

For the past three decades, the [UC Davis Division of Infectious Diseases](#) has been known for its leading-edge research and treatment of HIV and AIDS. Their physicians and researchers were also at the forefront of [COVID-19](#) treatment, vaccine development and clinical trials since beginning of the pandemic. The team continues to remain at the forefront of infectious diseases research, ranging from HIV/AIDS to fungal diseases.

Infectious disease research at UC Davis gained significant momentum in the late 20th century, notably marked by its pioneering efforts in HIV/AIDS research. At a time when the world grappled with the emerging HIV epidemic, UC Davis researchers in infectious diseases, immunology and related disciplines dove into the heart of the crisis, seeking to understand the virus' intricacies and its profound impact on human health. Their work included [groundbreaking community health initiatives](#) that helped enroll patients in research studies, advocate for needle exchange programs and support equality for everyone, regardless of their personal choices.

Today, breakthrough HIV research is still happening at UC Davis. Using UC Davis' world-class stem cell research facilities, a multi-site team of researchers, including clinical professor of infectious diseases [Paolo Troia-Cancio](#), is using [CAR-T therapy to search for a cure for HIV](#). Normally, T cells fight off infections in the body, but sometimes they need extra help. In CAR-T therapy, doctors take a patient's T cells and add a molecule called Chimeric Antigen Receptor (CAR) to them – forming CAR-T cells. The CAR-T cells are better at finding and fighting infections. If the researchers can find the correct dose of the CAR T-cell therapy for destroying HIV cells, they'll be a step closer to developing a cure for HIV.

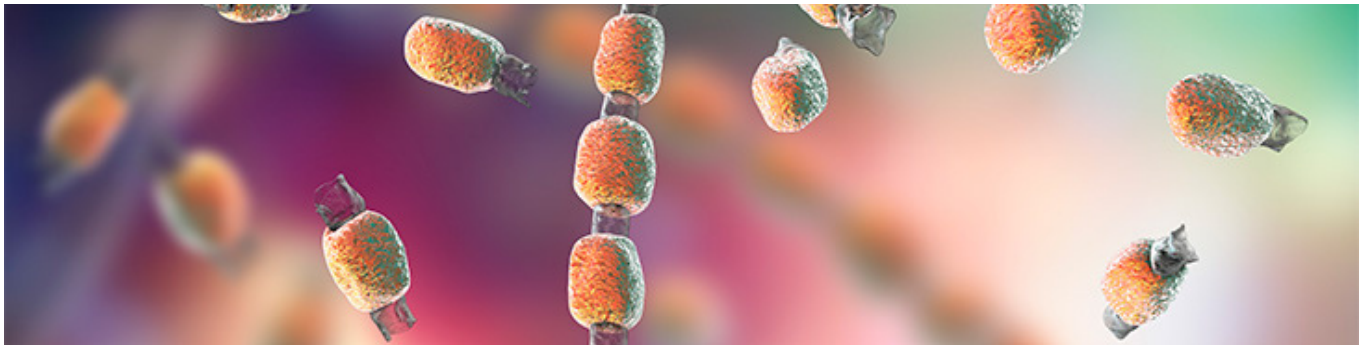
With the onset of the COVID-19 pandemic, UC Davis swiftly pivoted resources and expertise to confront the novel coronavirus. Leveraging its multidisciplinary strengths, the university's researchers embarked on a wide array of projects aimed at understanding SARS-CoV-2, the virus responsible for COVID-19. From studying its transmission dynamics and potential treatments to developing testing protocols and vaccines, UC Davis has been at the forefront of COVID-19 research. This research has extended to the post-pandemic era, as we continue to learn more about COVID-19 and Long COVID.

- A team of UC Davis scientists, including infectious diseases chief [Stuart Cohen](#), used [dynamic total-body positron emission tomography \(PET\)](#) to provide the first imaging of the human body's immune response to COVID-19 infection in recovering patients.
- [Professor George Thompson](#) conducted a [research study](#) on the antibody drug, VIR-7831, to see if it helps with COVID-19 symptoms. The antibody has been modified to last longer in humans and may improve the body's ability to fight off coronavirus infection.
- [Professor Hien Nguyen](#) is the site PI of an [international, multi-center study](#) to limit disease progression in hospitalized adult patients with COVID-19 or other community-acquired pneumonia.

Emerging Research

One of the hallmarks of UC Davis's infectious disease research is its commitment to the [One Health](#) approach, recognizing the interconnectedness of human, animal and environmental health. This perspective has led to innovative studies on zoonotic diseases, which are transmitted from animals to humans, and has informed strategies for disease prevention and control that consider the broader ecological and social determinants of health.

Today, UC Davis infectious disease researchers continue to keep an eye on emerging threats and the implications of global phenomena, such as climate change, on infectious diseases. This is critical in a world where climate change is increasingly recognized as a driver of infectious disease outbreaks. Thompson



Valley fever is caused by fungi that live in the soil.

recently co-wrote an article that calls for more awareness and preparedness in the medical field to deal with the impact of climate change on the spread of diseases. [This article, published in the March 20 issue of JAMA](#), raises the alarm about the emergence and spread of harmful pathogens. The authors also urge the medical community to update their education and training and take steps to combat global warming.

Nurturing the next generation of scientists

UC Davis places a strong emphasis on nurturing the next generation of scientists through initiatives like the [Infectious Disease Student Assistant Research Program](#). This program offers students a unique opportunity to dive into the world of infectious disease research, working alongside seasoned experts in the field. Participants gain hands-on experience in cutting-edge research projects, from studying the mechanisms of disease transmission to developing new diagnostic tools and treatments. This not only enriches their academic journey but also prepares them for impactful careers in public health, virology, epidemiology, and beyond. By investing in the education and training of young researchers, UC Davis is ensuring a continuous flow of fresh ideas and talent into the critical field of infectious disease research, further solidifying its role as a leader in addressing global health challenges.

Recent highlights in UC Davis Infectious Disease Research

Beyond HIV/AIDS and COVID 19, the UC Davis School of Medicine conducts broad infectious disease research to encompass a wide array of pathogens, from emerging viruses to antibiotic-resistant bacteria. The institution's multidisciplinary approach leverages expertise from various fields, including epidemiology, immunology, and molecular biology, to tackle complex infectious disease challenges. This collaborative ethos extends beyond the confines of the university, fostering partnerships with public health organizations, global health initiatives, and communities affected by infectious diseases.

Some of this current research includes:

- Cohen's studies on the efficacy of new medications: one for immunocompromised patients with Herpes Simplex Virus (HSV) infection who are resistant to the typical treatments, and one for adult and adolescent patients with acute Hepatitis C Virus (HCV).
- Thompson's study on a drug for people diagnosed with an Aspergillus, an invasive fungal disease (IFD), which is a severe and life-threatening infection caused by a fungus.
- Studies by associate professor [Sebastian Erwin Winter](#) on the central metabolism of Salmonella in the inflamed gut and to define the role of cell-signaling protein interleukin 1b in host manipulation by Salmonella Typhimurium.
- A project by associate professor [Joseph Anderson](#) looking at the feasibility of a stem cell gene therapy approach for the treatment of SYNGAP1-related NSID (intellectual disability related to mutations in the SYNGAP1 gene)
- A study by assistant professor [Bennett Penn](#) to determine how Mycobacterium tuberculosis disrupts the host immune response to establish infection in humans, and to use this information to develop better vaccines and therapies for tuberculosis.