DRUG SUSCEPTIBILITY AND GENETIC EVALUATION OF *PLASMODIUM FALCIPARUM* ISOLATES OBTAINED IN FOUR DISTINCT GEOGRAPHICAL REGIONS OF KENYA

Mbaisi A, Liyala P, Eyase F, Achilla R, Akala H, Wangui J, Mwangi J, Osuna F, Alam U, Smoak BL, Davis JM, Kyle DE, Coldren R, Mason C and Waters NC

The drug resistance profiles of *Plasmodium falciparum* isolated from four regions in Kenya were analyzed for drug resistance profiles. We observed variability in resistance to a broad range of antimalarial drugs across Kenya as determined from in vitro drug susceptibility screening and genotyping analysis.

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EFFECT OF *LACTOBACILLUS* DNA EXTRACTS ON INDUCTION OF IMMUNITY TO BLOOD-STAGE MALARIA INFECTION IN MICE

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Bacterial DNA has been known to be an immunostimulatory agent to induce immunity against infectious diseases. This study aimed to evaluate the role of *Lactobacillus* DNA in induction of immunity against blood-stage malaria infection. Thirty-four *Lactobacillus* isolates, collected from fermented food and herbs, were extracted for DNA and tested *in vitro* for cell activation (CD69 expression and IL-12 production). The DNA extracts that gave the best responses were chosen for further studies on treatment of blood-stage *Plasmodium yoelii* infection and as adjuvant for MSP1 immuniztion against the infection. *Lactobacillus* DNA extracts No.24 and 28 were most potent in immune activation *in vitro*. For treatment of malaria infection, administration of the *Lactobacillus* DNA extracts suppressed parasitemia during the first week of *P. yoelii* infection, but could not save lives of infected mice. The parasitemia suppression was dependent on dose and route of the DNA injection, and on prechallenge duration time. For use as adjuvant in immunization, the *Lactobacillus* DNA extracts mixed with MSP1 in Montanide ISA720 enhanced immunity against *P. yoelii* infection. The MSP1-specific antibody levels increased in both IgG1 and IgG2a isotypes with the latter being much higher. These findings suggest the *Lactobacillus* DNA would have a potential for use in enhancing immune responses to malaria infection by direct administration soon befor or during early malaria infection of mixing with malaria vaccine antigens for immunization.

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