

# Hong Kong 企業家才 Entrepreneurs

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「發揮香港優勢 深化國際合作」  
高峰論壇

"Leveraging Hong Kong Advantages,  
Deepening International Cooperation" Forum

專訪謝展寰及孫玉菡

Interview with Tse Chin Wan and Chris Sun

掌握大灣區消費新生態

Mastering New Consumer Dynamics in the GBA

劉樂庭教授  
診斷技術創新的引領者

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香港中華廠商聯合會  
The Chinese Manufacturers'  
Association of Hong Kong



HKD40

劉樂庭教授

# 診斷技術創新的引領者

Professor Terence Lau

A Pioneer in Diagnostics Innovation

每當有傳染病入侵社會，醫療從業者必須與病毒展開賽跑；快速、精準的診斷不僅能為病人爭取治療的黃金時機，更有助防控，減低對社會的威脅。深耕生命健康科技研發逾 30 年的劉樂庭教授，帶領本地初創團隊成功開發創新醫療診斷技術，短短 90 分鐘就可以識別到 45 種病原體，將「香港創新」、「香港設計」以及「香港製造」轉化為守護生命的力量。

When viruses emerge, it is a race against time for healthcare professionals to combat them. Rapid and accurate diagnosis not only provides a critical window for patients to receive treatment but also plays a vital role in disease prevention and control, mitigating threats to public health. With more than 30 years of experience in life and health technology research and development (R&D), Professor Terence Lau has successfully led a local research team to develop innovative diagnostics technology that can detect 45 respiratory pathogens in around 90 minutes. His work is transforming the power of “Innovated, Designed, and Made in Hong Kong” into a life-saving force.

新發病毒診斷（香港）有限公司聯合創辦人及總裁劉樂庭教授畢業於香港大學動植物生物科技學系，曾先後到美國印第安納大學（布盧明頓）和史丹福大學醫學院深造，之後取得香港科技大學生物學碩士及北京大學生理學博士學位。劉教授曾於香港理工大學暫任協理副校長（創新及科技發展）與創新及科技發展總監，現時則是香港浸會大學（浸大）暫任首席創新總監。

劉教授曾領導多個本地大型生物科技研發項目，專門輔助傳染病診斷的新型診斷技術便是其中之一，「香港經歷過多次重大的傳染病疫情，1997 年爆發的 H5N1 禽流感，人類感染後死亡率高達 5 成；2003 年的沙士疫情奪去 299 條寶貴性命。這個慘痛教訓讓我認清一個事實——傳染病是對人類社會的最大威脅。」





## 受沙士啟示 銳意提升診斷技術

劉教授解釋指，疫苗、診斷及藥物研發是防範傳染病的關鍵，當中診斷是非常重要的、卻又最容易被忽略的一環；「傳統醫療診斷依據醫生的專業知識和臨床經驗，但面對較複雜疾病、或出現新型傳染病，醫生往往需要專業診斷儀器和工具輔助，為病人進行快速、準確的診斷，才能對症下藥，挽救病人生命的同时，控制疫情擴散，減低死亡數字。」

作為生命健康科技領域的研究者，劉教授和香港一眾微生物學及傳染病學專家，包括霍文遜教授、劉耀南教授及袁國勇教授，固然明白未雨綢繆的重要性，然而即使經歷了多場傳染病疫情，放眼全球市場，仍然缺乏全面、快速、操作簡單且低成本的診斷系統，成為其中一個嚴重危害全球人類性命的診斷缺口。

因此，劉教授於2016年與霍文遜教授和劉耀南教授等志同道合的資深醫生、科學家和工程師團隊，成立了新發病毒診斷（香港）有限公司（EVDL），並與袁國勇教授合作，主要研發創新診斷解決方案，希望減低傳染病對人類的威脅。「此外，細菌出現抗生素抗藥性問題日益嚴重，加上超級細菌及多重感染危機逼在眉睫，研發創新診斷技術也有助醫生更準確、恰當地運用抗生素。」



鎧耀診斷系統能夠同時檢測 45 種呼吸道病原體，大約 1.5 小時就能提供檢測結果

AAMST is capable of simultaneously detecting 45 respiratory pathogens, delivering test results in approximately 1.5 hours

## 以香港創新 填補診斷缺口

EVDL 花了 4 年時間，先後製作了十多部原型檢測儀器，然後在創新科技署創新及科技基金「公營機構試用計劃」的支持下，在衛生署衛生防護中心及 2 間公立醫院進行嚴格的臨床評估。最終，這款「鎧耀全自動即時多重診斷系統」歷時 8 年成功推出市場，「這個系統採用了精密的微流體分子診斷技術，以全自動的方式進行聚合酶鏈反應程序（即核酸檢測），能夠同時檢測 45 種呼吸道病原體，包括新型冠狀病毒等 27 種病毒、15 種細菌及 3 種真菌。對比傳統的種菌化驗需時數天，這個系統只需 1.5 小時就能提供檢測結果。」

這個系統是目前市場上能夠檢測最多病原體的檢測儀器，已獲得醫院管理局的認同，成為其註冊供應商，並已經陸續應用於公立醫院、私家醫院及診所等多個應用場景，以滿足本港市民的醫療需求。此外，為應對未來可能出現的疫情，國內的疾病預防控制中心亦已引入此系統，以進行實時監測。由於系統檢測效率高且成本低，它還獲得了世界衛生組織《2024 年資源匱乏環境中創新衛生技術簡編》的推薦，成為唯一上榜的中國研發成果。



## 從技術到量產 打造本地分子試劑生產基地

回顧整個研發到量產的歷程，劉教授認為，技術突破只是第一步，如何在香港將分析儀和試劑盒量產才是真正的考驗；「一來是，診斷行業涉及液體、光、生物化學等多個跨學科領域，這為本地廠商帶來了一定的挑戰。二來，香港的工業用地有限，而試劑盒需要在醫療級無污染環境中生產，這使得尋找合適的廠房變得更加困難。」最終，在科技園公司協助下，劉教授的團隊在2022年進駐位於大埔創新園的醫療用品製造中心，短短4個月，他們便成功建立少數的本地分子試劑生產基地，並取得ISO13485:2016認證，符合國際醫療器械質量管理標準。

除了專注於本地市場，EVDL也積極開拓內地及海外市場，發掘新機遇；於疫情期間，EVDL在深圳坪山區設立轉化及生產基地。目前，EVDL正在積極申請「港澳藥械通」，希望能進一步將產品推向大灣區市場，以滿足日益增長的醫療診斷需求。

劉教授帶領團隊積極開拓海外市場，遠赴新加坡「Medical Fair Asia 2024」、德國「Medica 2024」和杜拜「Medlab Middle East 2025」等地參加著名醫療器材展覽，希望可提高國際市場對本港創新診斷產品的認識和了解，並尋找潛在合作夥伴。

## 持續尋求突破 培育新質生產力

雖然劉教授的研發成果已取得耀眼的成就，但他並不滿足於此；在創新科技署「產學研1+計劃」的支持下，劉教授的團隊正著手開發更輕巧、成本更低、檢測速度更快的便攜式診斷儀器。而試劑盒方面，他們所研發的平台技術除了可助診斷傳染病，未來將發展至其他醫療和非醫療應用，例如：敗血病、早期癌症篩查、畜牧業、食品安全等的商業化應用。

當前香港正積極推動新型工業化發展，以形成新質生產力。擁有科學家和創業家雙重身份的劉教授認為，現在是香港科研發展的黃金時期；「過去幾十年，香港人習慣了『吃快餐』，大多選擇投資回報快、低風險的傳統產業，而創新科技往往因為高風險、回報期長、成功率低，難以得到金融機構和投資者支持。隨着近年政府對創科的支援、耐心資本的投入不斷增加，有助科技企業的成長。」

劉教授認為，發展新質生產力並非很「高大上」的東西，反而是貼地的；透過持續改良、優化產品和技術，便能賦予更高價值給用家。他寄語初創企業家，即使過程中遇到很多挑戰，但只要能不懈地朝着技術增值的方向進發，定能讓「香港創新」、「香港設計」以及「香港製造」走上更大的舞台。🇭🇰



2022年，EVDL進駐大埔創新園的醫療用品製造中心，興建無塵車間及設施進行生產  
In 2022, EVDL moved into the MARS Centre at Tai Po InnoPark, establishing cleanroom production facilities

Professor Lau, co-founder and president of Emerging Viral Diagnostics (HK) Limited, graduated from the University of Hong Kong with a bachelor of science (honours) in animal and plant biotechnology. He also received training in the United States at Indiana University (Bloomington) and Stanford University's School of Medicine. Later, he earned a master of philosophy in biology from the Hong Kong University of Science and Technology and a PhD degree in physiology from Peking University. Professor Lau has previously served as interim associate vice president (Innovation and Technology Development) at Hong Kong Polytechnic University and is currently the interim chief innovation officer at Hong Kong Baptist University.

Professor Lau has led various biotechnology research projects in Hong Kong, including the development of novel diagnostic technologies designed to support the detection of infectious diseases. As Professor Lau explained, "Hong Kong has experienced multiple disease outbreaks. The H5N1 bird flu outbreak in 1997 had a mortality rate of over 50%, and the SARS outbreak in 2003 claimed 299 lives in Hong Kong. These painful experiences have made one thing very clear to me: Infectious diseases are among the greatest threats to human society."

### Inspired by SARS: A commitment to advancing diagnostics

Professor Lau pointed out that the development of vaccines, diagnostics, and therapeutics forms the cornerstone of infectious disease prevention, with diagnostics being very critical yet often overlooked tool. He also emphasised the need for innovative diagnostic technology: Traditional medical diagnostics based on doctors' clinical expertise and experience, but when facing complex diseases or emerging infectious agents, doctors often require advanced diagnostic instruments to provide rapid and accurate diagnoses. Only with such tools can they deliver targeted treatments, save lives, contain outbreaks, and reduce mortality rates.

劉教授希望 EVDL 能將香港創新的醫療解決方案，走進海內外市場  
Professor Lau hopes that EVDL can bring Hong Kong's innovative medical solutions to both domestic and international markets

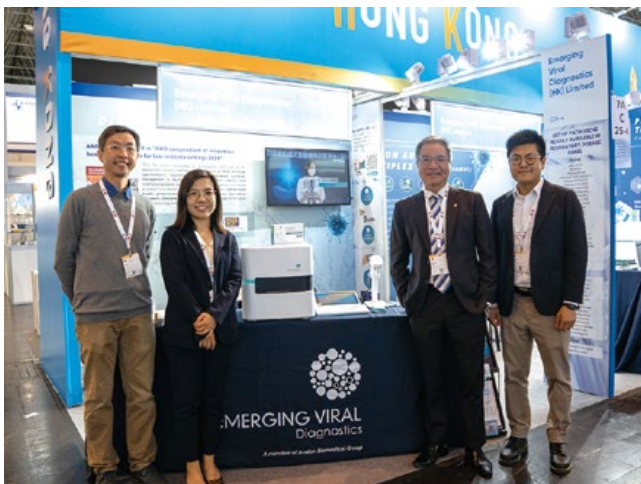


As a researcher in the field of life and health technology, Professor Lau- along with a group of Hong Kong's leading experts in microbiology and infectious diseases, including Professor Manson Fok, Professor Johnson Lau and Professor Yuen Kwok Yung- recognises the importance of preparedness. Despite having experienced multiple infectious disease outbreaks, the global healthcare market still lacks a comprehensive, rapid, easy-to-use, and cost-effective diagnostic system. This critical gap continues to allow a significant global threat to human life to persist.



2024 年，EVDL 推出的鎧耀診斷系統勇奪香港 2023-24 香港工商業獎：設備及機械設計大獎

In 2024, EVDL's Avalon Automated Multiplex System (AAMST) won the Equipment and Machinery Design Award in the 2023-24 Hong Kong Awards for Industries



2024 年，劉教授帶領團隊遠赴德國杜塞道夫參加「Medica 2024」

In 2024, Professor Lau led his team to Düsseldorf, Germany, to participate in Medica 2024

To address this urgent need, Professor Lau co-founded Emerging Viral Diagnostics (EVDL) in 2016 with a group of like-minded physicians, scientists, and engineers, including Professor Manson Fok and Professor Johnson Lau. Collaborating with Professor Yuen Kwok Yung, EVDL is dedicated to developing innovative diagnostic solutions to combat the threat of infectious diseases. Discussing the benefits of such solutions, Professor Lau said, "The rising crisis of antimicrobial resistance and the looming threat of superbugs and co-infection further highlight the necessity of advanced diagnostic technologies. These innovations can empower clinicians in prescribing antibiotics with greater precision and efficacy."

### Bridging the diagnostic gap through innovation in Hong Kong

EVDL spent four years developing numerous prototype diagnostic instruments. With support from the Innovation and Technology Commission, EVDL participated in the Public Sector Trial Scheme of the Innovation and Technology Fund. Clinical evaluations of the instruments were carried out at the Centre for Health Protection and two public hospitals. After eight years of development, the Avalon Automated Multiplex System (AAMST) was successfully launched in the market. According to Professor Lau, "This system employs advanced microfluidic and molecular diagnostic technologies to simultaneously detect 45 respiratory pathogens through a fully automated polymerase chain reaction (PCR) procedure. The panel includes 27 viruses such as COVID-19, 15 types of bacteria, and three types of fungi. Compared to culture-based clinical laboratory tests, which may take several days, this system can deliver results in just 1.5 hours."



The AAMST represents the most comprehensive diagnostic instrument currently available in the global market in terms of pathogen coverage. Recognised by the Hospital Authority and listed as a registered supplier of diagnostic system, the system is now being deployed across various healthcare settings in Hong Kong, including public hospitals, private hospitals, and clinics, to address local residents' healthcare demands. In addition, in order to respond to potential future epidemics, the Chinese Center for Disease Control and Prevention has also introduced this system for real-time active disease surveillance. Recognising the system's exceptional diagnostic efficiency and low cost, the World Health Organization recommended it in the 2024 Compendium of Innovative Health Technologies for Low-Resource Settings. Notably, the AAMST stands as the only China-developed technology featured on the list.

### From technology to mass production: Building a local molecular reagent manufacturing hub

Reflecting on the journey from R&D to mass production, Professor Lau noted that technological breakthroughs are only the first step. The most critical challenge lies in scaling up the production of analytic machines and microfluidic cartridges in Hong Kong. Breaking down these challenges,



鎧耀診斷系統得到世界衛生組織的推薦為創新衛生技術，在資源貧乏的地區中具備一定的應用潛力

AAMST was recommended by the World Health Organization as an innovative health technology with the potential to contribute to health systems in low- and middle-income countries



EVDL 亦在深圳坪山區設立轉化及生產基地，廠房規模比香港的大 3 倍

EVDL established a translational and manufacturing base in Pingshan District, Shenzhen, with a facility three times larger than its Hong Kong production base

Professor Lau said, "First, the diagnostics industry involves multiple fields such as fluidics, optics, and biochemistry which brings challenges to local manufacturers. Second, Hong Kong's limited industrial land and strict requirements for medical-grade cleanroom environments for cartridge production make it more difficult to find suitable production facilities."

With support from the Hong Kong Science and Technology Parks Corporation, Professor Lau's team established a production base at the MARS Centre in Tai Po InnoPark in 2022. Within just four months, they successfully built one of Hong Kong's few local molecular reagent manufacturing facilities and obtained ISO 13485:2016 certification, meeting international medical device quality management standards.

In addition to focusing on the local market, EVDL is actively expanding into the Mainland and overseas markets to explore new opportunities. During the pandemic, EVDL established a translational and manufacturing base in Pingshan District, Shenzhen. In view of increased demand for diagnostics services in the Mainland, EVDL is currently penetrating into this huge potential market through "Measure of using HK registered drugs and medical devices used in HK public hospitals in Guangdong-Hong Kong-Macao Greater Bay Area".



Professor Lau and his team are actively expanding into overseas markets through participation in leading international medical exhibitions, including Medical Fair Asia 2024 in Singapore, Medica 2024 in Germany, and Medlab Middle East 2025 in Dubai. Their goals were to raise global awareness of Hong Kong's innovative diagnostic technologies and to cultivate potential partnerships.

### Pursuing continuous breakthroughs and cultivating new quality productive forces

Although Professor Lau's research achievements have already earned significant recognition, he remains driven to pursue further innovation. Supported by the Research, Academic, and Industry Sectors One-plus Scheme (RAISe+) of The Innovation and Technology Commission, his team is currently developing a more compact, cost-effective, and faster portable diagnostic device.

Beyond infectious disease diagnosis, the platform technology will be expanded to other medical and commercial applications, including sepsis detection, early cancer screening, livestock industry and food safety.

At a time when Hong Kong is actively promoting industrialisation to foster new quality productive forces, Professor Lau, as a scientist and entrepreneur, believes that the city is entering a golden era for scientific research and innovation. "For decades, Hong Kong has been accustomed to 'fast food economics', favouring traditional industries with quick returns and low risk. Innovation and technology, by contrast, often face challenges securing support due to their high risk, long development cycles, and lower success rates. Yet with enhanced government support and the emergence of patient capital in recent years, the environment is becoming increasingly conducive to the growth of technology enterprises."

Professor Lau believes that developing new quality productive forces is not some lofty concept but is grounded in reality. Through continuous improvement and optimisation of products and technologies, higher value can be delivered to end users. His message to young entrepreneurs is clear: While the journey may be challenging, those who persist in advancing technological innovation will ultimately elevate the reputation of "Innovated, Designed, and Made in Hong Kong" on the global stage. (完)



創新科技及工業局局長孫東教授讚揚 EVDL 是產學研高效協作，實現香港創科高質量發展的成功例子  
Professor Sun Dong, Secretary for Innovation, Technology and Industry, commended EVDL as a shining example of Hong Kong's excellence in innovation and technology, demonstrating the success of productive industry-academia-research partnerships