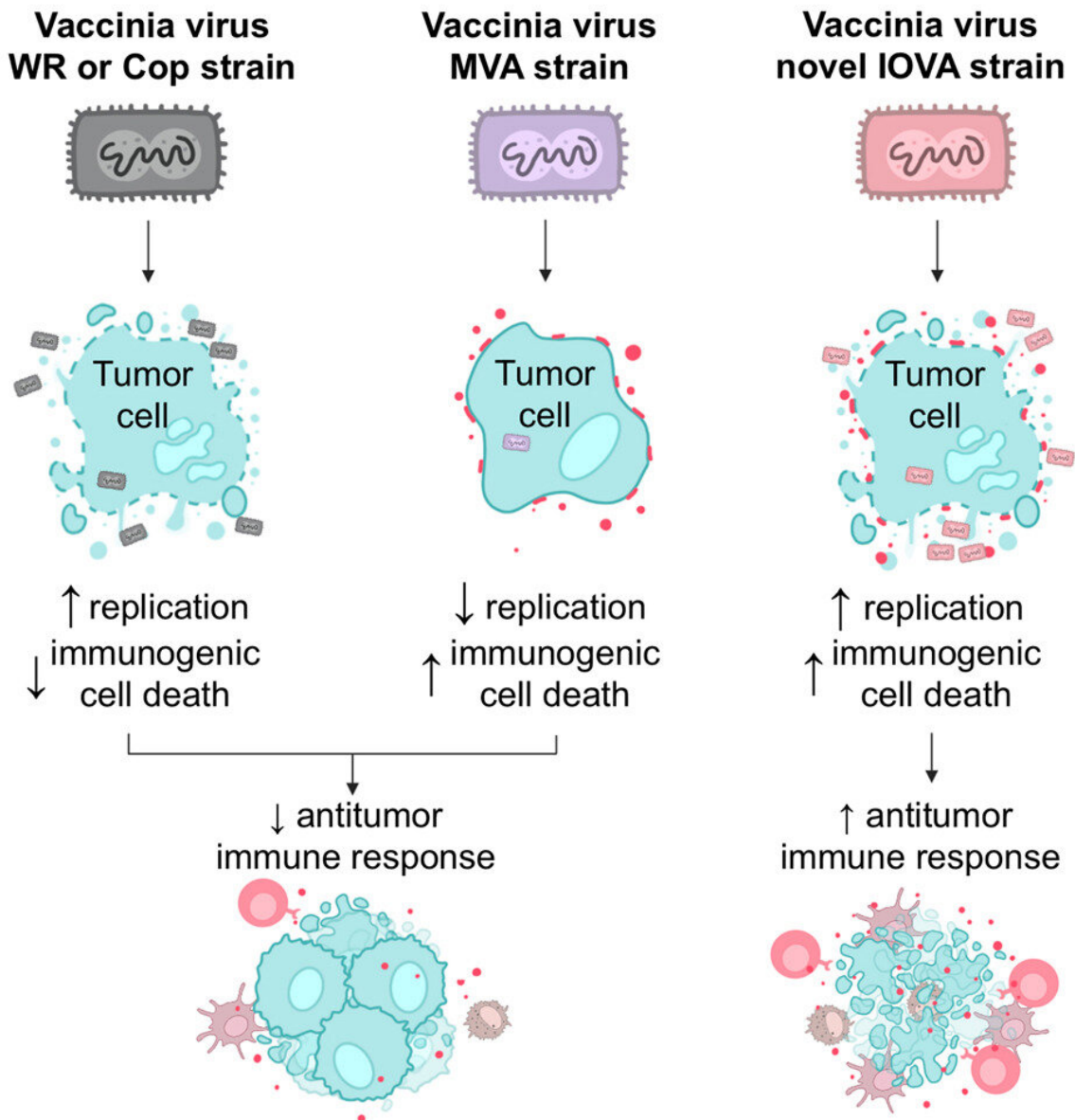


New strain of vaccinia virus can induce immunogenic cell death in tumors

May 22 2024



Graphical abstract. Credit: *Molecular Therapy* (2024). DOI: 10.1016/j.ymthe.2024.05.014

Vaccinia viruses are therapeutic tools with different biomedical applications depending on the susceptibility characteristics. For example, the strain called MVA (modified vaccinia Ankara), which is unable to replicate in mammalian cells, triggers a potent immune system response and is used to develop vaccines against COVID-19 or AIDS.

In contrast, other strains such as Western Reserve (WR) or Copenhagen (Cop), which replicate efficiently in tumor cells, are used to develop cancer treatments. For this reason, they are called immune-oncolytic viruses and are the basis of viral immunotherapy.

However, these [viral strains](#) have reduced immunogenicity, which makes them less effective in activating patients' immune responses against tumors.

Now, a study led by the University of Barcelona, the Bellvitge Biomedical Research Institute (IBIDELL) and the University of Munich (Germany) has developed a new strain of vaccinia virus, which can replicate in tumor cells while maintaining increased immunogenicity. Specifically, it can induce immunogenic cell death in tumor cells.

The [study](#), published in the journal *Molecular Therapy*, has been carried out with the collaboration of the State Research Agency (AEI).



The team led by the expert Juan J. Rojas, first author of the study and principal investigator of the Immunity, Inflammation and Cancer group of the Faculty of Medicine and Health Sciences of the UB and IBIDELL. Credit: University of Barcelona

The new therapeutic tool, which has been tested in a wide variety of mouse models, has been shown to have reduced toxicity and a high capacity and efficiency to activate immune responses against tumors. The virus is also effective in different cancer treatments, such as melanoma, colon and kidney cancer.

"In addition, we achieved the total disappearance of tumors in a very significant way when we administered the virus repeatedly," notes expert Juan J. Rojas, first author of the study and principal investigator of the Immunity, Inflammation and Cancer group of the Faculty of Medicine and Health Sciences of the UB and IBIDELL.

The discovery of this new viral strain represents a significant advance in viral immunotherapy research and demonstrates its therapeutic potential for treating cancer patients.

More information: Juan J. Rojas et al, A new MVA ancestor-derived oncolytic vaccinia virus induces immunogenic tumor cell death and robust antitumor immune responses, *Molecular Therapy* (2024). [DOI: 10.1016/j.ymthe.2024.05.014](https://doi.org/10.1016/j.ymthe.2024.05.014)

Provided by University of Barcelona

Citation: New strain of vaccinia virus can induce immunogenic cell death in tumors (2024, May 22) retrieved 16 June 2024 from <https://medicalxpress.com/news/2024-05-strain-vaccinia-virus-immunogenic-cell.html>

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