

附件四、技術說明表



一步驟訊號放大之側向流裝置

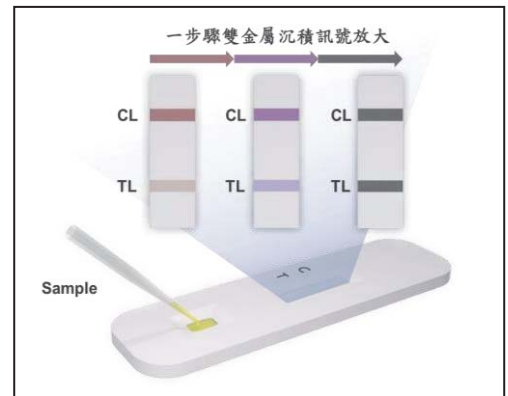
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簡歷： <https://sites.google.com/view/sensorslab>

市場及需求：

由於傳統的核酸檢測方法需要專業人員進行樣本採集且耗費較多的時間，短時間內無法識別感染者，需要發展快速且準確的診斷技術。然而，市售側向流體層析快檢試劑因檢測靈敏度不足容易產生偽陰性等問題，導致傳染病無法有效控制。



技術摘要(含成果)：

將奈米雙金屬沉積訊號放大技術結合側向流體層析裝置。預先將試劑乾燥於試紙並堆疊形成三維流道，利用液體自動產生時序性流動，使用者只需要一步驟操作即可完成核酸篩檢，同時亦將檢測結果訊號放大。本檢測裝置具有簡易操作、快速準確診斷、高靈敏度且檢測結果可視化等特性。預期該檢測裝置能有效提供醫療資源匱乏區域以及居家快速檢測，有效防止病原體傳播。

優勢：

(1) 利用多層紙堆疊形成三維流道，使液體自動產生時序性流動，使用者只需要一步驟操作即可完成檢測與放大檢測訊號；(2) 檢測結果於 25 分鐘內即可完成且無須專業的技術人員協助；(3) 相較於市售的新型冠狀病毒家用核酸檢測試劑，檢測靈敏度可以提升 100 倍；(4) 檢測結果具可視化之特性，無須額外設備輔助也不受使用環境限制；(5) 此裝置透過變更探針上之病原體序列即可應用於人類新型冠狀病毒、結核病以及其他傳染病及未來不可預期之新興傳染病等病原檢測。

競爭產品：

萊析樂家用新冠病毒核酸檢測組

羅氏家用新冠病毒抗原自我檢測套組

福爾威創家用新型冠狀病毒抗原快篩檢驗套組

專利現況：

本技術並無相關專利

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One-step infectious disease detection using a dual-signal enhanced nucleic acid lateral flow device based on bimetallic deposition

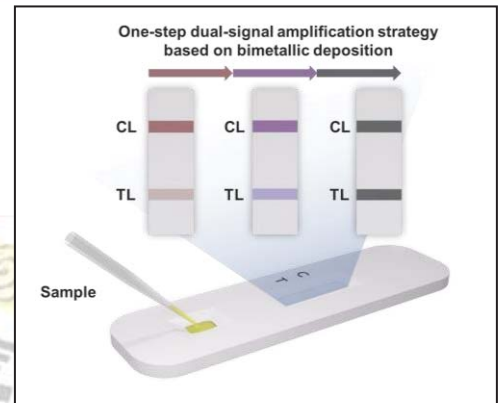
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Experience: <https://sites.google.com/view/sensorslab>

Market Needs:

Due to the traditional nucleic acid testing methods requiring professional personnel for sample collection and consuming more time, it is not possible to identify infections within a short period. Therefore, there is a need to develop rapid and accurate diagnostic techniques. However, commercially available lateral flow chromatography rapid test kits often suffer from insufficient detection sensitivity, leading to issues such as false negatives, making it difficult to effectively control infectious diseases.



Our Technology:

Integrating the signal amplification technique based on bimetallic deposition with nucleic acid lateral flow devices. Reagents are pre-dried on paper and stacked to form a three-dimensional flow channel. Sequential fluid flow is automatically generated, requiring users to perform only a one-step operation to complete nucleic acid screening. Simultaneously, the detection signals are amplified. This device features easy operation, rapid and accurate diagnosis, high sensitivity, and visualizable test results. In resource-limited areas, the device is expected to provide medical support and facilitate rapid home testing, preventing the spread of pathogens.

Strength:

(1) Utilizing multi-layered paper stacking to form a three-dimensional flow channel, enabling the automatic sequential flow of liquid. Users only need to perform a one-step operation to complete the detection and amplify the detection signal. (2) The detection results can be completed within 25 minutes without the need for assistance from professional technicians. (3) Compared to commercially available COVID-19 home nucleic acid test kits, the detection sensitivity can be increased by 100 times. (4) Detection results are visualized, reducing the need for additional equipment assistance and eliminating restrictions in the usage environment. (5) This device can be applied to the detection of various pathogens, including coronaviruses, tuberculosis, and multiple zoonotic infectious diseases, by simply changing the pathogen sequence of the specific probe.

Competing Products:

Lucira CHECK-IT COVID-19 Test Kit

SARS-CoV-2 Antigen Self Test Nasal

FORA / VTRUST COVID-19 ANTIGEN SELF TEST

Intellectual Properties:

There is no IP issue now.

Contact (do not need to fill out):

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