

Headline **Cheap blood test developed**  
Date **01 Aug 2011**  
MediaTitle **The Star**  
Section **World**  
Journalist **N/A**  
Frequency **Daily**  
Circ / Read **304,904 / 1,026,812**

Language **English**  
Page No **39**  
Article Size **218 cm<sup>2</sup>**  
Color **Full Color**  
ADValue **8,158**  
PRValue **24,474**



# Cheap blood test developed

mChip can detect multiple infectious diseases with nearly 100% accuracy

**PARIS:** A cheap, highly portable blood test has proven as accurate as expensive hospital-based analyses in detecting HIV, syphilis and other infectious diseases, according to a study.

Researchers tested prototypes of the credit card-sized lab-on-a-chip with hundreds of patients in Rwanda, reporting nearly 100% accuracy.

The so-called "mChip", they said, could help knock down three barriers to effective delivery of healthcare into the world's poorest regions: difficult access, high costs and long delays for results.

"The idea is to make a large class of diagnostic tests accessible to patients in any setting in the world, rather than forcing them to go to a clinic to draw blood and then wait days for their results," said Samuel Sia, a professor at Columbia University and lead developer.

The findings were published in *Nature Medicine* yesterday.

With a projected production cost of US\$1 (RM3) per unit, the mChip would be far cheaper to administer than current lab-based tests.

Because it can scan for multiple proteins, each corresponding to a disease, at the same time with a single blood sample, it is probably even cheaper – and more accurate – than strips which work like store-bought pregnancy tests.

"Current rapid HIV tests require subjective interpretation of band intensity by the user that can result in false positives", that is, healthy individuals being misdiagnosed, the study noted.

The mChip, by contrast, allows for measurement using a handheld instrument no more complicated to use than a cellphone, according to the researchers.

Finally, the device produces results in minutes rather than days or weeks, a time-saving device that can make a big difference in treatment outcome.

The device contains a microchip housed inside an injection-moulded plastic casing, explained Vincent Linder, chief technological officer at Claros Diagnostics, which owns or has licensed relevant patents.

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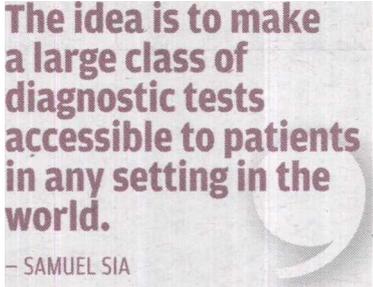
Unique disease “biomarkers” contained in a pin-prick blood sample bind to one of up to 10 individual detection zones.

A nano-scale gold “reagent” – which detects a substance via a chemical reaction – is injected, followed by a silver one that interacts with the gold to produce an ultra-

thin film.

“The darkness of the film is proportional to the concentration of biomarker in the sample,” said Linder, comparing the steps to the development process in non-digital photography.

The results are measured with a LED-based detector, or can be assessed by the naked eye. – AFP



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– SAMUEL SIA