

**[Using the AD12-ICT rapid-format test to detect Wuchereriabancrofti circulating antigens in comparison to Og4C3-ELISA and nucleopore membrane filtration and microscopy techniques.](#)**

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**Source**

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**Abstract**

Lymphatic filariasis (LF) continues to be a major source of permanent disability and an impediment to socio-economic development in 73 countries where more than 1 billion people are at risk and over 120 millions are infected. The global drive to eliminate LF necessitates an increasing demand for valid, reliable and rapid diagnostic tests. This study aimed to assess the performance of the AD12 rapid format immunochromatographic test (ICT) to detect *Wuchereriabancrofti* circulating antigens, against the combined gold standard: TropBio Og4C3-ELISA (enzyme-linked immunosorbent assay) which detects circulating filarial antigen (CFA) and the nucleopore membrane filtration and microscopic examination. This prospective case-control study involved 647 asymptomatic migrant workers from filariasis-endemic countries. Of these specimens, 32 were positive for microfilaremia using the membrane filtration and microscopy, 142 positive by ELISA (of which 32 had microfilaremia), and 128 positive by the ICT (of which 31 had microfilaremia). The performance of the ICT was calculated against 32 true-positive and 90 true-negative cases. For the detection of CFA, the ICT had a sensitivity of 97% (95% confidence interval [CI] 91-103), specificity 100% (95% CI 100-100), Positive Predictive Value (PPV) 100% (95% CI 100-100), Negative Predictive Value (NPV) 99% (95% CI 97-101); and the total accuracy of the test was 99% (95% CI 98-101). The agreement between ICT and ELISA in detecting *W. bancrofti* antigens was excellent ( $\kappa = 0.934$ ;  $p = 0.000$ ). In conclusion, the AD12-ICT test for the detection of *W. bancrofti*-CFA was sensitive and specific and comparable to the performance of ELISA. The ICT would be a useful additional test to facilitate the proposed strategies for control and elimination of LF. Because it is rapid, simple to perform, and does not require the use of special equipment, the ICT may be most appropriate in screening programs and in monitoring the possible risk of introducing the disease to the non-endemic countries.