## Researchers Report Covid-19 Reinfection in Hong Kong

## 研究員報告香港出現重複感染的新冠肺炎

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Aug. 24, 2020 3:00 pm ET

| English | 繁體中文 |
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| *A 33-year-old man who recovered from the new coronavirus had an asymptomatic recurrence months later.* | 一名 33 歲男子從新冠狀病毒中康復過來，卻在幾個月之後在無症狀下復發。 |
| HONG KONG—A team of researchers has documented a case of Covid-19 reinfection, offering evidence that patients who have recovered from the viral disease could be infected a second time, months after the initial episode. | 香港 - 一組研究人員記錄了一宗新冠肺炎(Covid-19)再感染的情況，提供的證據顯示從這病毒性疾病中康復的患者可以在初次發病數月後再次感染。 |
| In a paper accepted on Monday by the Clinical Infectious Diseases journal, scientists from the University of Hong Kong reported the case of a 33-year-old man who had an asymptomatic Covid-19 episode 4½ months after a symptomatic infection. | 《臨床傳染疾病》雜誌在周一接受的一篇論文，香港大學的科學家報導了一宗 33 歲男子病例。該病人在出現帶症狀感染 4 個半月之後，被再次檢測到無症狀新冠肺炎(Covid-19)個案。 |
| The findings, based on a single patient, would if replicated bolster the theory that immunity to SARS-CoV-2, the virus that causes Covid-19, could last only a few months, similar to coronaviruses that cause the common cold. | 這是根據單一患者的發現，但如果再次發生，就會支持這樣的理論 - 即是新型冠狀病毒（SARS-CoV-2）(引起新冠肺炎(Covid-19)的病毒) 所產生的免疫力可能只會維持幾個月，類似引起感冒的冠狀病毒。 |
| That would have implications for recommended precautions for recovered patients and for cycles of vaccinations once they become available. The case report also | 對於已康復患者預防措施的建議以及日後疫苗的接種週期將會產生影響。專家解說，該案例報告還強調了需要廣泛快速檢測和隔離的案例之重要性。 |

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| highlights the importance of widespread rapid testing and isolation of cases, experts said. | |
| The paper didn't specify whether the patient was infectious the second time around, but infectious-disease researchers and virologists have said for months that social distancing, good personal hygiene and masking would continue to be important for stemming the spread of the virus until more is known about how long immunity lasts, whether from natural infection or vaccination. | 該論文沒有具體說明患者第二次感染後是否具有傳染性，但傳染病研究人員和病毒學家已經說了好幾個月，社交距離、良好的個人衛生習慣和配戴口罩都一直對於遏制病毒傳播很重要，直至免疫力(不論是經自然感染還是疫苗)可維持多久這個謎能解開。 |
| While suspected reinfections have been reported anecdotally, it wasn't clear whether patients had been reinfected or were merely displaying residual effects from the same infections. The paper is the first to report a confirmed reinfection, based on scientific evidence including genetic sequencing and clinical data. | 儘管已經有道聽途說謂疑似可以再感染的報導，但尚未清楚患者是否再次感染，抑或僅顯示同一次感染的殘留作用。該論文是首份用包括基因排序與臨床數據在內的科學證據，以確診為再感染的報告。 |
| Scientists said the findings suggest that SARS-CoV-2, similar to human coronaviruses associated with the common cold, such as 229E and NL63, may persist in the population because immunity may be short-lived and different people are going through infection cycles at different times. | 科學家都認為，研究結果顯示，新型冠狀病毒(SARS-CoV-2) 與人類普通感冒型相關的冠狀病毒類似，就如 229E 和 NL63，並可能會在人類中持續存在，因為免疫力可能是短暫性，而不同的人會在不同時間經歷不同的感染週期。 |
| In some cases, vaccines can produce stronger immune responses than natural infections, infectious-disease experts said. | 傳染病專家說，在某些情況下，疫苗可以產生比自然感染更強的免疫反應。 |
| It is possible a second round of natural infection could be milder than the first due | 作者在研究報告中提到，由於有殘留免疫力的關係，第二次自然感染可能會比第一次溫和。該論文稱，報告中的患者在第一 |

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| to some residual immunity, the authors wrote in the study. During the first episode, the patient in the report experienced a cough, fever, sore throat and a headache for three days, according to the paper. During the second, he was asymptomatic. | 次感染期間經歷了三天的咳嗽、發燒、喉嚨痛和頭痛。而在第二次中，卻沒有出現症狀。 |
| Using next-generation sequencing, the scientists determined that the virus involved in the first infection was most closely related to strains from the U.S. or England collected in March and April, while the second was most closely related to strains from Switzerland and England collected in July and August. | 利用下一代排序技術，科學家們確定，第一次感染所涉及的病毒與在美國或英國於三月和四月時所收集到的菌株有最密切關連，而第二次感染則與在瑞士和英國於七月和八月時所收集到的菌株有最密切關連。 |
| The man, who had “good past health,” returned to Hong Kong on Aug. 15 from Spain via the U.K. and tested positive for the new coronavirus when he arrived at the airport. Hong Kong screens passengers upon entry at its borders. | 該名男子“過去健康狀況良好”，於八月十五日從西班牙經英國返抵香港，並在抵達機場時對新冠狀病毒檢測呈現陽性。香港為入境旅客進行邊境檢測。 |
| It was unclear if the patient developed long-lasting antibodies following the first infection, according to the paper. Tests showed he didn’t have immunoglobulin G, a type of antibody, until five days after he was hospitalized for his second infection, the paper detailed. Hong Kong hospitalizes confirmed Covid-19 patients even if they are asymptomatic or displaying only mild symptoms. | 據報告，尚未清楚患者在首次感染後是否會產生持久的抗體。報告詳述，從檢測顯示患者直到第二次感染住院後第五天才驗出有抗體 -- 免疫球蛋白 G。即使確診的新冠肺炎(Covid-19) 患者沒有症狀或僅表現出輕微症狀，香港也會將他送院治療。 |
| One possible explanation was that he didn’t mount an antibody response after the first infection, though the scientists said they couldn’t confirm this because they only had | 一個可能的解釋是，他在第一次感染後並未產生抗體反應；而科學家表示他們無法證實這一點，因為他們只是在第一次發作的症狀出現後 10 天才收集了血清。他們說，另一種可能是他在第一次感染後確實 |

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| archived serum collected 10 days after the onset of symptoms for the first episode. Another possibility, they said, was that he did mount an antibody response after the first infection, but the level of antibodies had decreased below the detection limits. | 引發了抗體反應,但抗體水平之後下降至檢測限之下，測試結果是沒有抗體。 |
| “One patient becoming reinfected does not mean that reinfection is going to occur across the board,” said Angela Rasmussen, a virologist at Columbia University’s Center for Infection and Immunity, who wasn’t involved in the study. | 哥倫比亞大學感染與免疫中心的病毒學家 Angela Rasmussen 稱：“一名患者再次感染並不意味著所有患者會全部再感染。”她並未有參與這次研究。 |
| “If the patient was totally seronegative, and had no SARS-CoV-2 antibodies at all, that suggests they didn’t mount a robust immune response, since we know from many sero-surveys that most people do develop some detectable antibodies after infection,” Dr. Rasmussen said. | “如果患者血清完全是陰性的，並且完全沒有新型冠狀病毒(SARS-CoV-2)抗體，則表明它們沒有強大的免疫反應,因為我們從許多血清學調查中知道,大多數人感染後確實會產生一些可檢測出來的抗體 ” Rasmussen 博士說。 |
| Most Covid-19 patients do seem to develop antibody responses, she said, “and therefore would be less likely to have major implications across the board for long-term immunity and vaccination.” | 大多數新冠肺炎(Covid-19)患者確實會產生抗體反應，她說，“因此，不太可能對長期的免疫和疫苗接種產生全面的嚴重影響。” |
| More studies suggest many patients produce antibodies to fight the virus after infection. One preliminary study of nearly 20,000 people in New York with suspected or confirmed Covid-19 found most had moderate or high levels of antibodies. Most patients in the study weren’t hospitalized and were mildly or moderately ill. | 更多研究提出,許多患者在感染後會產生抵抗病毒的抗體。一項初步研究發現,紐約近 20,000 名疑似或證實患有新冠肺炎(Covid-19)的人，發現大多數的抗體水平屬中度或高。研究中的患者患有輕度或中度病狀，大多數都沒有住院。 |
| A preliminary study by researchers at the | 華盛頓大學與 Fred Hutchinson 癌症研究中心的研究人員的一項初步研究發現,在遊輪上爆發期間,其中三名船員帶有從自身免疫製造的中和抗體（可防止病毒進 |

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| University of Washington and the Fred Hutchinson Cancer Research Center found that three crew members with neutralizing antibodies—those that prevent viruses from entering cells—were protected from infection during an outbreak on a boat, suggesting recovered patients do have some level of protection from previous infection.<br><br>Complicating the interpretation of the case study's findings: Antibodies aren't the only molecular defenses against pathogens. T-cells, which recognize and eliminate infected cells, are also involved. The paper didn't document whether the patient had T-cells that could attack SARS-CoV-2.<br><br>Data doesn't yet exist on whether antibodies or T-cells will be more important for long-term protection against Covid-19, experts said. In a study published in the journal Nature in mid-July, researchers found that patients who recovered from SARS and Covid-19 had T-cells that could recognize a SARS-CoV-2 protein. Another Nature study from July also found T-cells that could recognize a SARS-CoV-2 protein in one-third of healthy patients surveyed, suggesting exposure to other related viruses might confer some protection and could account for milder disease.<br><br>"It's not always clear whether T-cells have the capacity to prevent infection, whereas it's very clear that they have the capacity to limit the severity of infection," said Joshua T. Schiffer, associate professor at the Fred Hutchinson Cancer Research Center's | 入細胞)，在船上爆發瘟疫時受到保護而沒有受感染;這表明康復的患者確實擁有前度感染所賦予一定程度的保護。<br><br>令該案例研究結果的解釋複雜化:抗體並不是針對病原體的唯一防禦,還有識別和消除感染細胞的 T 細胞。<br>該論文沒有記錄患者是否具有可攻擊新型冠狀病毒(SARS-CoV-2)的 T 細胞。<br><br>專家謂，對於長期預防新冠肺炎(Covid-19)，至今仍未有數據說明抗體抑或 T 細胞更為重要。在七月中旬發表在《自然》雜誌上的一項研究中,研究人員發現，從嚴重急性呼吸道綜合症(SARS)與新冠肺炎(Covid-19)中康復的患者俱有可以識別新型冠狀病毒(SARS-CoV-2)蛋白的 T 細胞。《自然》雜誌七月號另一項研究還發現,在接受調查的健康患者中,有三分之一的 T 細胞可以識別新型冠狀病毒(SARS-CoV-2)蛋白，這顯示接觸其他相關病毒可能會賦予一定的保護作用,並可以是出現病況較輕的解說。<br><br>Fred Hutchinson 癌症研究中心疫苗與傳染病科副教授 Joshua T. Schiffer 說:"目前尚未清楚 T 細胞是否具有預防感染的能力,不過,它們顯然具有能力可限制感染發展的程度"。他稱，尚未清楚當一個人具有強力 T 細胞反應但抗體很少或沒有的時候,是否仍能散發病毒並傳播疾病。 |

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| vaccine and infectious disease division. It is unknown whether a person with a robust T-cell response but few or no antibodies can still shed virus and spread disease, he said.<br><br>For antibodies, the connection is much more clear: “A robust antibody response,” he added, “can prevent infection.”<br><br>Studies like the new reinfection study are easier to do in Hong Kong than in the U.S. because of sample archiving in a central location, rapid screening at the border and isolating cases, said Peter Chin-Hong, an infectious-disease specialist at the University of California, San Francisco, who wasn’t involved in the study. Hong Kong has confirmed 4,692 Covid-19 cases since January in a population of 7.5 million people. He said the archiving made it easier for the researchers to study the particular patient and his viral exposures across time.<br><br>“This paper doesn’t answer the question of how long would [immunity] last if you had a more robust antibody response,” he said. Still, “this is probably not the first case they’re going to find. This is only the beginning.” | 對於抗體，這種聯繫更加清楚，他補充說：“強力抗體反應可以預防感染。”<br><br>舊金山加州大學傳染病專家陳子平醫生稱，像再度感染這樣的研究，在香港比在美國較容易進行，因為有一個中心的位置將所有樣品集中研究，並可以在入境與隔離的個案做快速篩查。他未有參與這次研究項目。香港總人口 750 萬人，自一月以來，已確診了 4,692 宗新冠肺炎(Covid-19)病例。他說，中心的存檔使研究員更容易研究特選的患者及其長期病毒感染的情況。<br><br>他說：“這報告沒有解答一個問題，就是如果抗體的反應更強，[免疫力]是否可以持續更長時間。”不過，“這可能不是他們能找到的唯一案例。這僅僅是個開始。” |

https://www.wsj.com/articles/researchers-report-covid-19-reinfection-in-hong-kong-11598295631