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Southern DAILY

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Inside C2

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Analysis: U.S., allies united if Russia invades, at odds over other scenarios

WASHINGTON/BRUSSELS, Feb 18 (Reuters) - The United States and its allies have mapped out detailed plans for coordinated, severe sanctions if Russian troops physically invade Ukraine, but how they should respond to other kinds of aggressions is far from agreed, U.S. and European officials say.

That ambiguity could slow the pushback Russian President Vladimir Putin will face if Russia repeats past tactics like identifiable cyberattacks, a disinformation campaign, or stepped-up support for pro-Russian separatists.

Senior European diplomats, requesting anonymity, told Reuters there had been some planning for "a range of scenarios" and various contingencies, including the kind of cyberattack seen in Ukraine this week that has yet to be conclusively linked to Russia, but any coordinated response would require additional consultations.

While there is general agreement that sanctions would be ready within 48 hours of an "invasion," discussions around what, exactly, the trigger point would be continue, they said.

NATO and U.S. flags are seen before a news conference at NATO's headquarters in Brussels, Belgium April 14, 2021. Kenzo Tribouillard/Pool via REUTERS

"You can think of thousands of scenarios" that Russia could execute in or around Ukraine that would raise the question of whether sanctions were merited, said one senior EU official. "It is a purely and highly political discussion in the end," the official said.

Germany, a key ally in the coordinated response given its strong trading ties with Russia, has argued hard both in public and behind closed doors for what it calls "strategic ambiguity" about the plans to keep Putin guessing.

For all the talk of a "massive" EU sanctions package, European diplomats say Russia's closest friends in the bloc - Hungary, Italy, and Austria - have an understanding that these will only be imposed if there is a Russian military attack.

The hyperfocus on a physical invasion has taken some of the attention off other irregular warfare threats, but it also reflects differences among the allies on how to respond to non-military actions, one U.S. official said.

The White House did not immediately respond to a request for comment.

Sweden has suggested a discussion about a course of action if Putin never attacks and reduces troop levels slightly, but sits on the border with Ukraine, massively pressuring the Ukrainian economy and firing off the occasional cyberattack.

The rest of the bloc is not keen to delve into this scenario, because it threatens to open up EU divisions and break the united front, several officials said.

"Many EU countries do not want to get into a discussion about what else might merit sanctions, be it cyber or a sustained military presence on Ukraine's borders but no invasion, because those closest to Russia, such as Hungary, will be against any sanctions short of a military invasion," said one of the senior diplomats.

Others, including Poland, argue that the EU should only respond if this type of harassment of Ukraine continues "indefinitely."

A second U.S. official noted that it was also difficult to plan for the wide range of actions Russia could take. Telegraphing U.S. and allied plans now could allow Putin to do a more precise cost-benefit analysis, giving him a potential advantage.

The White House was forced to clarify the U.S. definition of "invasion" in January as military troops across the border, after President Joe Biden told reporters a "minor incursion" might bear a lower cost. read more

U.S. national security adviser Jake Sullivan told reporters this week that Biden believed that in order for sanctions to be effective, they needed to be imposed if Putin moved against Ukraine, not beforehand.

The most important factor was that the West remained strong and united in its effort to deter Putin, he said.

The priority now was to avoid what increasingly looked like "an imminent military invasion" of Ukraine, one of the diplomats said.

Southern DAILY Make Today Different

LOCAL NEWS

Oregon, California seek to protect election workers from threats

WASHINGTON, Feb 18 (Reuters) - Lawmakers in Oregon and California are calling for tougher legislation to protect election workers in response to a continuing wave of threats and harassment inspired by former President Donald Trump's false claims that the 2020 vote was rigged against him.

In Oregon, legislators are considering a measure that would make it a felony to harass or threaten election workers while they are performing their official duties, state officials said. The measure would also exempt the personal information of election workers, such as home addresses, from certain public records.

"In the months leading up to and since the 2020 election, election workers across the country have faced verbal abuse, harassment and violent threats on their lives," Oregon Secretary of State Shemia Fagan, a Democrat, told state lawmakers on Tuesday. "As we head into the 2022 election season, we must do all we can to protect election workers against physical harm fueled by misinformation."

Oregon joins at least nine other states considering stronger protections for election administrators who have faced a campaign of terror inspired by Trump's baseless claims of widespread fraud in the 2020 vote. Reuters documented more than 850 threats and hostile messages to election workers and officials nationwide in a series of investigative reports.

Reuters' reporting "made it clear that we had to do something to address the unprecedented rise in threats and harassment targeting election workers," said Ben Morris, spokesperson for Fagan. The coverage "has been incredibly helpful in making the case for the bill."

California is also considering legislation to provide stronger protections for frontline workers who administer elections. State Senator Josh Newman, a Democrat, introduced a bill on Wednesday that would give election workers the option of keeping their home addresses private. The measure is aimed at reducing harassment by preventing the public release of personal information online or on social media platforms.

"Once your personal information is on the internet, there's no shortage of people that may act on that information, especially when triggered," said Newman. "It's got to be terrifying."

Poll workers wait in line to grab breakfast prior to the polls opening at the Registrar of Voters on the day of the U.S. Presidential election in San Diego, California, U.S., November 3, 2020. REUTERS/Mike Blake

The bill would allow election workers to enroll in California's existing privacy protection programs that are available to survivors of domestic violence, judges and politicians, among others.

"U.S. election officials are overworked, underpaid, understaffed and now under attack, as has been well documented by Reuters," said Kim Alexander, president of the California Voter Foundation, who helped draft the bill. "We also need law enforcement to intervene whenever election officials are harassed or threatened and prosecute attackers wherever possible to help deter this kind of heinous behavior."

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Editor's Choice

The white-domed roof of the O2 arena is seen damaged by the wind, as a red wea er warning was issued due to Storm Eunice, in London, February 18. REUTERS/ May James

Women spread their arms on the wind as waves break on the beach in the wake of Storm Eunice in Blankenberge, Belgium, February 18. REUTERS/Yves

A person walks as waves break on the beach in the wake of Storm Eunice in Blankenberge, Belgium, February 18. REUTERS/Yves Herman

A fallen tree blocks a road in Tenby, Britain, February 18. REUTERS/Rebecca Naden

A militant of the self-proclaimed Luhansk People's Republic guards a combat position near the line of separation from the Ukrainian armed forces outside the settlement of Molodizhne (Molodezhnoye) in the Luhansk region, Ukraine, February 17. REUTERS/Alexander Ermochenko

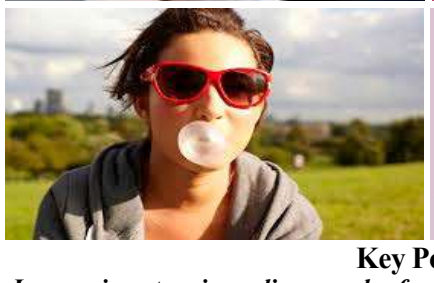
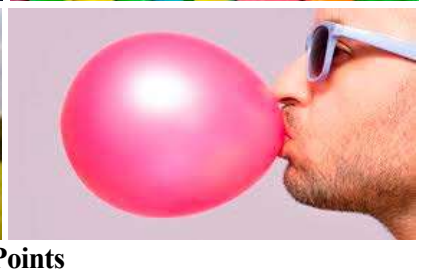
People are seen inside a bus arranged to evacuate local residents, in the rebel-controlled city of Donetsk, Ukraine, February 18. REUTERS/Alexander Ermochenko

Southern DAILY Make Today Different

BUSINESS

A Chewing Gum That Could Reduce SARS-CoV-2 Transmission?



Key Points

In experiments using saliva samples from COVID-19 patients, the gum, which contains the ACE2 protein, neutralized the virus, according to research led by School of Dental Medicine scientists.

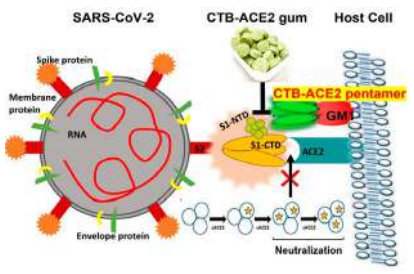
Compiled And Edited By John T. Robbins, Southern Daily Editor

A chewing gum laced with a plant-grown protein serves as a "trap" for the SARS-CoV-2 virus, reducing viral load in saliva and potentially tamping down transmission, according to a new study.

The work, led by Henry Daniell at Penn's School of Dental Medicine and performed in collaboration with scientists at the Perelman School of Medicine and School of Veterinary Medicine, as well as at The Wistar Institute and Fraunhofer USA, could lead to a low-cost tool in the arsenal against the COVID-19 pandemic. Their study was published in the journal Molecular Therapy.

"SARS-CoV-2 replicates in the salivary glands, and we know that when someone who is infected sneezes, coughs, or speaks some of that virus can be expelled and reach others," says Daniell. "This gum offers an opportunity to neutralize the virus in the saliva, giving us a simple way to possibly cut down on a source of disease transmission."

Vaccinations for COVID-19 have helped change the course of the pandemic but haven't stamped out transmission. Even people who are fully vaccinated can still become infected with SARS-CoV-2 and, according to recent research, can carry a viral load similar to those who are unvaccinated.

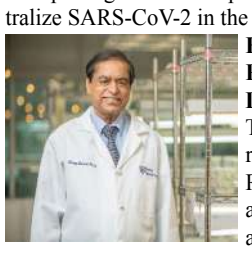


Penn Dental Medicine's Henry Daniell and colleagues used a plant-based protein drug production platform to grow the ACE2 protein, which was then infused in chewing gum. By either blocking the ACE2 receptor or binding to the SARS-CoV-2 spike protein, the ACE2 in the gum appears to be able to reduce viral entry into cells. (Image: Courtesy of the researchers)

Prior to the pandemic, Daniell had been studying the angiotensin-converting enzyme 2 (ACE2) protein in the context of treating hypertension. His lab had grown this protein, as well as many others that may have therapeutic potential, using a patented plant-based production system. By bombarding plant material with the DNA of target proteins, they coax plant chloroplasts to take up the DNA and begin growing the proteins. The plant material, freeze-dried and ground-up, could be used as a means of delivering the protein. This system has the potential to avoid the usual obstacles to protein drug synthesis: namely, an expensive production and purification process.

Daniell's past work on ACE2 proved fortuitous in the context of the COVID-19 pandemic. The receptor for ACE2 on human cells also happens to bind the SARS-CoV-2 spike protein. Other research groups have shown that injections of ACE2 can reduce viral load in people with severe infections.

Meanwhile, another line of work by Daniell and Penn Dental Medicine colleague Hyun (Michel) Koo has involved research to develop a chewing gum infused with plant-grown proteins to disrupt dental plaque. Pairing his insights about ACE2 with this technology, Daniell wondered if such a gum, infused with plant-grown ACE2 proteins, could neutralize SARS-CoV-2 in the oral cavity.



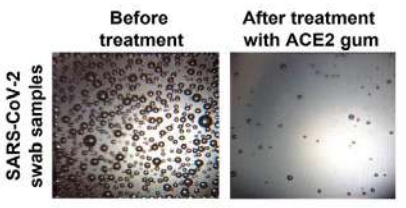
Henry Daniell of Penn's School of Dental Medicine

To find out, he reached out to Ronald Collman at Penn Medicine, a virologist and pulmonary and critical care doctor whose team, since the early stages of the pandemic, had been collecting blood, nasal swabs, saliva, and other biospecimens from COVID patients for scientific research.

"Henry contacted me and asked if we had samples to test his approach, what kind of samples would be appropriate to test, and whether we could internally validate the level of SARS-CoV-2 virus in the saliva samples," Collman says. "That led to a cross-school collaboration building on our microbiome studies."

To test the chewing gum, the team grew ACE2 in plants, paired with another compound that enables the protein to cross mucosal barriers and facilitates binding, and incorporated the resulting plant material into cinnamon-flavored gum tablets. Incubating samples obtained from nasopharyngeal swabs from COVID-positive patients with the gum, they showed that the ACE2 present could neutralize SARS-CoV-2 viruses.

Those initial investigations were followed by others at The Wistar Institute and Penn Vet, in which viruses, less-pathogenic than SARS-CoV-2, were modified to express the SARS-CoV-2 spike protein. The scientists observed that the gum largely prevented the viruses or viral particles from entering cells, either by blocking the ACE2 receptor on the cells or by binding directly to the spike protein.



Finally, the team exposed saliva samples from COVID-19 patients to the ACE2 gum and found that levels of viral RNA fell so dramatically to be almost undetectable.

The research team is currently working toward obtaining permission to conduct a clinical trial to evaluate whether the approach is safe and effective when tested in people infected with SARS-CoV-2 .

"Henry's approach of making the proteins in plants and using them orally is inexpensive, hopefully scalable; it really is clever," Collman says.

Though the research is still in early stages of development, if the clinical trials prove the gum is safe and effective, it could be given to patients whose infection status is unknown or even for a dental check-ups when masks must be removed, to reduce the likelihood of passing the virus to caregivers.

"We are already using masks and other physical barriers to reduce the chance of transmission," says Daniell. "This gum could be used as an additional tool in that fight." (Courtesy https://penntoday.upenn.edu/news)

Related

COVID-19 Omicron Variant Detected In Houston Wastewater

'Omicron in Houston is cause for concern but not panic,' Houston's chief medical officer said. (Photo/Godofredo A. Vásquez, Houston Chronicle / Staff photographer)

The Stadler lab at Rice University's Brown School processes approximately 200 samples of waste water to figure out which variant and what amount of the COVID-19 virus is found. Health authorities say a sample from Houston's wastewater system tested positive for the Omicron variant of COVID-19 on Monday, the same day a woman separately tested positive for the variant in northwest Harris County.

In Houston, there's no confirmed case just yet — but the positive wastewater indicates one could crop up soon. Mayor Sylvester Turner in a press release Monday said the news is an important reminder to schedule a booster shot for the COVID-19 vaccine.

"Vaccines help protect us, our loved ones, friends, and colleagues in the work environment," Turner said. "As the holidays approach, I encourage everyone to remain vigilant about their health and safety."

Facilitating omicron here in Texas: Our abysmal vaccination rates. Only 55% 2 shots, but in Central Texas or East Texas only 40%, many counties 30%. Booster shots? You can imagine…Since the 2010s Texas has been the epicenter of the anti-vaccine movement https://t.co/ml2mz3B-CY9

— Prof Peter Hotez MD PhD (@PeterHotez) December 7, 2021

In Harris County, only 56 percent of the county's 4.6 million people are considered fully vaccinated, according to the Houston Chronicle.

The Omicron finding came during routine sweeps of the city's wastewater for the virus that causes COVID-19, according to the Houston Health Department. That testing includes several variants of the virus, as traces of it can be found in feces of those who are infected. City health officials were also testing wastewater outside a few elementary schools across Houston, according to KHOU's Ugochi Iloka.

HAPPENING NOW: Crews with @HoustonHealth are testing waste water at local schools for Covid-19 variants like Omicron and Delta. They plan to test near 30 schools in the Houston area today @KHOU pic.twitter.com/veKMRfPNbT

— Ugochi Iloka KHOU (@UgochiKHOU) December 7, 2021

The consensus on the Omicron variant's potential impact remains unsettled. Health authorities in the federal government are working to determine if it is any more transmissible or lethal than other strains, according to the Houston Health Department.

"Omicron in Houston is cause for concern but not panic," said Dr. David Persse, Houston's chief medical officer. "It's important to remember that vaccination is our best tool to reduce cases, prevent serious illness and death, and slow the emergence of new variants."

The city of Houston provides free COVID-19 vaccines, including boosters, to anyone 5 and older. A list of vaccination sites can be found on the city's website. (Courtesy The Houston Chronicle)

Southern DAILY Make Today Different

COMMUNITY

COVID Immunity Levels Can Be Measured In 15 minutes

Houston Startup Develops Ground Breaking COVID Immunity Test

Compiled And Edited By John T. Robbins, Southern Daily Editor

A team of researchers at Brevitest has developed a quick, finger-stick blood test to determine immunity to COVID-19. using a small, desktop device they invented that conducts the test using robotic technology with proprietary testing cards used to analyze the blood samples. Photographed at their offices, Monday, Nov. 29, 2021, in Houston. (Photo/Mark Mulligan, Houston Chronicle / Staff photographer)

A Houston startup has developed a revolutionary COVID-19 test that can measure immunity levels and determine whether or when people need a new vaccine or booster to protect themselves from the disease.

The instant test could be widely available soon, if the Food and Drug Administration grants the new device fast-track approval. Knowing personal immunity levels could become increasingly important in the face of new variants, like omicron, when people need to decide whether or when they need a new vaccine or booster shot.

The affordable, first-of-its-kind fingerstick blood test is offered by Brevitest, a company developed at Fannin Innovation Studios, a life sciences incubator in River Oaks. Researchers invented a new method for measuring antibodies, using cloud computing to process results and delivering them in 15 minutes to determine if an immune system needs a boost.

Doctors, companies and public health officials can use the tests to determine the COVID immunity levels for individuals, workforces or entire communities so they can employ more targeted strategies for slowing the disease. Since the technology is protected by patents, Brevitest can license the unique device and potentially become one of the most significant startups to emerge from Houston's life sciences community in a decade.

Leo Linbeck III, the CEO and co-founder of Brevitest, said his company's technology builds on recent research that has determined how many antibodies per unit of blood people need to fight off or minimize a coronavirus infection. The new test lets people know where they stand, whether from a vaccination or natural immunity to determine if they need a booster or difference vaccine Brevitest can adapt the test to detect antibodies for any variant, including omicron. Once approved, the company could begin deploying the device across the country within a few months to carry out millions of tests a week.

The Centers for Disease Control and Prevention — worried about vaccines wearing off — recently authorized COVID-19 booster shots six months after vaccination, prioritizing those over 65 years old. But individual needs vary widely and some people lose antibodies quicker than others.

"Everyone's biology is different, and the data seems to indicate that it could be anywhere from three months to 12 months when you see the antibody level begin to wane," Linbeck told me. "That's particularly problematic for older people who tend to have less of an immune response or those who are immunosuppressed or immunocompromised."

Fast tests to detect SARS-CoV-2 antibodies have been on the market since early in the pandemic, but they only offer positive or negative results and don't measure anitbodies.

Doctors who have patients with weak immune systems have relied on a precise blood test called an enzyme-linked immunosorbent assay, or ELISA, that are currently done at central laboratories. But those results can take several days to return.

"We're trying to build a point-of-care ELISA because the way we look at it, either you can have accuracy that will take time or you can have speed, and then you lose accuracy," explained Dr. Dev Chatterjee, a co-founder and co-inventor. "The question we asked ourselves is, is there a way we can marry the two?"

The Brevitest device allows a technician to place a small blood sample on a custom-designed cartridge, which is inserted into a shoebox-sized device that produces digital diagnostic data, the same as the precision test.

The device sends the data to the cloud, where it is processed using proprietary software Linbeck wrote. Patients receive an alert and can access the results with their phones, which also allows them to compare their result with the latest COVID immunity data.

The new company can make a profit at the same $43 reimbursement rate insurance companies pay for a central lab test, Linbeck said. Brevitest is offering tests at its lab in Houston.

Until recently, researchers were unsure how many antibodies someone needed to fend off the virus. But that changed in September when the journal Nature Medicine published a new study that used the World Health Organization standard to measure antibody levels and showed a correlation between antibody levels and infection rates.

Healthy people can use the test to determine if they need a booster or should wait a few months to take full advantage of their vaccine or illness-induced antibodies.

"There's some evidence that if you wait longer and you let your antibody count drop, when you get that vaccine (booster), you get a bigger bump. You get more antibody production than you would if you had taken it while you still have active antibody response," he added.

Linbeck, Chatterjee and co-inventor Dr. Atul Varadhachary founded Brevitest in 2013 to create an office-based blood testing system that would generate precision blood test results quicker. The National Institutes of Health provided a grant during the test's early development, and the Centers for Disease Control asked Brevitest to develop an Ebola test during the 2014 outbreak.

Aquinas Companies CEO Leo Linbeck works on code for a BreviTest analyzer, BreviTest is one of the startup companies helped by Fannin Innovation Studio which helps researchers and scientists with life science product development July 7, 2016, in Houston. (Photo/ James Nielsen / Houston Chronicle)

Chatterjee and Varadhachary said the scientific challenge was far more formidable than expected. Designing a new cartridge that prepared the blood for scanning in a new way took years. Linbeck, an engineer, worked on reliability and durability to meet exacting medical standards.

"Once you actually get down to developing for the real world versus creating something for the lab, there is a whole ocean of problems that you have to solve," Chatterjee explained.

When the COVID-19 pandemic began, the company refocused on measuring SARS-CoV-2 antibodies.

Brevitest is one of four life science start-ups spun out of Fannin Innovation Studio, Linbeck's biotechnology development company. He is best known as the executive chairman of the Linbeck Group, a construction company founded by his grandfather that built many of the structures at the Texas Medical Center.

Linbeck and Varadhachary started Fannin to commercialize discoveries made at TMC. But Brevitest was Fannin's homegrown effort to address the lengthy delay in returning accurate blood test results, a goal of many companies.

A team at Brevitest has developed a quick, finger-stick blood test to determine a person's immunity to Covid-19 using a small, desktop device they invented that conducts the test using robotic technology with proprietary testing cards used to analyze the blood samples. Photographed at their offices, Monday, Nov. 29, 2021, in Houston. (Photo/ Mark Mulligan, Houston Chronicle / Staff photographer)

The most famous attempt to develop a rapid diagostic device is Theranos, a Silicon Valley-based company that promised a full blood workup from a tiny vial using a handheld device. Linbeck, Chatterjee and Varadhachary say Theranos's claims never made any sense to them, and the company's founder, Elizabeth Holmes, is in federal court this week fighting federal fraud charges. In contrast to Theranos, Brevitest only claims to conduct one test per fingerstick and will release its testing data for outside review, Chatterjee said.

Brevitest will never replace the broad tests best done by a central lab, for things like annual physicals, because they require a large amount of blood and the big machines are more efficient, Linbeck said. But the team foresees doctors and clinics using Brevitest to routinely monitor patients with compromised immune systems or to track specific biomarkers for cancer and other infectious diseases.

Most breakthrough research in health care and medical devices never makes it out of the lab because investors lack the patience required to bring a product to market.

Leo Linbeck III, left, founder and chairman of Fannin Innovation Studio and managing partner Atul Varadhachary, right, develop medical technologies along with their portfolio companies like Procyrion. Wednesday, Nov. 12, 2014, in Houston. (Photo/Marie D. De Jesus, Staff / Houston Chronicle)

The company's strategy of licensing bio-medical discoveries and gathering researchers under the studio's umbrella to keep administrative overhead low until they had a commercial product. Linbeck said the investor community needs to have more conversations about the best way to finance life science startups.

"There's a lot of misconceptions about the way that this stuff works," he said. "Having been down in the weeds, I have a greater level of humility and respect around just how difficult this is. The human body doesn't like to be tinkered with, which is great news for us from an evolutionary standpoint, but it's not so great from a medical innovation development standpoint."

From an investor perspective, Linbeck said the most significant challenge was finding the right people to manage the transition from the research lab to a for-profit company. Fannin recruits and trains people with medical and life science skills who are interested in entrepreneurship.

"This is about making a big pile of money because that's also what will sustain us over the long haul," Linbeck said. "That means that we get involved early, and it takes longer, but when the payoff happens, I think it'll be really-big multiples."

Energy projects and technology investments can pay off big, too, and take less time. But Linbeck said he doesn't mind the wait to build a business that saves lives.

"Anything really important and high impact takes a decade," he said. "It just does." (Courtesy houstonchronicle.com)