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Professor Kwok-Yung Yuen and his laboratory discovered and characterised many important novel emerging viruses that affect humans and animals. He was the first to report on the unusual severity of influenza A(H5N1)/1997. He found that the structural protein of the viral nucleoprotein can be an antiviral target.

During the 2003 severe acute respiratory syndrome (SARS) outbreak, Professor Yuen and his team discovered the human SARS coronavirus. During the pursuit for the natural animal reservoir for SARS coronavirus, Professor Yuen was the first to discover the bat SARS related coronavirus in Chinese horseshoe bats in 2005. Realising that emerging infections will be increasingly important with the rising global population, and therefore the encroachment of human habitat with that of wild animals could lead to intrusion of animal viruses into the human population, Professor Yuen conducted an intensive search that resulted in the discovery and characterisation of more than 80 new viruses or novel genotypes from domestic and wild animals. Of the 30 coronaviruses in this list, the bat coronavirus HKU4 and HKU5 found in 2007 are close relatives of the 2012 Middle East respiratory syndrome coronavirus (MERS-CoV). The porcine coronavirus HKU15 found in 2012 is related to the 2022 porcine deltacoronavirus which jumped into human. The bat SARS-related coronavirus found in 2005 is closely related to the 2019 pandemic SARS-CoV-2. The human coronavirus HKU1 which causes seasonal common cold and chest infections. Professor Yuen is the first to report on the person-to-person transmission of SARS-CoV-2 in a Shenzhen family cluster in 2020.

In addition, Professor Yuen also found that the rattus Hepatitis E virus species C can jump into human and cause clinical disease. He has also discovered over 20 novel bacterial, fungal and parasitic species. Besides setting up diagnostic tests for hunting novel viruses or managing patients, Professor Yuen has identified viral pathogenic mechanisms which can be translated into novel host targets for broad spectrum antivirals.

Professor Yuen's laboratory is dedicated to the control of emerging infectious diseases.

袁國勇教授的實驗室發現並鑑定了許多影響人類和動物的重要新型病毒。他發現 A(H5N1)/1997 禽流感能導致嚴重疾病。此外，他還發現流感病毒的結構性核蛋白可以作為抗病毒靶點。

在 2003 年，嚴重急性呼吸系統綜合症（SARS）爆發期間，袁國勇教授和他的團隊發現了人類 SARS 冠狀病毒。在尋找 SARS 冠狀病毒的天然動物宿主的過程中，袁教授於 2005 年在中國馬蹄蝠中首次發現了與蝙蝠 SARS 相關的冠狀病毒，隨後還發現了許多其他利用蝙蝠作為天然宿主的新型病毒。袁教授意識到，隨著全球人口的不斷增加，人類入侵野生動物的棲息地越來越嚴重，可導致動物病毒侵入人類的新發傳染病將越來越多。因此，袁教授進行了深入的研究，結果發現 80 多種新病毒或新基因型來自家養和野生動物，包括 30 多種冠狀病毒，在 2007 年發現的蝙蝠冠狀病毒 HKU4 和 HKU5 是 2012 年中東呼吸綜合症冠狀病毒 (MERS-CoV) 的近親；2012 年發現的豬冠狀病毒 HKU15 與 2022 年跳入人類的豬 δ 冠狀病毒有關；2005 年發現的蝙蝠 SARS 相關冠狀

病毒與 2019 年大流行的 SARS-CoV-2 也有密切關係；人類冠狀病毒 HKU1 會引起類似普通感冒和肺感染等。袁國勇教授在 2020 年首先發現了新冠肺炎的家庭群，證明新冠病毒可以在人與人之間傳播。

此外，袁教授還發現鼠丙型肝炎病毒可跳入人類，並引起臨床疾病。他亦發現了 20 多種新型細菌、真菌和寄生蟲。除了建立用於尋找新病毒和或臨床使用的診斷測試之外，袁教授還發現很多病毒致病機制，這些機制可以轉化為廣譜抗病毒藥物的新宿主靶點。袁國勇教授的實驗室致力於控制新發傳染病。