

## **Modification of host pathogen interaction in *Mycobacterium ulcerans* disease (BU) through heat treatment: basic mechanisms and clinical applications**

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

Ausschreibung: Tropical Medicine 2004

Bewilligung: 26.11.2007

Laufzeit: 3 Jahre

In a 'proof of principle' study an innovative heat application system (phase change material [PCM]) to treat *Mycobacterium ulcerans* disease (Buruli ulcer [BU]) was successfully explored. It is easy to apply and to recharge in hot water, non-toxic, non-hazardous to the environment and cheap. This opens up a new era in the treatment of *Mycobacterium ulcerans* disease, in particular for communities with limited resources where the disease is most prevalent. Until today, treatment of BU is unsatisfactory with wide surgical excisions and skin grafting as the standard treatment over the past decades. Chemotherapy, has been repeatedly evaluated with varying results, but even if this treatment is successful, operational problems, community acceptability and potential resistance development, both, in *M. ulcerans* and in co-infecting *M. tuberculosis*, are foreseeable limitations. The current study will (1) determine the optimal heat dosing schemes for the full range of stages of BU, (2) establish the basic mechanisms relevant for the heat-induced alterations of the host-pathogen interactions, (3) prospectively evaluate a staging system for BU and (4) explore the community effectiveness of PCM - based heat treatment in a pilot study.

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