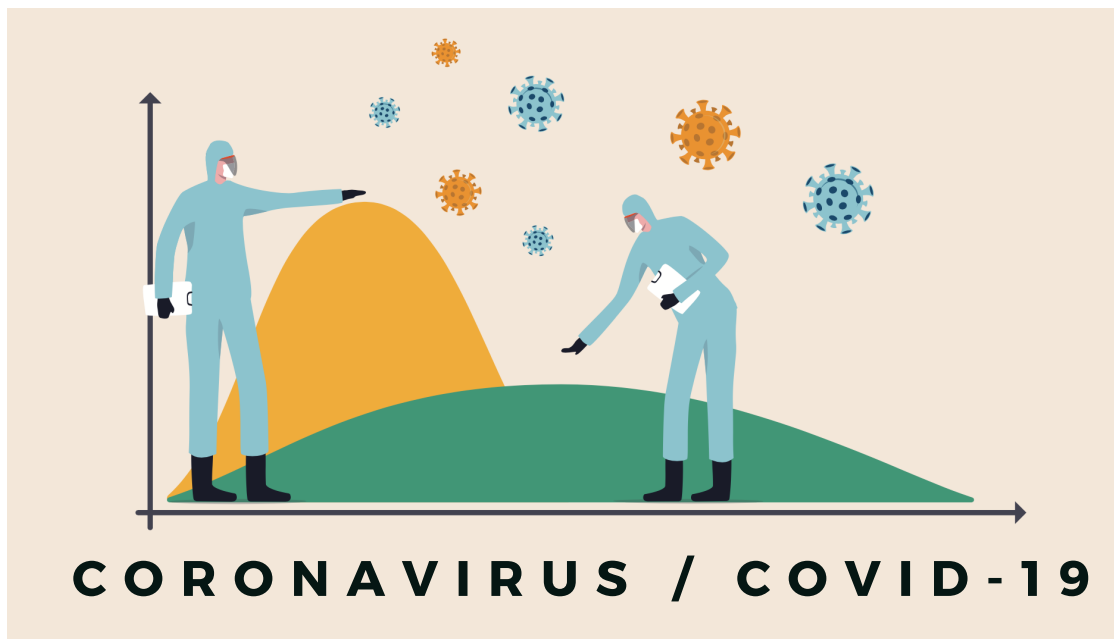




The Bench & Beyond

NEWSLETTER OF SAN DIEGO BIOMEDICAL RESEARCH INSTITUTE

GIVING EVERY PATIENT A FIGHTING CHANCE



TAKING A CLOSER LOOK

Over the past two months, a new coronavirus, SARS-CoV-2 has dominated the news and the lives of people around the globe. SARS-CoV-2 causes a disease which we all know as COVID-19. As this is being written, the number of people infected worldwide is 3,110,696 with 215,231 deaths. In the US the numbers reflect over 1,000,000 infected and over 57,000 deaths. Worldometer offers [real-time data](#) for tracking these statistics. Some of us are safe at home waiting out the storm and doing our best to not intensify the problem by maintaining self-isolation. For others, loved ones have been lost and we offer our most sincere condolences. To all of those working in the health care industry, whether it be in hospitals, clinics, residential communities or in private homes, and to those delivering medical and other supplies, working in our grocery stores, restaurants and pharmacies, and to people working in the transport industry and other essential businesses, we thank you. To those who are not working but want to, we hope for that opportunity soon. We send our warmest wishes to all. We recognize that this is a time of great uncertainty and that many are feeling anxious at the monumental events that have turned our lives upside down.

As a non-essential business SDBRI followed the California State mandatory order to work from home, beginning the evening of March 19, 2020. Within a few days SDBRI transitioned into a remotely run institute. Currently, research teams meet regularly to discuss scientific progress using various video platforms, administrative staff maintain ongoing operations, bookkeeping and finance teams continue to reconcile accounts and budgets, and our weekly virtual social gatherings are developing a life of their own. We are writing manuscripts, grants and analyzing data for publication. With the help of technology, institute members can carry out our mission with the same collaborative ethos beyond the bench (and office).

Scientists at SDBRI are working with each other and with scientists and physicians at other organizations to develop strategies that will enable us to understand why some people have severe disease and others mild or no disease when infected with SARS-CoV-2. We hope that information will contribute to the development of new treatments to prevent severe disease. We are also working on understanding whether and how infection with SARS-CoV-2 leads to immunity. We have never before seen such a sense of urgency in discussions between scientists, physicians and companies, all jumping into the conversation and wanting to help.



TAKING A CLOSER LOOK CONTINUED

Flattening the curve has been the driving force behind many of the strategies and policies that have been shaping our daily lives. To flatten the curve means to distribute the patients being treated within the health care system over a longer period of time. The idea is to reduce the number of people with COVID-19 at any one time so that the health care system is not overwhelmed. Currently around 4,000 patients die worldwide every day, and more than a third of those are Americans. Time magazine has a tool which tracks the [angle of the curve daily for the 50 states](#) within the USA. For patients with severe symptoms, the level of care is intense, often requiring a ventilator and one on one care to have any chance of survival. If the health care system, which means personnel, equipment, ICU beds and PPE is beyond capacity during a surge in COVID-19 cases, there may not be enough resources to properly treat and take care of patients in that location, resulting in a higher death toll. Flattening the curve is a community effort and requires us to keep a distance from each other so that we do not spread the virus from one person to another. If we are successful, our health care systems will be able to provide patients (including those being treated for reasons not related to COVID-19) with the quality of care that we are accustomed to. In addition, flattening the curve allows researchers more time to develop and test new treatments and vaccines. If we can reduce the rate of the pandemic, both quality of care and treatment strategies will be more effective, lowering the fatality rate.

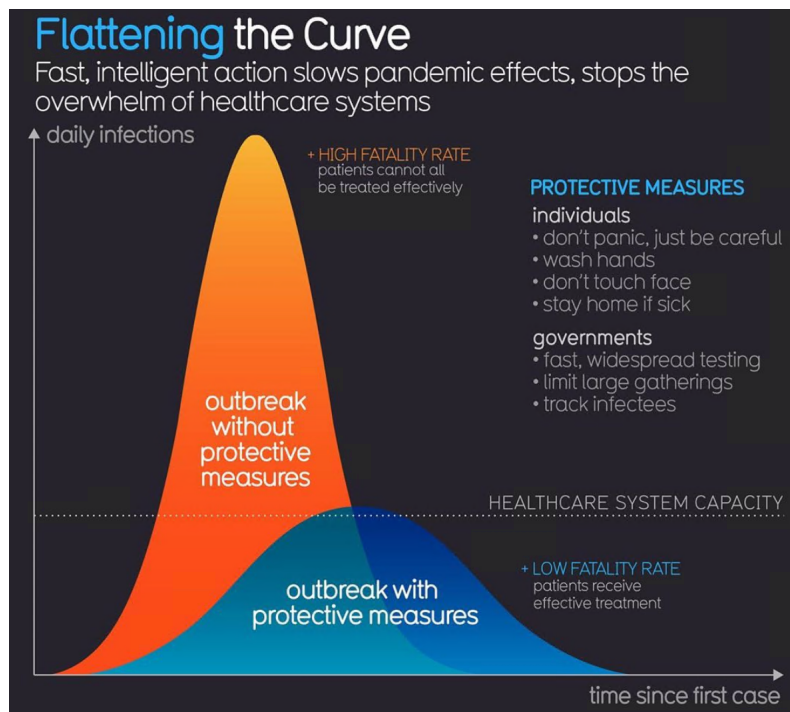


Image source: [@informationisbeautiful on Instagram](#)

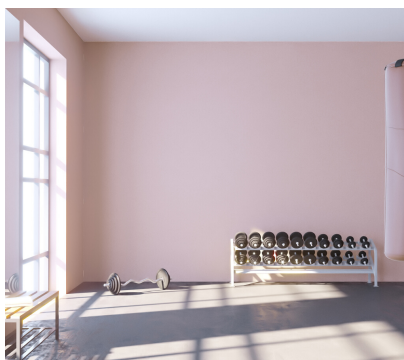
It's not easy to self-isolate, to not see friends and family, and to lose our daily routine and access to our normal lifestyle. Here are a few tips that SDBRI distributed to its staff.

1. Communicate through 10-minute daily phone calls with colleagues and friends and join institute lunches and social hours.
2. Incorporate as much of your pre-quarantine routine as possible such as morning routines of showering and changing out of pajamas. Identify and dedicate a workspace.
3. Limit intake of COVID-19, avoiding anxiety-inducing headlines and focus instead on reputable expert sources including the World Health Organization (WHO), the Center for Disease Control (CDC) and the National Institute for Allergy and Infectious Disease (NIAID).
4. Keep an open line of communication with people you trust to discuss loneliness or anxiety. It's likely you are not alone in your experience, and these trusted individuals are likely to appreciate your bravery in expressing these sentiments to them.

We each play an integral part in flattening the curve. From everyone at SDBRI, we hope you are finding peace and stability during this health crisis. We have plans for a happy and healthy future but for now, stay strong, stay safe, stay well, and stay inside to save lives.



NEWS & EVENTS



SDBRI Ranked #11 in 2019 Fiscal Year for NIH Funded Organizations

We are excited to announce that SDBRI has ranked #11 out of 107 National Institutes of Health funded organizations in San Diego County in total funding awarded in the 2019 fiscal year. We are honored to be sharing our ranking in the top 15 with world-renowned research organizations – University of California San Diego, Scripps Research Institute, Salk Institute for Biological Studies, La Jolla Institute for Immunology, and Sanford Burnham Prebys Medical Discovery Institute!

This funding allows us the opportunity and privilege to further our mission to find new ways to predict, prevent and alleviate the devastating effects of cancer, diabetes, neurological disease, and HIV infection, by accelerating medical advances that maintain and improve quality of life. Our team, who work with great resolve, would like to recognize that our success is the result of a joint venture with our non-SDBRI colleagues, financial contributions from the NIH, private donors and foundations, and our many community partnerships.

1st SDBRI Clinical Trial

There are more than 3.5 million breast cancer survivors in the United States alone (American Cancer Society). Studies have shown that breast cancer survivors who exercise regularly are at lower risk of their cancer spreading.

The Davies lab has officially kicked off the first SDBRI clinical trial which will test whether exercise that improves muscle strength will also strengthen the immune system. Dr. Davies and her team would like to understand whether exercise reduces recurrence in breast cancer survivors because it strengthens the immune system making it more likely to kill the cancer.

Participants in the trial will undergo muscle strength tests and immune strength tests, followed by a 16-week training program with free membership at either Tri-City Wellness & Fitness Center in Carlsbad, or CrossFit Chula Vista. At the end of the training, tests will be repeated to determine whether muscles and the immune system are stronger than they were before the training.

Drs. Binley and Verkoczy Receive \$9 Million R01 Grant Renewal

Congratulations to SDBRI scientists James Binley, Ph.D. and Laurent Verkoczy, Ph.D. for receiving 5-year renewals of their R01 grants totaling over \$9 million to continue their ongoing HIV vaccine research! Drs. Binley and Verkoczy's research on HIV will use virus-like particles (VLPs) as vaccines.

Their research aims to promote the development of virus-fighting antibodies that can penetrate HIV's "armor" of sugars and bind to sites that are shared by many different HIV strains. The goal of their work is to generate antibodies that can fend off infection by any of the highly diverse HIV strains found around the world.

At SDBRI, we utilize a think-tank approach and therefore champion a collaborative environment. In this project, Drs. Binley and Verkoczy will combine their complimentary expertise on vaccine design, testing, B cell sorting, and next generation sequencing to enhance the chances of making a breakthrough discovery!