Diagnostics and biomarkers

**OC - (8244) - QUANTITATIVE LATERAL FLOW ASSAY FOR DETECTION OF M. LEPRAE INFECTION USING FINGERSTICK BLOOD**

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**Introduction**

Leprosy is a debilitating, infectious disease caused by *Mycobacterium leprae* causing skin and nerve damage often leading to lifelong handicaps. The unabated rate of new leprosy case detection indicates that transmission of *M. leprae* is persistent and that current measures for prevention and MDT are insufficient. Contact with *M. leprae* infected individuals is a risk factor for development of leprosy. Thus, detection of *M. leprae* infected individuals without clinical symptoms, allowing informed decision making on who needs treatment at a preclinical stage, is vital to interrupt transmission and can help prevent leprosy.

Immunoprophylaxis by vaccination or post-exposure prophylaxis (PEP) with antibiotics provide effective strategies for the prevention of leprosy. To target individuals unknowingly spreading leprosy bacilli, methods allowing objective measurement of *M. leprae* infection are needed. Besides antibody (Ab) levels that correspond with bacterial load and higher risk of progression to leprosy, detection of cytokine profiles can provide significant added value to identify infection.

**Methods**

Quantitative detection of anti-PGL-I IgM antibodies, and cytokines such as IP-10 was performed on lateral flow (LF) test strips utilizing the luminescent up-converting particle (UCP) technology. Precise amounts of fingerstick (FS)-blood samples were collected using disposable heparinized capillaries. Ab and cytokine levels in both FS-blood and serum from leprosy patients in South-Africa, Brazil, Bangladesh and The Netherlands and (their) contacts were measured using a portable reader.

**Results** Excellent correlation was demonstrated between data for anti-PGL-I IgM Ab and cytokines obtained with serum and FS blood from the same individuals.

**Conclusion** The quantitative UCP-LF test strips detecting anti-PGL-I IgM Ab and cytokines for the detection of *M. leprae* infection is compatible with fingerstick blood allowing near patient testing and immediate appropriate follow-up counselling.