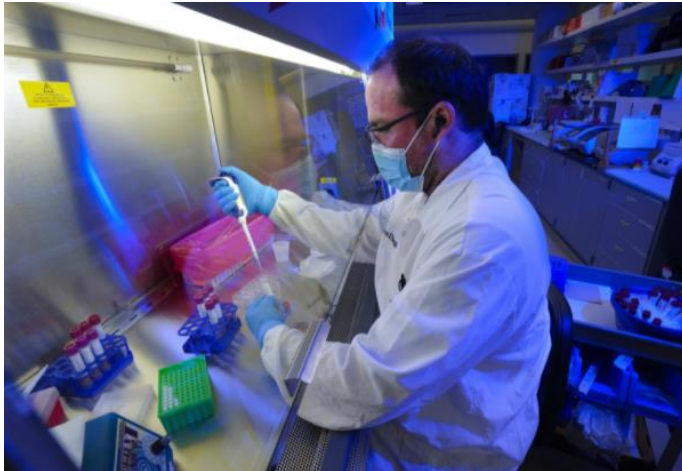


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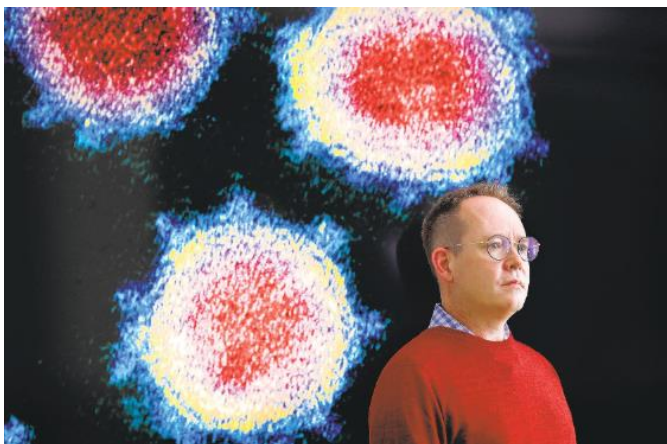
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## UC San Diego scientist shifts back to battle mode on virus / Infectious disease expert joins rush to learn more about new variant threat



*Research associate Brendon Woodworth runs tests on swab samples for COVID-19 at UC San Diego's Research for Infectious Disease Lab on Thursday. Scientists are trying to get samples of the Omicron variant to determine its effect on antibodies. (Nelvin C. Cepeda U-T)*



*Dr. Davey Smith, chief of infectious diseases at UC San Diego, has been on the national forefront of efforts to combat COVID-19 since the pandemic began. (K.C. Alfred U-T)*

By Gary Robbins

Dr. Davey Smith was munching on popcorn, trying to enjoy a quiet lunch break two days after Thanksgiving, when an email popped open on his iPad with news that filled him with a deep, dark dread.

The chief of infectious diseases at UC San Diego was learning from colleagues in South Africa that Omicron, the new strain of COVID-19 that had been discovered there, might be a real troublemaker.

Days earlier, Smith thought they had simply found a contaminated sample, not a wily successor to COVID-19 and the Delta variant. New data proved otherwise. A fresh threat had arisen.

“I thought, ‘Oh, my God, could this be COVID 3.0?’ ” said Smith. “Will the vaccines work against it? Will our drugs be effective? We need these tools. This is not where we wanted to end up.”

Smith is at the forefront of a dash by scientists at UCSD and elsewhere to answer those and other questions that could determine whether the world plunges back into another year of pandemic.

The news about Omicron was startling and disturbing, but not surprising to Smith, a 50-year-old physician-researcher who is conducting clinical trials on drugs designed to fight COVID-19, including tests now under way in South Africa.

Viruses mutate. It is a defining characteristic. You’ve got to keep up.

But the news came like a gut punch to the public.

There’s been a general feeling in recent months that the pandemic is fading away, even though many refuse to get vaccinated. The airlines carried 2.3 million passengers over Thanksgiving, a figure nearly as high as before the trouble started.

But the post-Thanksgiving vibe is one of great wariness among the public, and among scientists who are suddenly back on a war footing with an enemy that has killed 5.23 million people worldwide.

Researchers declared that Omicron, which is smaller than a particle of dust, would quickly spread around the globe. And it did.

The first case in the U.S. was reported on Wednesday in San Francisco. It involved a vaccinated man who’d recently traveled to South Africa. The following day, more cases popped up in California in other parts of the country. Late in the week, there were fresh reports from South Africa that Omicron can more easily cause reinfection and may spread much more rapidly than even the highly infectious Delta variant.

No one had immediate answers, including immunologist Kristian Anderson of Scripps Research, one of San Diego’s most respected life scientists.

His Twitter feed on Tuesday carried a deflating message: “Omicron — on a scale from 1-10, how bad is this going to be? This one’s a weirdo, so I’m a 3, a 10, or anything in-between.”

Scientists will soon have some partial answers — and, in a cruel twist, they’re likely to arrive right around Christmas and New Year’s.

In science hubs like San Diego, researchers are trying to figure out if Omicron has a powerful ability to overwhelm a vaccine's defenses and cause infection and illness. They're doing this by taking blood samples from people who are vaccinated, and those who've recently recovered from COVID-19, and exposing it to the new virus.

Scientists are able to use a synthetic version of Omicron — a so-called pseudovirus that contains all of the variant's roughly 50 mutations. The technique produces results in about 10 days.

Researchers like Smith also are trying to obtain real versions of the variant. He spent much of the past week trying to get officials in South Africa and the U.S. to expedite matters.

Scientists are worried that Omicron crushes the antibodies that help prevent people from becoming infected. On the upside, many think that another key part of the immune system — T-cells — will vigorously battle illness caused by the virus. These cells determine a specific course of action for fighting foreign substances and help wage war.

That's why researchers are relentlessly pushing vaccines and booster shots.

Scientists like Smith are using a similar blood-based approach to determine whether Omicron will neutralize the monoclonal antibodies that are part of some new therapeutic drugs.

Researchers are also examining the genetic makeup of Omicron, which has 50 mutations, far more than the dominant Delta strain. It's not yet clear what each of the mutations do, alone or in concert. And some of the mutations are new to science. But there are some early insights.

"From the mutations that are being seen, pretty much everybody is predicting that the antibody response produced by (vaccines) will be decreased," said Alessandro Sette, a researcher at the La Jolla Institute for Immunology.

"The question is will this also be the case for the T-cell response?"

The concern is that Omicron could, in some way, also weaken the counterattack launched by T-cells.

Scientists have emphasized publicly that they're just getting their minds around Omicron and that it is possible that the strain is less threatening than it appears. And Sette noted that the problems the virus causes might be offset by booster shots.

Even so, Smith's mind drifted into dark territory on Tuesday during an interview with the Union-Tribune. He brought up the "L" word, something no one wants to hear.

"I don't know if this will lead to a lockdown, but there's a chance we could get back to the bad times," said Smith, a candid, plain-spoken man whose words have a lyricism that reflects his upbringing in Tennessee. "I don't think it will get to that. But that's what I worry about."

He also said he could imagine a scenario in which American universities would have to push some of their classes back online if Omicron becomes a major problem.

He realizes that such remarks can rankle people; he shrugs it off, saying: “The virus doesn’t care about politics, and science shouldn’t either.”

His comments about universities did cause a bit of agita at UC San Diego, which earned acclaim over the past 18 months for producing one of the lowest campus infection rates in the country while simultaneously helping develop COVID-19 vaccines and drugs and inoculating hundreds of thousands of people.

The school opened with a record 42,875 students in September and, like other institutions, doesn’t want to backpedal.

“You don’t go from ‘there’s a new variant in South Africa’ to ‘don’t come back to campus after Christmas,’ ” said Dr. Robert Schooley, the infectious disease expert who has been running UCSD’s Return to Learn program, the protocols used to safely open the school.

“We’re about as well prepared for this as we’ve been for anything,” he said.

As he spoke, UCSD was sampling wastewater across the campus in its daily hunt for traces of the coronavirus. The surveillance program was introduced last year and now includes the search for Omicron.

Schooley was careful not to criticize Smith, who for years has been one of the most noted HIV researchers in the U.S. He’s also a physician — one who knows that positive change can come quickly.

In July 1996, he began using the famous HIV drug cocktails that Schooley, a researcher, helped to pioneer. Smith quickly went from watching patients die to becoming well enough to leave the hospital.

“The things we learned studying HIV set up everything we’re doing with COVID,” said Smith.

Shortly after the pandemic hit, Smith became part of Operation Warp Speed, the public-private partnership created by the Trump administration to develop vaccines, drugs and diagnostics to fight COVID-19.

He began running ACTIV-2, a major clinical trial to test the safety and efficacy of new therapeutics. That and other work has made him part of science’s inner circle.

Smith typically begins his 16-hour days at 5 a.m. on conference calls with members of the NIH, including Dr. Anthony Fauci. He keeps his Zoom camera dark so that he can get in a workout on the elliptical machine at his home in Mission Hills.

The meetings have taken on a heavy tone in recent days, a mood that contrasts with Smith’s normally sunny disposition.

“He’s the most optimistic person I’ve ever met,” said Dr. Susan Little, a UCSD infectious disease expert and physician who is running separate COVID vaccine trials on behalf of AstraZeneca and Janssen.

“He has a unique ability to see the good in everyone, the silver lining, to have patience and compassion.”

Those traits were being tested Friday as Smith boarded a plane for a science meeting in Mexico. There was news out of South Africa that Omicron had become the dominant COVID strain in some provinces.

“I think we are in as bad a spot as we were last year (at) this time,” Smith said by text as he headed south. “It is looking like late winter could be tough.

“Hopefully, the vaccine holds (and) helps keep people from needing to be hospitalized.”

The New York Times contributed to this story.

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