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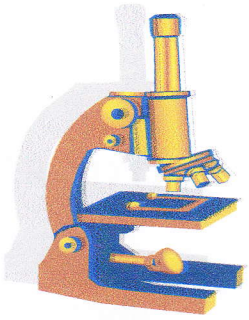
THE ROLE OF RECOMBINANT ADENOVIRUS TYPE 5 EXPRESSING IL-12 AND 4 AND TH_1 AND TH_2 IN LEISHMANIA MAJOR PROTECTION IN BALB/C MICE



RESEARCH CARRIED OUT AT KEMRI –~~ANIROBI~~ NAIROBI

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BIOTECH

A PR[illegible] TO THE KENYA POLYTECHNIC UNIVERSITY COLLEGE
[illegible]DARD IN PARTIAL FULFILLMENT FOR THE
[illegible]IGHER DIPLOMA IN BIOTECHNOLOGY.

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ABSTRACT

Experimental infection of the susceptible BALB/C (H-2) mouse with the intracellular parasite leishmania major induces a predominant Th_2 type T-cell response that eventually leads to death. In contrast, the resistant B10 D_2 (H-2) strain develops Th_1cells that control parasite replication and disease. In this study, we tested the ability of recombinant adenovirus vector expressing IL-12 to skiw the immune response in a Th_1 direction and prevent lesihamanisis in susceptible mice. The T cell type 1 (Th_1) response is essential to resist leishmaniasis whereas the Th_2 response in a Th_1 direction and prevent lesihamniasis in susceptible mice .the I helper cell type 1 (Th_1) response is essential to resist leishmaniasis whereas the Th_2 response favour the disease. Paradoxically, antigens associated with an early Th_2 response have been found to be highly protective if the Th_1 response to them is generated before infection. We report that BALB/C mice treated with the Ad511-12 vector on the same day as parasitic challenge are significantly protected against lesmaniasis and acquired long –lasting immunity, because upon re –challenge with L. major parasites they were resistance to disease. The vector derived IL-12 expression was transient and highly localized to the tissue after i.m injection; it caused an increase in the number of Ag-specific IFN-Y screening lymphocyte and enhanced NK cell activity in the draining popliteal node. In contrast resistant B10.D_2 mice given i.m injection with recombinant adenovirus –expressing IL-4 displayed greater susceptibility to disease ,and severe lesions were produced in some of the infected animals. These results suggests the potential use of recombinant adenoviruses Expressing cytokine as potent immunomodulatory agents for the generation of protective immune response against intracellular pathogen and also finding disease associated Th_2 antignes ad inducing a Th_1 immune response to them using defined vaccination protocols is an interesting unorthodox alterative approach to the discovery of a leismania vaccine.

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Why use unorthodox approach.

✗ Learning → Objective definition summaries
→ Method
→ Conclusion
→ Concentrated on background & results (which are not quantitative only spelt)