

Wolbachia endobacteria in filarial infections - exploring their usefulness as targets for novel chemotherapies that are anti-filarial, reduce filarial pathology and interrupt transmission (extension)

Initiative: Wissen für morgen – Kooperative Forschungsvorhaben im subsaharischen Afrika (beendet)

Ausschreibung: Tropical Medicine 2004

Bewilligung: 19.04.2009

Laufzeit: 2 Jahre

Filarial infections, such as onchocerciasis (river blindness) and lymphatic filariasis, are major diseases in sub-Saharan Africa associated with poverty, with some 80 million infected people. They are caused by thread-like worms transmitted as tiny larvae by flying insects and living for many years in the human body. New options for treatment have focused on Wolbachia endobacteria, living inside the worms providing them with metabolites essential for survival. Therefore, antibiotics like doxycycline that kill the bacteria also kill the worms. The consortium of scientists from three African countries and from Germany has demonstrated that doxycycline also improves major disease burdens of lymphatic filariasis, lymphoedema (swelling of limbs) and hydrocele (swelling of the male scrotal area). The role Wolbachia play during worm transmission in insects was also analysed. In the next funding period, this knowledge will be transferred further into the treatment in rural areas, hoping to circumvent prohibitively costly hydrocele operations and to prevent the development of lymphoedema - also the type caused by walking on silica soil called podoconiosis - altogether. Analysis of the molecular mechanisms underlying the development of altered lymphatics will be performed, and techniques will be transferred to the African labs.

Projektbeteiligte

Prof. Dr. Achim Hörauf

Universitätsklinikum Bonn
Institut für Medizinische Mikrobiologie,
Immunologie und Parasitologie
Bonn

Dr. Kenneth Pfarr

Universitätsklinikum Bonn
Institute für Medizinische Mikrobiologie,
Immunologie und Parasitologie
Bonn

Dr. Sabine Specht

Universitätsklinikum Bonn
Institut für Medizinische Mikrobiologie,
Immunologie, Parasitologie
Bonn

Prof. Dr. Ohene Adjei

Kumasi Centre for Collaborative Research
in Tropical Medicine (KCCR)
School of Medical Science (SMS)
Kumasi
Ghana

Dr. Alexander Yaw Debrah

Kwame Nkrumah University of Science and
Technology
Faculty of Allied Health Sciences
Department of Medical Laboratory Technology
Kumasi
Ghana

Dr. Samuel Wanji

University of Buea
Department of Life Science
Buea
Kamerun (Cameroun)

Dr. Williams Makunde

National Institute for Medical Research
(NIMR)
Bombo Research Station
Tanga
Tansania (Tanzania)