



Your Philanthropy in Action: COVID-19 Response

Improving Testing and Diagnosis, Helping High-Risk Communities, and Launching Vaccination Hubs

UCSF is deeply grateful for your timely and generous gift during the COVID-19 pandemic.

Your philanthropy empowers us to pursue innovative research, connect disadvantaged patients to timely testing and support, and much more. Thank you. Read on for some of the latest updates on how you have helped UCSF respond to the pandemic.

Prioritizing High-Risk Populations

Your donation has helped us expand testing and care for those facing the highest risk of infection in the Bay Area – and share lessons learned with communities across the nation.

Providing Support, Testing, and Vaccination for Low-Income, Vulnerable Patients

Sadly, COVID-19 rates remain particularly high among low-income Latinx residents in the Bay Area, and people of color across the country continue to face infection, hospitalization, and death from COVID-19 at disproportionate levels.

That's why UCSF has been partnering with San Francisco's Latino Task Force to provide free testing in the neighborhoods that need it most. For example, the team's post-Thanksgiving testing campaign served more than 5,000 people at four sites: the 24th Street BART Station, the Excelsior, Bayview, and the Tenderloin. Most of the Latinx residents who tested positive – 4 out of 5 in this study – had low-wage jobs in food service or day labor. More than 40 percent of them had no symptoms when they were tested.



UCSF researchers offered both the standard PCR test and Abbott's BinaxNOW rapid test, which delivers results in just 15 minutes. This approach has enabled them to assess how reliable the rapid test is (see "Evaluating the Efficacy of New 15-Minute Tests" for more) and to ensure that those who test positive know right away, so they can take immediate measures to stop the spread of the virus.

In addition, people who test positive and don't have access to financial assistance programs can receive wage replacement. Drawing on the crucial donations that you and other supporters have contributed, UCSF researchers hope to demonstrate to public health officials across the country that wage replacement is an essential part of combating the spread of the virus. Low-income people often face greater exposure to SARS-CoV-2, but they struggle with serious financial consequences if they quarantine.

In January, testing efforts have continued in the Mission with a new goal: quickly scaling up vaccination for high-risk groups. The research team recently surveyed people at the testing sites about their attitudes and plans related to COVID-19 vaccination, and the resulting insights will inform vaccination efforts focused on reaching high-risk populations and overcoming misinformation and fears about the vaccines.

UCSF and its partners have already started this work, launching a new vaccination hub in the Mission in early February and providing the first doses to community health workers and people age 65 and up. More vaccination hubs will soon open in other neighborhoods that have high rates of COVID-19 infection.

For more on the testing, outreach, and innovation you have made possible, see:

- [**UCSF Partnership With San Francisco Brings COVID-19 Vaccinations to the Mission District**](#)
- [**Latinx Frontline Workers Continue to Show High COVID-19 Rates**](#)
- [**Ongoing Inequality Highlights Need for Community-Based Test-and-Respond Strategy**](#)



Fast-Tracking Crucial Research

With your support, our researchers are continuing to tackle challenging questions related to the COVID-19 crisis – discovering new approaches to fight the virus and deepening our understanding of exactly how it affects patients.

Identifying a Potential Cure in a Cancer Drug

After many months of searching for existing drugs that might help the most ill COVID-19 patients, scientists at UCSF's Quantitative Biosciences Institute (QBI) and their colleagues in New York have discovered that plitidepsin, a multiple myeloma drug used in Australia, shows significant antiviral activity against SARS-CoV-2.

Their laboratory experiments indicate that the compound, originally discovered in a Mediterranean sea squirt, is almost 30 times more potent against the novel coronavirus than remdesivir, an antiviral drug approved in the U.S. for treatment of COVID-19 in October. In preclinical models of the illness, plitidepsin led to a 100-fold reduction in viral replication in the lungs and reduced lung inflammation.

The research team also worked with a lab in the United Kingdom to test plitidepsin against one of the new, more transmissible variants of the coronavirus. The drug had very similar effects on the variant.

In Spain, 45 patients with COVID-19 have already taken the drug in a phase II clinical trial run by the pharmaceutical company that first extracted plitidepsin. Early results suggest that plitidepsin reduced patients' time in the hospital, with 4 out of 5 going home within two weeks. Typically, only half of hospitalized COVID-19 patients return home in that time frame.

Effective treatments are still urgently needed in the fight against the disease; remdesivir seems to offer only a modest benefit to patients, yet it is the sole treatment sanctioned so far by the U.S. Food and Drug Administration.

Developing a Unique, Low-Cost Way to Combat COVID-19

UCSF scientists have developed an exciting method for overcoming the virus unlike anything else on the market: an aerosol with a molecule that stops the novel coronavirus from infecting human cells. The molecule is among the most potent SARS-CoV-2 antivirals discovered so far.

Called "AeroNabs" by its creators, the molecule can be delivered via an inhaler or nasal spray. Further study is needed, but if AeroNabs is ultimately brought to market, a daily dose might provide reliable protection against the virus for people who have not been vaccinated.

While vaccines are now becoming more widely available in the United States, an alternative, inexpensive method of prevention could still prove important in low-income countries, where vaccination efforts have been delayed by financial and logistical challenges. AeroNabs could also play a role in fighting infection in patients already diagnosed with COVID-19, helping to reduce their viral load and odds of serious illness.



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The researchers behind this donor-funded study were inspired by nanobodies, which are antibody-like immune proteins that llamas and camels produce naturally. Nanobodies are much smaller than the antibodies that fight infection in humans. And unlike human antibodies, synthetic nanobodies can be mass-produced at a relatively low cost.

AeroNabs' synthetic nanobodies work by blocking the normal activity of SARS-CoV-2's spike proteins, preventing those spikes from latching on to the ACE2 receptors found on the surface of human cells in the airway and lungs. Unable to lock onto the ACE2 receptors, the virus cannot enter the cells and replicate. Without the ability to reproduce itself in the body, the virus soon dies – leaving its human host unharmed.

Meet the Frontliners

Curious what it was like to be the physician in charge of an emergency department right after the COVID-19 pandemic began? Ever wonder how it feels to help handle a sudden surge of new cases at a Navajo Nation reservation?

You can explore these and other experiences of UCSF faculty, staff, and students on the front lines of the fight against the new coronavirus. From a doctor testing promising treatments to a respiratory therapist helping the sickest patients breathe, each has a story to share.

LEARN MORE: ucsf.edu/magazine/frontliners

“ It’s really heartbreaking to see this disease continue to progress. At the same time, it’s heartening to see people coming together to figure out the best way to advance the science and care for patients ... The pace at which our understanding is growing is remarkable. ”

– Annie Luetkemeyer, MD, UCSF physician-researcher



“ It’s been such a joy and an honor in this really crazy, tragic time to still be able to serve and love people really well. This is why I became a nurse. This is why I do what I do. ”

– Alicia Catanese, RN, member of a UCSF Medical Center team that traveled to Gallup Indian Medical Center





Evaluating the Efficacy of New 15-Minute Tests

Scientists at UCSF and the Chan Zuckerberg Biohub have been studying a new rapid SARS-CoV-2 test for months, comparing its results to those of PCR tests – the most reliable and widespread testing method. They found that the rapid test, which costs less and returns results in as little as 15 minutes, is extremely useful in community testing efforts, given the need to quickly identify those most likely to be infectious and prevent further transmission.

While PCR tests for the SARS-CoV-2 virus remain the gold standard, they are also expensive. They require specialized

equipment, and results can take days. By the time the news gets to infected patients – many of whom shed high levels of the virus, despite having no symptoms of illness – they have often exposed many more people.

Millions of the BinaxNOW rapid COVID-19 tests, designed and manufactured by Abbott, have recently been distributed to public health departments, schools, and workplaces across the country. But the tests were initially approved only for a specific use by physicians: diagnosing people suspected of having contracted COVID-19 within the prior week. The UCSF/Biohub researchers evaluated how the tests perform in a community testing environment.

"We are detecting over 99 percent" of those who are highly infectious, regardless of whether they report symptoms, said Diane Havlir, MD, chief of UCSF's Division of HIV/AIDS, Infectious Disease, and Global Medicine. "We have practically no false positives."

Based on their most recent data analysis, Havlir's team has decided to exclusively use the rapid test at UCSF's community testing sites moving forward. In addition, the Biohub team is studying the specific molecular strains of SARS-CoV-2 in high-risk communities over time, rapidly identifying any new variants and generating potentially crucial insights into viral evolution. (See "Supporting Low-Income Patients and Preparing for Vaccination Campaigns" for more on testing efforts.)

Improving Diagnosis of COVID-19 and Revealing Immune Effects

Researchers from UCSF and the Chan Zuckerberg Biohub have created a new way to test for COVID-19: detecting a pattern of genetic expression in patients infected with the virus. The novel test offers a useful method to double-check for potential errors generated by standard tests.

The latest UCSF-designed testing approach is efficient, drawing on genetic material from the same nasal swabs used by most common testing methods. The study's findings also suggest that SARS-CoV-2 might suppress immune reactions during the first stages of infection – unlike many other respiratory viruses.

This suppression of immune response during the early stages of COVID-19 infection might explain why many individuals with COVID-19 are asymptomatic during the first few days of infection. Unfortunately, that's also the time when they are most likely to transmit the virus to others.



Discovering Unique Effects on Pregnant Women

The research team behind the UCSF-led PRIORITY study (Pregnancy Coronavirus Outcomes Registry) – the largest nationwide study of COVID-19 among nonhospitalized pregnant women – recently found that about 1 in 4 pregnant women who test positive for the SARS-CoV-2 virus experience symptoms that last longer than two months.

The most common initial symptoms for pregnant women are cough, sore throat, body aches, and fever. Fortunately, most people in the study had mild cases. Previous research on SARS-CoV-2 infection during pregnancy has focused on hospitalized patients.

The findings – made possible with gifts from donors like you – will help pregnant patients and their physicians understand what to expect in the event of COVID-19 infection. The PRIORITY team is continuing its efforts to understand how COVID-19 impacts pregnant women and their newborns over time.

For more on the research you have generously supported, please see:

- [**The UCSF-Led Team Racing to Find a COVID Cure May Have Found a Promising Candidate**](#)
- [**'AeroNabs' Promise Powerful, Inhalable Protection Against COVID-19**](#)
- [**New COVID-19 Testing Approach Measures Patients' Immune Response for Better Diagnosis**](#)
- [**Abbott Labs Rolls Out Its BinaxNOW Rapid COVID-19 test to Schools and Workplaces Nationwide**](#)
- [**Rapid COVID-19 Test Shows Promise in Community Test Setting**](#)
- [**COVID-19 Has a Prolonged Effect for Many During Pregnancy**](#)



Thank You

Our scientists, physicians, and researchers have continued to advance our understanding of COVID-19 and the standard of care for patients – locally and globally – thanks to your support. We appreciate your important contribution to UCSF's efforts to rapidly reduce the harm caused by the pandemic.

See our [April](#), [May](#), [June](#), and [August](#) updates to learn more about UCSF's response to the new coronavirus and how donations like yours have made a difference.

Get the latest news on UCSF's COVID-19 initiatives [here](#).



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