



Your Philanthropy in Action: COVID-19 Response

Fueling Progress Toward a Cure, Improving School Safety, and Serving the Most Vulnerable

UCSF is deeply grateful for your timely and generous gift during the COVID-19 pandemic. Your philanthropy empowers us to conduct innovative research, ensures that disadvantaged patients get the testing and support they need, and keeps our staff members healthy and safe. Read on for some of the latest updates on how you have helped UCSF respond to the pandemic.

Fast-Tracking Crucial Research

With your support, our researchers are tackling a variety of challenging questions related to the COVID-19 crisis – from increasing our understanding of how the virus spreads to developing effective treatments and a vaccine.



Improving Antibody Testing and Taking Steps Toward True Immunity

Researchers at UCSF have been working quickly to improve testing for coronavirus antibodies. This work is crucial because the antibodies – proteins the body makes to fight infection – are useful for detecting past COVID-19 infections in patients. Antibody testing also determines whether people can donate convalescent plasma, a promising treatment for critically ill COVID-19 patients that is still being studied.

Your generous support has helped UCSF scientists develop new antibody-testing techniques that are fast, reliable, and cheap. For example, unlike many currently available antibody tests, one new UCSF-designed test requires a minuscule

amount of blood collected via a finger stick (similar to what diabetics use to routinely check their blood sugar). The test also employs small, hand-held instruments that can produce results in just 30 minutes. Patients have the convenient option of receiving their results right at the testing site.

Some other antibody tests on the market share the high level of accuracy of UCSF's test but have drawbacks, such as requiring blood to be drawn from a vein (a more complex technique that some patients fear or find painful) or using unwieldy testing instruments that are based in a separate laboratory. UCSF's new test is also much less expensive.

If this new testing approach receives approval for broader use, it may prove particularly helpful in low-income countries and rural areas, where patients might face greater difficulty with receiving or following up on their results once they have left the testing site. (Health inequities can result from very practical concerns, such as a patient not being able to consistently pay for mobile phone service or not having the time or means to travel back to a medical facility.) The researchers are also exploring whether saliva-based testing might be just as accurate – an antibody-testing approach that, if successful, would be even less invasive than a finger stick.

Unfortunately, a positive test for antibodies doesn't necessarily mean that a patient is permanently immune to the new coronavirus, and scientists around the world are rushing to understand how to achieve long-term immunity. UCSF researchers are studying the different kinds of human antibodies discovered so far and the many genetic strains of SARS-CoV-2 – the virus that causes COVID-19 – that have already evolved.

By investigating how these antibodies and safe, slightly altered versions of the mutated virus interact, UCSF researchers are learning which antibodies are most effective at wiping out the coronavirus and which antibodies offer little to no protection against diverse strains of the virus. Their insights are poised to make an important difference in developing vaccines and using engineered antibodies to treat COVID-19.





Making Progress Toward Effective Treatment

UCSF scientists recently identified key chemical building blocks that could eventually be used to create an antiviral drug that fights SARS-CoV-2. Your gift has helped make these kinds of discoveries possible.

The compounds that the researchers identified bind to an enzyme produced by SARS-CoV-2, the “macro domain,” which the virus relies on to replicate in human cells. Some viruses – including those in the SARS family – have evolved macro

domains with the ability to block certain enzymes that would otherwise combat infection. Drawing on X-ray crystallography technology, UCSF researchers have been working to understand the molecular structure of the macro domain and to identify small molecules that can jam the viral protein’s active site. Scientists hope to use these promising findings to build drugs that halt the virus’s ability to replicate and spread in the body.

Researchers are now hard at work exploring if the compounds can be turned into a viable drug that works against the virus. The search for a better treatment for COVID-19 remains critical, given uncertainties about when a vaccine will be proven effective and vetted for widespread use.

Studying Summer Camps to Inform School Safety

As we all wait for news of a fully proven vaccine or treatment, officials around the world are struggling over whether and how they might reopen schools safely in the interim. In other countries where schools have reopened, findings about the risk of spreading COVID-19 have been mixed – especially among younger children who have not yet entered high school – and the studies were not designed to closely track transmission over time. Without a better understanding of the dynamics of coronavirus infection in school settings, it remains difficult for anyone to make informed decisions.

That’s why UCSF researchers are gathering data on the spread of COVID-19 in similar settings: summer camps. They hope to use the initial findings to inform school-opening policies and a possible school-based study in the future.

The summer camp study will take place over a few weeks in two different locations: an indoor camp for elementary and middle schoolers in a neighborhood with a low prevalence of the virus and an indoor/outdoor camp for elementary schoolers in a relatively high-prevalence neighborhood. In addition to offering free testing for COVID-19 infection and antibodies to children, parents, and staff at the beginning and end of each camp term, the study staff will evaluate the infection-control policies in place at each camp and the symptoms and living situations reported by each family.

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

- [**Building Blocks for COVID-19 Antiviral Drugs Identified in Rapid Study**](#)
- [**Is This the Future of Schools? Kids Learn to Administer Their Own COVID-19 Test**](#)

Prioritizing High-Risk Populations

Your donation has helped us improve prevention, testing, and care for people living in particularly high-risk conditions in the Bay Area – and produce insights that can be used to help communities struggling with similar challenges throughout the country.

Testing and Services for People Facing Increased Risk in Oakland

People who face economic disadvantages – from overcrowded housing to low-wage jobs that cannot be done remotely – have suffered from COVID-19 at much higher rates in the Bay Area and across the country. Your donation will help UCSF researchers launch three new studies of low-income communities in Oakland, offering free testing for active and past infection. Conducted in close partnership with community organizations and public health officials, these studies will also provide food delivery and other services to those who need to quarantine at home or distance themselves from members of their household who have tested positive for the virus.

These kinds of partnerships – similar to those already forged by UCSF researchers in San Francisco – will prove essential throughout the pandemic. The researchers also hope to conduct follow-up community testing based on their initial findings about which occupations face the highest risk of infection – for example, testing day laborers who use public transportation – to help monitor and mitigate the spread of COVID-19. Community partnerships will also be crucial when Bay Area researchers prepare to test vaccines and eventually introduce wide-scale vaccination programs.

The researchers are still finalizing the East Bay locations, but they expect to test in a predominantly Latinx neighborhood, a predominantly Black neighborhood, and with unhoused populations. Their intent is to conduct follow-up studies at each of these sites over time, monitoring the state of the pandemic in these high-risk communities.

Launching Community-Based Contact Tracing in the Mission and Bayview

Prompt contact tracing – tracking down everyone with whom a person infected with COVID-19 has had close contact, so they can get tested and quarantine themselves – can reduce the spread of the virus. Unfortunately, public health officials sometimes struggle to get the fast, accurate information they need to complete effective contact tracing.

There are many reasons why an infected person might withhold information about who they have been in contact with, but most are related to a lack of trust in government authorities and how they might use the data. For example, people with low incomes might fear losing hourly jobs that cannot be done from home or causing their coworkers to lose pay. In particular, people who are undocumented may worry about losing informal work and about the immigration-related consequences for friends or family members if they share their names and contact information.





That's why UCSF's Latinx Center of Excellence has created a new contact-tracing program in partnership with organizations based in San Francisco's Mission District and Bayview neighborhood. Together, they will deploy trained health workers, many of whom speak Spanish and live in the same communities as the COVID-positive people they will reach out to for contact tracing.

Prior studies have linked trust and shared language to positive medical outcomes, and UCSF experts are optimistic that the project will lead to more rapid and accurate contact tracing among groups that are particularly vulnerable to the virus. An earlier UCSF study of COVID-19 in the Mission found infection rates were nearly 20 times higher among Latinx participants, mostly because they could not shelter in place and maintain their incomes.

The health workers will also connect infected people and their recent contacts to health and social services that they might need in order to isolate themselves safely. UCSF researchers plan to evaluate the community-based program and compare its effectiveness with traditional contact-tracing efforts, with the hope of serving as a replicable model for other cities and counties struggling with contact tracing in vulnerable communities.

For more on the testing, care, and innovation you have supported, see:

- [**Coronavirus Disproportionately Hits Latinos in California**](#)
- [**Inequality Fueled COVID-19 Transmission in San Francisco's Mission District, Says New Study**](#)
- [**Bay Area's Contact Tracers Struggle Amid Coronavirus Surge**](#)



UCSF Thanks 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](#) and [June](#) updates to learn more about UCSF's response to the new coronavirus and how donations like yours have made a difference in recent months.

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



University of California
San Francisco

Photographers: Stephan Babuljak, Noah Berger, Susan Merrell, Barbara Ries
Additional photos courtesy of the National Institute of Allergy and Infectious Diseases.