

The art of science.

As the top life science provider across our markets, our focus is to deliver state-of-the-art environments. Longfellow creates Class A lab spaces accompanied by best-in-class tenant experience, Elevate, which includes custom art, events, and programming. Bring us your real estate needs, goals, and dreams and we will deliver functionality and beauty into every work day.

lfrep.com

San Diego • Bay Area • Research Triangle • Durham • Boston • New York City • United Kingdom

Longfellow partners with leading universities, institutions and companies to deliver holistic real estate solutions for life sciences and technology organizations. We invest in and develop real estate assets to create transformational work environments. We provide leasing, facilities and property management services for our tenant partners.

Mural by Vincent Ghoste at SOVA Science District



LONGFELLOW

Innovation Accelerates in Response to COVID

LIFE SCIENCES: Pandemic Ushers in Era of Mass-Scale Genomic Medicine

■ By JEFF CLEMETSON

Over past two years, the life sciences industry has played a major role in battling the COVID-19 pandemic. With new vaccines, new therapeutics and faster testing, the world now has better tools to manage COVID as it transitions from a pandemic disease to an endemic one.

While making crucial contributions to the worldwide effort to halt the pandemic, the life science industry itself has in turn been transformed by COVID – often in surprisingly positive ways.



Photo courtesy of Arcturus Therapeutics

Inside the lab at Arcturus Therapeutics.

'Era of Biology'

The most obvious impact the pandemic has had on the life science industry is in the science itself, which the world saw developed and rolled out in real time as it waited for new vaccines and therapies to fight the disease.

➔ *Life Sciences page 10*

Platform Science in Fleet Management Driver's Seat

TRANSPORTATION: Company Raised \$115M in Series C Round

■ By JEFF CLEMETSON

Platform Science will be expanding the reach of its Virtual Vehicle transportation solutions and make it easier for commercial fleets to develop, deploy and manage mobile devices and applications thanks

➔ *Platform page 40*

Cuyamaca College Horticulture Center Gets a \$19.4M Makeover

EDUCATION: New 3,500SF Facility Fully Automated

■ By RAY HUARD

When Cuyamaca College's Horticulture Center opened in 1980, the greenhouse faced the wrong way to get the best sun exposure for growing plants.

"I guess that's because the architect thought it would fit better on the site," said Brad Monroe, vice president of the Grossmont-Cuyamaca Community College District and former coordinator of the ornamental horticulture program at the El Cajon school.

"There was nobody on site that had a



Brad Monroe
Vice President
Grossmont-Cuyamaca
Community College
District

horticulture background," Monroe said. "We lived with that and we were able to establish a retail nursery and a good program that was a standout."

The greenhouse mistake has been rectified as part of a \$19.4 million renovation and

expansion of the college's horticulture center that included a new green house that is about twice the size of the original.

Top Notch

The old horticulture center served the college well, but was a mish-mash of structures, some dating back decades.

"Some were decrepit, literally coming apart," said Leah Rottke, coordinator of the college's ornamental horticulture program.

➔ *Horticulture page 40*

2021: Record Year for SD's Industrial Real Estate

REAL ESTATE: Vacancy Rates Tumbling, Demand at Record Levels

■ By RAY HUARD

Demand for industrial space in San Diego County ended 2021 at record levels with the outlook for 2022 to be a repeat performance of the past year with

➔ *Vacancy page 39*

P.4

TECHNOLOGY: Outliers Fund Invests With XYO/XY Labs

P.7

REAL ESTATE: Cornerstone Communities Has Big Plans for 2022

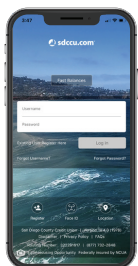
THE LISTS

ENGINEERING FIRMS

Pages 35-37

CELEBRATING BLACK ENTREPRENEURS

SEE PAGES 13 - 20



FREE
Checking
with eStatements

30,000 ATMs surcharge-FREE

SDCCU® Mobile Deposit mobile banking app

Exclusive Discounts sdccu.com/discounts

To access your account online 24/7 visit sdccu.com

Message and data rates may apply.
Federally insured by NCUA.

 **sdccu.com®**

Quest for better

Suffolk has a long history of successfully completing life sciences projects for some of the most renowned institutions in the industry.

8.8 million square feet of lab and research space and counting



Life Sciences

➔ from page 1

“If the 20th century was the era of the digital revolution and the bit, and the 19th century was the era of the industrial revolution and the atom, I believe this century is the era of biology and we have been accelerated into this era by the pandemic,” said **Illumina CEO Francis deSouza**.

Through the mRNA vaccine, the world witnesses genomic medicine adopted on a mass scale. Before the pandemic, genomic medicines were only known through occasional breakthrough stories, like when CRISPR successfully treated sickle cell patient Victoria Gray, deSouza said.

“Those are wonderful [technologies] and very promising in terms of what it points us to, but they haven’t yet been deployed in any kind of scale,” he said. “mRNA has now been deployed as vaccines in over a billion doses. Genomics has changed our world. It has showed up in mainstream medicine.”

Today, mRNA has now gone from fighting COVID to being developed as vaccines for other diseases such as HIV, malaria and even cancer.



Francis deSouza
CEO
Illumina

‘Somewhere In the Middle’ Regulation

La Jolla-based **Arcturus Therapeutics** is one of a handful of publicly traded companies working on mRNA technology. Before the pandemic, the company was focused on developing rare disease treatments. When the pandemic started, Arcturus also began work on its own vaccine with a grant from the government of Singapore.

“Their thought was if the U.S. is making a vaccine, we need another partner in the U.S. to make sure we can get allocations of the vaccine if there is a bottleneck in supply,” said Arcturus COO **Pad Chivukula**.

The Arcturus COVID vaccine program is currently in its phase 3 clinical trial – 25,000 people have been injected so far. The readout is expected in the coming weeks and if the efficacy is good, Arcturus will commercialize its own vaccine in the coming months.

Like the Moderna vaccine developed before it, the Arcturus vaccine is benefiting from another positive



Pad Chivukula
COO
Arcturus Therapeutics

impact of the pandemic – the Operation Warp Speed initiative that sped up the regulatory process of testing to get the vaccine out to the public in record time.

Chivukula said as the pandemic winds down, the regulatory process for testing mRNA therapies will “land somewhere in the middle” of Warp Speed’s ultra-fast and pre-pandemic’s ultra-cautious approval process.

“Before COVID, the regulatory agencies were very concerned on safety,” Chivukula said, adding that some of that concern came from a part of the population that is skeptical of new technology. “From an FDA perspective, this technology was also new and because of that they were very conservative.”

“I think where COVID has helped us is to show that this technology can change lives, first of all, and know that it is safe in billions of people,” Chivukula continued. “Now because of those things, even if the agency becomes a little bit more conservative, they’re still going to be in a better position to approve some of these new therapeutics more quickly.”

Arcturus has two mRNA treatments in phase 2 clinical trials – one is a treatment for Ornithine transcarbamylase (OTC), a rare disorder caused by a missing enzyme leading to a buildup of ammonia in the brain. Life expectancy for those born with the disorder is around five years old.

‘Decentralization of Discovery’

The pandemic, and the success of the new mRNA vaccine technology in addressing it, has also spurred a “decentralization of discovery,” said **Devon Cayer**, CEO of **1859, Inc.**, a platform company that uses AI and microfluidic processors to dramatically speed up the discovery of small molecule drugs.

“Biotech and pharma companies that are established in what they have are now going to be looking for partners that are on the cutting edge trying to do things a little different,” Cayer said. “I see this ecosystem developing where it’s going to be a lot of different platform companies that each specialize in doing something unique and the pharma partners are going to end up being the manufacturers; the ones that do the clinical trials; the ones that take things from 90% to 100% while everyone else does the lay work on the front end.”

Cayer said the groundwork for this ecosystem is being laid by investors who no longer are interested in “going after a lottery ticket” by investing in specific sciences. Platforms that build a foundational ecosystem offer a better chance of getting capital because they can address market demands as they’re presented, he said.

“I think if you build something bespoke and a little



Devon Cayer
CEO
1859, Inc.



Arcturus scientists at lab bench.

Photo courtesy of Arcturus Therapeutics

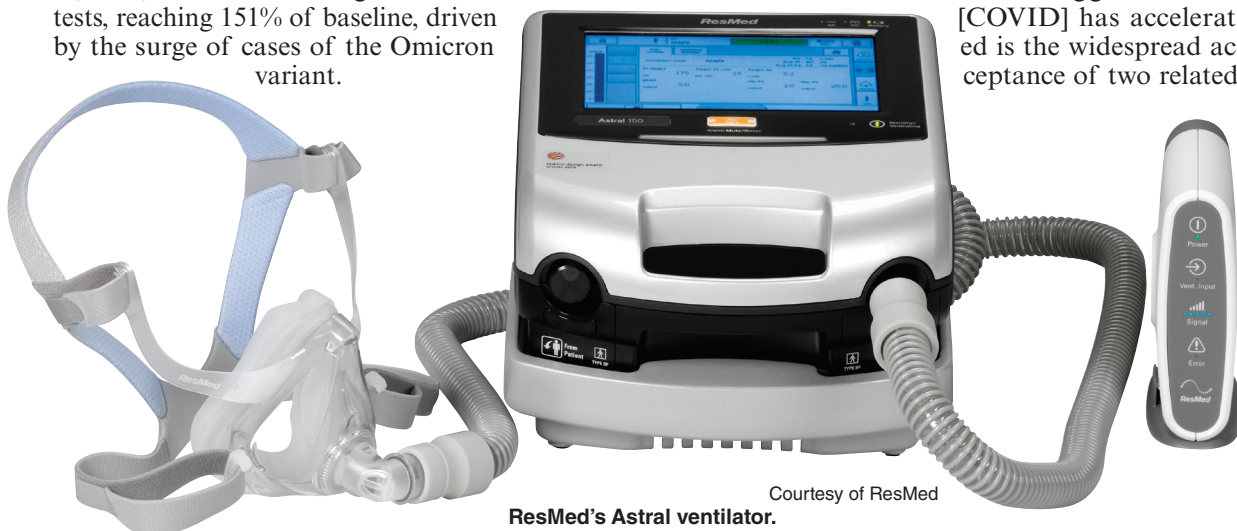
artisan that won't scale, then your business is at risk. But if you build a foundational platform that allows for modularity and the ability to rapidly pivot, that's where you're going to see a lot of companies succeed because biology is dynamic," Cayer said. "The hot trend of today is not going to be the hot trend of tomorrow so you're going to have to have a platform technology that addresses solving the different biologies as it shifts."

Repurposing COVID Investments

Besides the pandemic showing a need for adaptable biological science, it has also shown a need for adaptable physical infrastructure – especially laboratories.

"The pandemic created a scenario where laboratories lost 60% plus of their routine testing with patients not coming in to see their physicians or going to the hospital. But that was more than displaced by all the COVID testing – almost a 250% volume increase. So, while some testing went away, a lot more came in," said XIFIN CEO Lâle White.

XIFIN is a healthcare information technology company that leverages diagnostic information to improve quality and economics of healthcare. The company's Lab Volume Index tracks COVID testing closely and reported that the week ending Jan. 16, 2022, was the all-time high for COVID tests, reaching 151% of baseline, driven by the surge of cases of the Omicron variant.



Courtesy of ResMed
ResMed's Astral ventilator.

"So there's still a lot of testing in the horizon for COVID because many of the businesses, schools, academic centers require testing for their employees and staff and that will still go into next year," White said.

However, she expects that the peaks will begin to go down as COVID shifts from a lower respiratory to an upper respiratory disease, making it less lethal.

"As COVID volume declines and becomes more endemic, we will probably see a lot of the capacity that was built in the laboratories to absorb COVID testing transition into infectious disease testing because the expectation generally in healthcare is infectious disease is growing very rapidly as a problematic thing in our population," White said.

That transition is already taking place throughout the world.

"You've seen companies pivot to fight the pandemic and as part of that get ready to fight other things as well," said deSouza, adding that Illumina machines the company sold, and in some cases donated, to over 100 countries around the world for COVID surveillance are already adapting to future needs.

"That infrastructure isn't going to come down. We now realize ongoing pathogen surveillance systems are essential to identify outbreaks early and prevent pandemics," he said. "Now, not only is that infrastructure going to be used to fight outbreaks and infectious diseases, but also for genetic disease testing and cancer."

'The One Bright Spot'

That the infrastructure is in place at all, is "the one bright spot" of the pandemic, according to White.

"What the pandemic did, because everyone had to scale up so quickly and really put in a lot of equipment and infrastructure, the government was actually very proactive in increasing reimbursement and coverage to the extent that it allowed people to be able to finance that level of infrastructure increase," she said. "So, on the one hand, that was the positive aspect of the pandemic because we had actually lost capacity in the laboratory industry."

Pre-pandemic, reimbursement compression in the lab industry caused margins to go down which led to a consolidation of labs and the healthcare industry lost a lot of its lab capacity, White said.

"The pandemic allowed them to build that back up," she added. "Laboratories are critical. They are the front end of any kind of disease fight you might have – for monitoring or, at the end, finally managing a disease. The pandemic has allowed labs to gain that capacity back, which is a positive."

Although White expects there will be some return to compression of labs as companies consolidate and bring down expenses, she said industry and government now both recognize how much service is needed to address and control disease outbreaks.

"In general, people understand there is a balance; and laboratories are actually practicing medicine," she said. "They're not just a commodity churning something out. They are actually needed when a disease comes."

'A Massive Tailwind'

When – rather than if – another pandemic emerges, the healthcare industry will be better equipped to deal with it thanks to another trend in life sciences that was accelerated during COVID.

"The biggest trend [COVID] has accelerated is the widespread acceptance of two related

things: one is telehealth, the ability of a patient to consult with a doctor or nurse practitioner online; and the other is the drive for digital health and virtual care models," said Jim Hollingshead, president of sleep and respiratory care at ResMed.



Jim Hollingshead
President, Sleep &
Respiratory Care
ResMed

As a global leader in digitally enabled respiratory therapies, ResMed witnessed this acceleration firsthand. Early in the pandemic the company ramped up production of its ventilator products to meet the global need. In a matter of weeks, ResMed overcame an unprecedented supply chain disruption from China as that country shut down and increased production by three and half times its normal output.

"We were able to get a lot of product out the door and I got to say in some cases in almost heroic efforts by our team," Hollingshead said.

One of those products was ResMed's Astral portable ventilator, which is equipped with the company's cloud-based monitoring system, AirView.

"One of the beauties of the Astral product is, because it's portable, it was amenable to being set up in mobile clinics in places like Italy where they were setting up almost military-tent type hospitals," Hollingshead said. "And AirView for ventilation allowed providers to monitor those ventilated patients remotely, which became even more important in COVID."

White also noted the "dramatic" need for technology as patients started receiving healthcare in different areas, not just from home but from places like pharmacies and clinics as people avoided hospitals during the pandemic.

"This was always a transitional thing anyway because consumer demand is really shaping where consumers get their healthcare," she said. "But

► Life Sciences page 12

Suffolk



Prove impossible wrong

At Suffolk, we believe in the power of innovation, thinking differently, and pushing the boundaries of what is possible **to achieve the most value for our clients.**

www.suffolk.com

Life Sciences

➔ from page 11



Lâle White
CEO
XIFIN

convenience and the whole pandemic accelerated that, making patients' access care in more convenient centers.” Hollingshead said that COVID has created “a massive tailwind” for remote care because doctors and patients have grown more accustomed to and more accepting of telemedicine. “I think we’re over the tipping point now with those virtual care models,” he said. “And regulators now are reimbursing, in many cases, a remote visit the same what they would a face-to-face visit, which was a barrier for a long time.”

‘Different Perspective in Talent Recruitment’

Like most businesses in the COVID era, life science companies are facing a shortage of workers to fill needed positions. “It’s never been this bad. Never ever,” said Chivukula, adding that Arcturus filled an employment gap by recently hiring 15 people who work remotely from Boston – something the company would not have considered before the pandemic. “Companies need to have a different perspective in talent recruitment,” he said. “Now we’re not just competing locally, we’re competing globally,” he said. The global competition for talent is driven by technology that enables remote work, a reluctance on the part of employees to return to the grind of battling traffic and a desire by workers to avoid moving to markets with expensive cost of living.



Leslie Loveless
CEO
Sloan Partners



Illumina's San Diego headquarters.

Courtesy of Illumina

“Before the pandemic, people expected to move for new roles,” said **Leslie Loveless**, CEO of **Sloan Partners**, a recruiting firm that specializes in staffing for life science and biotech companies. “Now when we contact candidates, nearly 100% of the time the first question that is asked is ‘Does this company require relocation?’ Even local candidates ask if daily office is required.” In life sciences, there are still some positions, like lab positions, that will always require some degree of in-office work. But even a company like Illumina, which has a lot of staff working in labs and building gene sequencing machines, has had to adapt to the realities of the pandemic and allow some hybrid of in-person and remote work. “But unlike a software company where everyone can work at home remotely, for us we had to figure out how to make our workplaces safe for people to be able to come in,” deSouza said. Loveless said there is “nothing easy” about searching

for talent right now, but companies that are flexible with remote work options are easier to recruit for than ones that are not – and most companies, like Arcturus and Illumina, are adapting to this new standard. “I don’t think it will go back to pre-pandemic,” Loveless said. “To some extent, there will be that in-person team building and that sort of thing, but I do believe that a lot of companies see this as the future.” And this might not be a bad thing overall, she said, as a lot of companies are finding a boost in staff morale as employees find a better work-life balance. In major life science hubs like San Diego and Boston, companies are also finding increased productivity as workers shed time-consuming commutes from their daily schedules. And Loveless said there is another reason why productivity may not suffer from flexible offices: “Our industry is full of brilliant people very dedicated to their work, very motivated behind the mission of the companies they serve, and they want success.” ■

Suffolk



For questions about your upcoming Life Science project reach out to:

Zach Hammond
General Manager, San Diego
zhammond@suffolk.com

Jennifer McCarthy
Director, Strategic Client Development
jemccarthy@suffolk.com



BIOVISTA

BRINGING LIFE SCIENCE &
QUALITY OF LIFE TOGETHER.

9276 & 9330 Scranton Rd | Sorrento Mesa
Class A Labs | **124,663 Available SF**

BIOVISTASD.COM

As Longfellow's top tier life science campus, Biovista is uniquely positioned to provide San Diego's forward-thinking life science community a best-in-class facility with the perfect mix of lifestyle offerings.

San Diego's critical mass of talent and top-ranking institutions fuel the area's robust life science ecosystem, making it a premier market for new and established companies. Tenants will enjoy unparalleled amenities, programs, and services curated by Longfellow's Elevate™ team.



LONGFELLOW™

NEWMARK