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**Evaluation of Urine Lipoarabinomannan Antigen Test in  
Diagnosis of *Mycobacterium Tuberculosis* Infections among HIV  
Infected Patients in Western Kenya**

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SM/PGI/01/07

A thesis submitted in partial fulfillment of the requirements for the degree of Master of  
Science (MSc) in the Department of Immunology of Moi University

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JUNE 2012



20095905



## **Abstract**

**Background** – The laboratory diagnosis of tuberculosis is hampered by low sensitivity of currently available microbiological tests as well as high costs and time-consuming nature of the more sensitive molecular-based tests. Difficulties in transferring bacilli into respiratory secretions in HIV-infected patients coupled with increased incidence of extrapulmonary disease also reduce the utility of sputum microscopy. More rapid, easy to use and cheaper diagnostic tools are therefore essential in improving treatment, reducing transmission rates, and particularly in controlling development of drug resistance.

**Objectives** – (1) To describe the immunological and clinical characteristics of HIV/TB co-infected adults in western Kenya. (2) To determine the sensitivity of a urine antigen test in the diagnosis of *Mycobacterium tuberculosis* in HIV infected adults in western Kenya. (3) To determine factors associated with the test's sensitivity

**Methods** – This cross-sectional study involved 88 HIV infected adults recruited from the AMPATH TB clinics between February and June 2011. Socio-demographic and clinical data as well as routine laboratory results were obtained from patient's electronic records. Participants were asked to provide a urine sample for TB ELISA. The sensitivity of the ELISA was then established using sputum smear positivity, clinical diagnosis and radiological tests as the reference. Logistic regression analysis was performed to estimate the independent influence of each predictor variable on the odds of a positive urine ELISA

**Results** – The mean age of the study sample was 37.9 years (SD 10.0) and 50% were female. Pulmonary TB was seen in 74.1% of the patients and the mean CD4 cell count was 176 cells/ $\mu$ l. Urine ELISA was positive in 31.8% of all the patients (20% among smear-positives and 46% among smear-negatives). Pulmonary infection, negative sputum smears and low CD4 counts were significantly associated with a positive test.

**Conclusion** – Sensitivity of the test is low but it has potential application in smear negative patients.