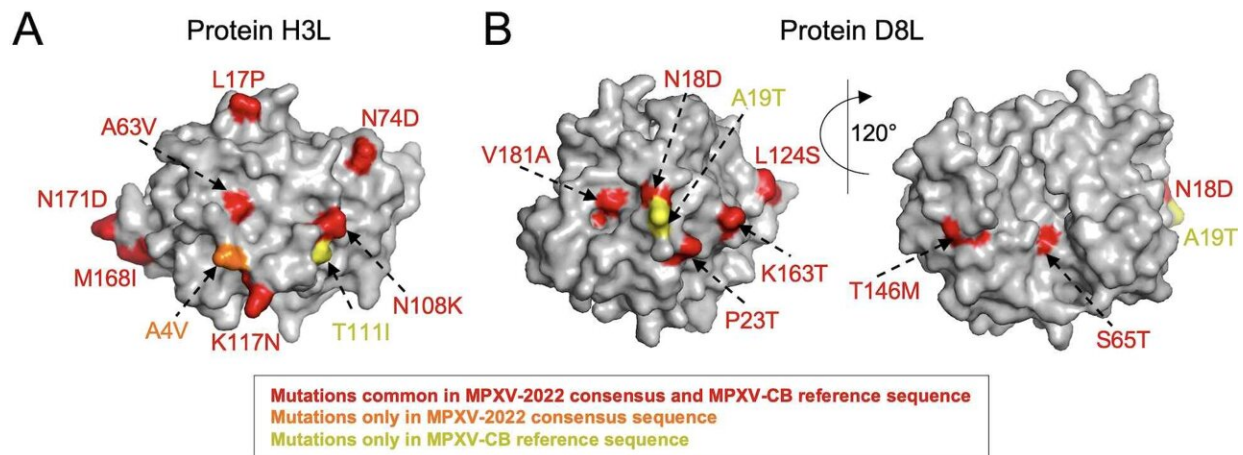


Vaccine expected to induce strong immune responses against 2022 monkeypox virus, research shows

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The figure shows that, for two example proteins that are targeted by VACV-vaccine-induced antibodies, the 2022 monkeypox virus (MPXV-2022) does not comprise any new mutations relative to the previously observed monkeypox virus (MPXV-CB). Credit: HKUST & UoM

New research has suggested that recommended vaccinia virus (VACV)-based vaccines will mount a robust immune response against the monkeypox virus observed in the current outbreak (MPXV-2022).

Since the [new virus](#) was first observed in early May 2022, over 52,000

cases have been confirmed in more than 90 countries and regions, including Hong Kong, as the city recorded the first imported case on Monday.

The study, co-led by Prof. Matthew McKay from the University of Melbourne and Prof. Ahmed Abdul Quadeer, Research Assistant Professor at the Hong Kong University of Science and Technology (HKUST), was published in the international journal *Viruses*.

Weeks after the new strain emerged, the team undertook [genomic research](#) to find out if the [genetic mutations](#) observed in MPXV-2022 may affect vaccine-induced immune responses against monkeypox.

"Specific VACV-based vaccines have demonstrated high efficacy against monkeypox viruses in the past and are considered an important outbreak control measure," Prof. McKay, who is also an Adjunct Professor at HKUST said.

"However, given this is a novel monkeypox virus, we still lack scientific data on how well human immune responses triggered by VACV-based vaccines will recognize MPXV-2022 and provide protection against disease."

Using genomic and immunological data, the team evaluated the genetic similarities and differences between VACV and MPXV-2022, specifically within the protein regions that are targeted by vaccine-induced neutralizing antibodies or T cells.

"While we identified a small number of distinct mutations in MPXV-2022, our study more broadly demonstrates that VACV and MPXV-2022 are highly genetically similar in the regions targeted by the [immune system](#) through vaccination," Prof. McKay explained.

Prof. Quadeer said that the findings are reassuring.

"Based on our analysis, we anticipate that the immune responses generated by VACV-based vaccines would continue to do a good job of recognizing and responding to MPXV-2022, as was the case for monkeypox viruses in the past," Prof. Quadeer said.

"Our data lends further support to the use of vaccines being recommended globally for combating MPXV-2022."

The World Health Organization has recommended primary preventive vaccination against the new [monkeypox virus](#), which is also known as pre-exposure prophylaxis, for individuals at high risk of exposure. In Hong Kong, the first shipment of the vaccine is expected to arrive within this month.

"While bringing together sequencing and immunological data provides evidence to anticipate a strong immune response, [clinical studies](#) are required to determine the exact efficacy of these vaccines against MPXV-2022," Prof. McKay concluded.

More information: Syed Faraz Ahmed et al, Vaccinia-Virus-Based Vaccines Are Expected to Elicit Highly Cross-Reactive Immunity to the 2022 Monkeypox Virus, *Viruses* (2022). [DOI: 10.3390/v14091960](https://doi.org/10.3390/v14091960)

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