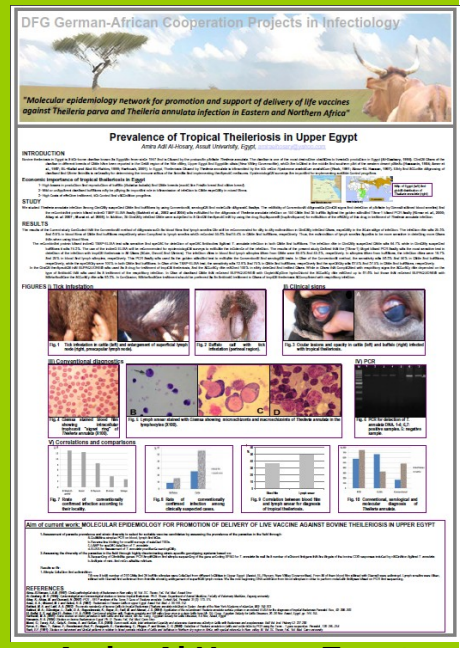
- Home page
- Free hosting service by weebly
- Activities
- PhD students
- Forum
- Downloads



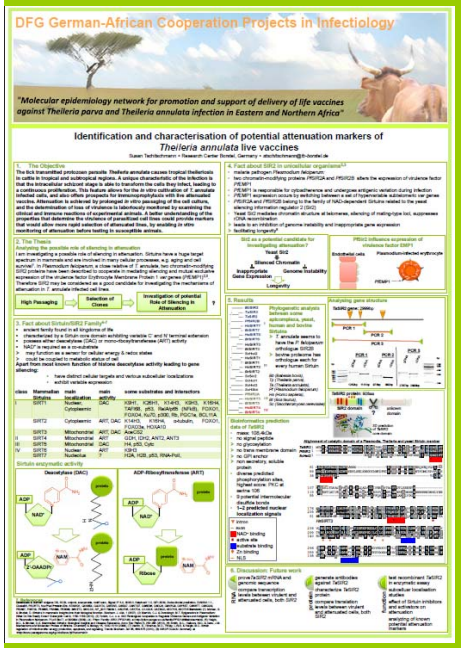
Ann Nanteza, Uganda

Khalid Taha, Sudan

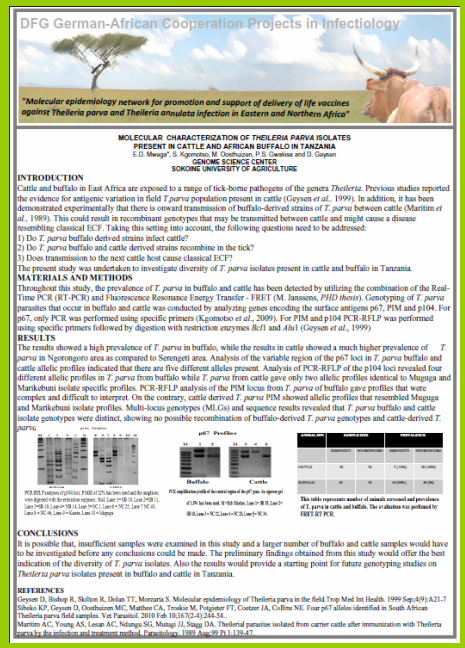
David Odongo, Kenya



Amira Al Hosary, Egypt



Susan Tschitschmann, Germany



Elisa Mwega, Tanzania

Scientific results

- poster exhibition on Saturday
- presented by project partners/PhD students

Benefits for research or livestock health system

- **Interaction between universities, veterinary laboratories, veterinary authorities**
- **Linking of African institutions**
- **Technology transfer, capacity building**
  - contribution to sustainability by implementing trained personnel in more remote areas (Sudan)

Perception by Veterinary Authorities

- **Regarding *T. parva*, the information on buffalo parasites will be valuable in helping veterinary authorities to target live vaccination (ITM) efforts and evaluating possible vaccine breakthrough by buffalo-derived parasites.**
- **Data from Southern Sudan regarding strain characterization of *T. parva* will be very important in providing baseline data which will be communicated to the veterinary authorities for:**
  - **(a) Evaluating possible changes in parasite populations post ITM vaccination, which is planned imminently by the veterinary authorities in South Sudan**
  - **(b)Testing whether parasites from Southern Sudan might be involved in future ECF outbreaks in new areas where the disease is currently not present**

Problems – Solutions – Unexpected Developments

- Unexpected political developments in North Africa (Tunisia and Egypt) and Sudan
  - postponement of planned project meeting
  - postponement of planned technical workshop in Egypt and Sudan
- PhD student recruitment

Berlin Kick-off Meeting 2010

- **obtained important information**
  - **presentation of the DFG-Africa programme**
  - **overview of projects**
  - **panel discussion**
    - **problems of collaboration were pointed out**
- **suggestions emanating from the meeting**
  - **discussion among projects to link similar projects in order to create discussion and technology platform and possible exchange of staff**
  - **possible involvement of relevant German ministries and international organizations**