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New Variant Jumps to Second Place on COVID List

Lisa O'Mary
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Editor's note: Find the latest COVID-19 news and guidance in Medscape's [Coronavirus Resource Center](#).


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The new COVID-19 strain known as "Arcturus" has increased in the U.S. so much that it has been added to the CDC's watch list.



Officially labeled XBB.1.16, Arcturus is a subvariant of Omicron that was first seen in India and has been on the World Health Organization's watchlist since the end of March. The CDC's most recent update now lists Arcturus as causing 7% of U.S. coronavirus cases, landing it in [second place](#) behind its long-predominant Omicron cousin XBB.1.5, which causes 78% of cases.



Arcturus is more transmissible but not more dangerous than recent chart-topping strains, experts say.

"It is causing increasing case counts in certain parts of the world, including India. We're not seeing high rates of XBB.1.16 yet in the United States, but it may become more prominent in coming weeks," Mayo Clinic viral disease expert Matthew Binnicker, PhD, told [The Seattle Times](#).

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"One new feature of cases caused by this variant is that it seems to be causing [conjunctivitis](#), or red and itchy eyes, in young patients," Binnicker said. "This is not something that we've seen with prior strains of the virus."

More than 11,000 people in the U.S. remained hospitalized with COVID at the end of last week, and 1,327 people died of the virus last week, CDC data show. To date, 6.9 million people worldwide have died from COVID, the [WHO](#) says. Of those deaths, more than 1.1 million occurred in the U.S.

Sources:

CDC: "COVID Data Tracker, Summary of Variant Surveillance."

The Seattle Times: "Mayo Clinic expert talks about the new COVID omicron variant."

WHO: "WHO Coronavirus (COVID-19) Dashboard."

Study: Mother's COVID-19 May Affect Boys' Brain Development

Jay Croft

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Boys born to mothers with COVID-19 could face brain-development issues at a rate twice that of others, a new study found.



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The study involved more than 18,000 children born at eight hospitals in Massachusetts. Almost 900 of them were born to women who had COVID-19 while pregnant.



The male babies were more prone to a range of developmental disorders in the first 18 months of life, says [the study](#), which was published in the *JAMA Network Open*. It analyzed electronic health records.

The issues included delays in speech and language, psychological development, motor function and intellectual abilities.

Those issues can be associated with autism among older children, but "it's way too soon to reliably diagnose autism" in the children studied, Roy Perlis, MD, told [NPR](#). Perlis is a co-author of the report and a psychiatrist at Massachusetts General Hospital.

we can hope to detect at this point are more subtle sorts of things like delays in language and speech, and delays in motor milestones," he said. "But children of moms who have COVID during pregnancy won't have neurodevelopmental consequences even if there is some increase in risk."

Other studies have shown that maternal infections can affect fetal brain development, especially in boys, NPR reported.

"If a mom had SARS-CoV-2 infection in pregnancy and had a male child, her 12-month-old was 94% more likely to have any neurodevelopmental diagnosis," said Andrea Edlow, MD, lead author and a maternal-fetal medicine specialist at the University of Michigan. "It's not clear why that is," she said. "But it's a concern."

The virus that causes COVID-19 usually does not infect a fetus, she said. The risk to a fetus seems to come from the mother's immune response, not from direct infection.

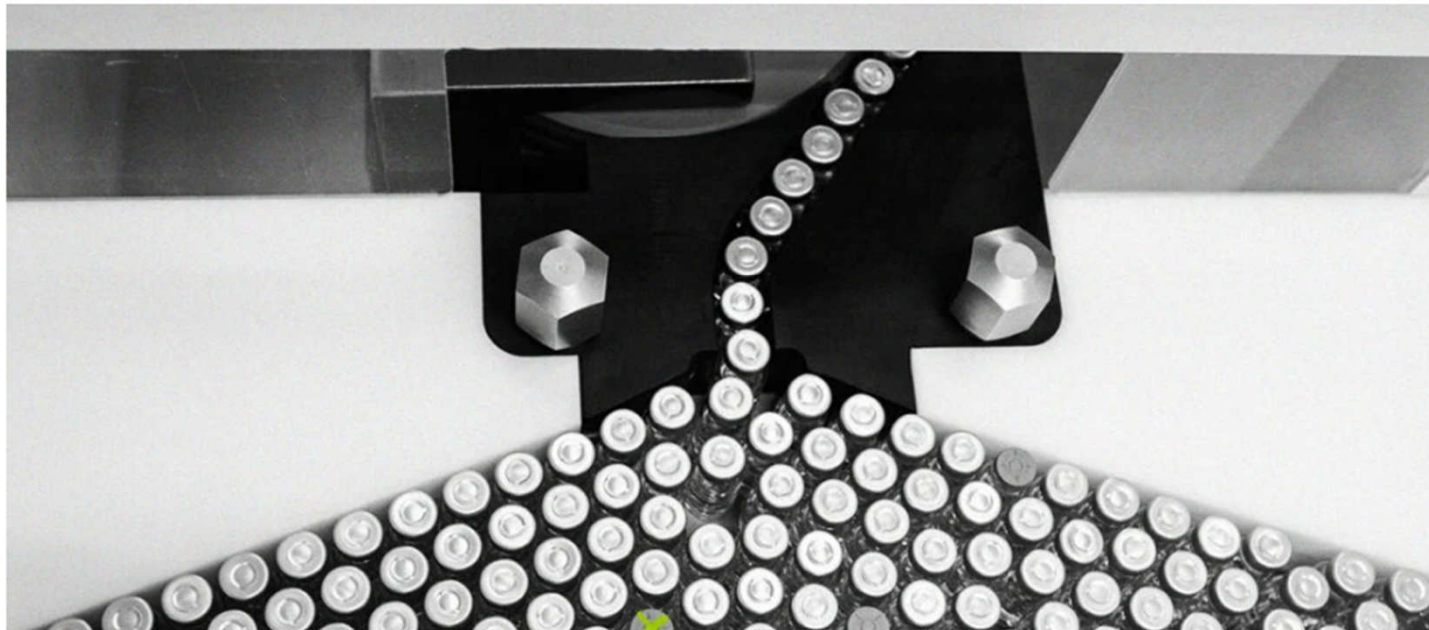
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Study finds vaccine, pembrolizumab combo reduces melanoma recurrence risk



- **About half of the people treated for melanoma will have a recurrence.**
- **Researchers recently presented phase 2b clinical trial results showing a combination of an mRNA vaccine and immunotherapy helps reduce the likelihood of melanoma recurrence in people who had surgery to remove melanoma from lymph nodes or other organs.**
- **The researchers combined the experimental vaccine mRNA-4157/V940 and the immunotherapy pembrolizumab in patients with melanoma.**

In 2020, almost [325,000 people](#) globally were diagnosed with [melanoma](#) — a type of [skin cancer](#).

Previous research says the number of people with melanoma will [increase to 510,000 cases](#) worldwide by 2040.

Past studies show about half of people treated for melanoma will have a [recurrence](#), with about 50% of them occurring in the [lymph nodes](#) and about 30% in other areas of the body.

Researchers recently presented phase 2b clinical trial results at the annual meeting of the [American Association for Cancer Research](#), showing a combination of an experimental [mRNA vaccine](#) with [immunotherapy](#) helps reduce the likelihood of melanoma recurrence in people who had surgery to remove melanoma from lymph nodes or other organs and were at high risk for recurrence.

The clinical trial was funded by Moderna Inc., which makes the experimental vaccine mRNA-4157/V940, and Merck, which manufactures the immunotherapy drug [pembrolizumab](#).

Studying the results

For this phase 2b clinical trial, Dr. Weber and his team injected 107 study participants with both the experimental mRNA vaccine and the immunotherapy pembrolizumab.

An additional 50 participants only received pembrolizumab.

Upon analysis, researchers found melanoma redeveloped in 24 of the participants within two years of follow-up (22.4%), compared to 20 out of 50 people (40%) who received only pembrolizumab.

“The vaccine stimulated immune T cells to recognize neoantigens on the [tumor](#) and not normal cells,” Dr. Weber explained how the combination therapy works.

“The pembrolizumab disinhibits the resulting cells, making them longer-lived and more effective killer cells,” he explained.

The researchers reported the most common [side effect](#) of the combination therapy was [fatigue](#).

“Similar types of side effects as seen with pembrolizumab alone, with the addition of the expected side effects of the vaccine, mainly [fevers](#), [chills](#), [muscle aches](#), and fatigue that lasts a day or two,” Dr. Weber said.

“The majority of the vaccine-related side effects are what we call low-grade, not disabling,” he added.

AI Predicts Endometrial Cancer Recurrence

Jim Kling

April 21, 2023

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A deep learning artificial intelligence (AI) model that used only a single histopathological slide predicted the risk of distant recurrence among [endometrial cancer](#) patients in a new study.



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Endometrial cancer is the most frequently occurring [uterine cancer](#). Early-stage patients have about a 95% 5-year survival, but distant recurrence is associated with very poor survival, according to Sarah Fremond, MSc, an author of the research (Abstract 5695), which she presented at the annual meeting of the American Association for Cancer Research.

"Most patients with endometrial cancer have a good prognosis and would not require any adjuvant treatment, but there is a proportion that will develop distant recurrence. For those you want to recommend adjuvant chemotherapy, because currently in the adjuvant setting, that's the only treatment that is known to lower the risk of distant recurrence. But that also causes morbidity. Therefore, our clinical question was how to accurately identify patients at low and high risk of distant recurrence to reduce under- and overtreatment," said Ms. Fremond, a PhD candidate at Leiden (the Netherlands) University Medical Center.

Pathologists can attempt such predictions, but Ms. Fremond noted that there are challenges. "There is a lot of variability between pathologists, and we don't even use the entire visual information present in the H&E [hematoxylin and

Pathologists can attempt such predictions, but Ms. Fremond noted that there are challenges. "There is a lot of variability between pathologists, and we don't even use the entire visual information present in the H&E [hematoxylin and eosin] tumor slide. When it comes to molecular testing, it is hampered by cost, turnaround time, and sometimes interpretation. It's quite complex to combine those data to specifically target risk of distant recurrence for patients with endometrial cancer."

In her presentation, Ms. Fremond described how she and her colleagues used digitized histopathological slides in their research. She and her coauthors developed the AI model as part of a collaboration that included the AIRMEC Consortium, Leiden University Medical Center, the TransPORTEC Consortium, and the University of Zürich.

The researchers used long-term follow-up data from 1,408 patients drawn from three clinical cohorts and participants in the [PORTEC-1](#), [PORTEC-2](#), and [PORTEC-3](#) studies, which tested radiotherapy and adjuvant therapy outcomes in endometrial cancer. Patients who had received prior adjuvant chemotherapy were excluded. In the model development phase, the system analyzed a single representative histopathological slide image from each patient and compared it with the known time to distant recurrence to identify patterns.

Once the system had been trained, the researchers applied it to a novel group of 353 patients. It ranked 89 patients as having a low risk of recurrence, 175 at intermediate risk, and 89 at high risk of recurrence. The system performed well: 3.37% of low-risk patients experienced a distant recurrence, as did 15.43% of the intermediate-risk group and 36% of the high-risk group.

The researchers also employed an external validation group with 152 patients and three slides per patient, with a 2.8-year follow-up. The model performed with a C index of 0.805 (± 0.0136) when a random slide was selected for each patient, and the median predicted risk score per patient was associated with differences in distant recurrence-free survival between the three risk groups with a C index of 0.816 ($P < .0001$).

Questions about research and their answers

Session moderator Kristin Swanson, PhD, asked if the AI could be used with the pathology slide's visible features to learn more about the underlying biology and pathophysiology of tumors.

"Overlying the HECTOR on to the tissue seems like a logical opportunity to go and then explore the biology and what's attributed as a high-risk region," said Dr. Swanson, who is director of the Mathematical NeuroOncology Lab and codirector of the Precision NeuroTherapeutics Innovation Program at Mayo Clinic Arizona, Phoenix.

Ms. Fremond agreed that the AI has the potential to be used that way."

During the Q&A, an audience member asked how likely the model is to perform in populations that differ significantly from the populations used in her study.

Ms. Fremond responded that the populations used to develop and test the models were in or close to the Netherlands, and little information was available regarding patient ethnicity. "There is a possibility that perhaps we would have a different performance on a population that includes more minorities. That needs to be checked," said Ms. Fremond.