

Development of genetic markers for early detection and monitoring of ivermectin resistance in onchocerca volvulus and its implication for onchocerciasis control (Dr. Mike Y. Osei-Atweneboana)

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Continued success of onchocerciasis control and elimination programmes worldwide is largely dependent on the sustained efficacy of ivermectin (IVM), which remains the only drug available for the control of the disease. However, recent reports show sub-optimal responses to ivermectin treatment and evidence of genetic selection in *Onchocerca volvulus*, raising concerns about the possible emergence of IVM resistance. Since IVM resistance is suggested to be polygenic, genetic analysis will be carried out on another candidate gene, gamma amino butyric acid (GABA) receptor HG1, known to be involved in the mechanism of IVM resistance in veterinary parasitic nematodes. A one year epidemiological study involving skin microfilariae (mf) assessment and nodulectomies at day 90 after treatment and a parallel vector sampling will be carried out across wide geographical in Ghana. Using these samples, genotyping of the selected SNPs sites will be carried out and the best markers showing the highest consistent pattern of SNP-selection associated with poor IVM response phenotypes will be used to develop a small panel of markers as a diagnostic tool for early detection of IVM resistance and for monitoring and surveillance for IVM resistance.

Projektbeteiligte

Prof. Dr. Bernhard Fleischer

Bernhard-Nocht-Institut
für Tropenmedizin (BNITM)
Hamburg

Dr. Mike Yaw Osei-Atweneboana

Council for Scientific and
Industrial Research (CSIR)
Department of Environmental Biology and Health
Water Research Institute
Achimota, Accra
Ghana

