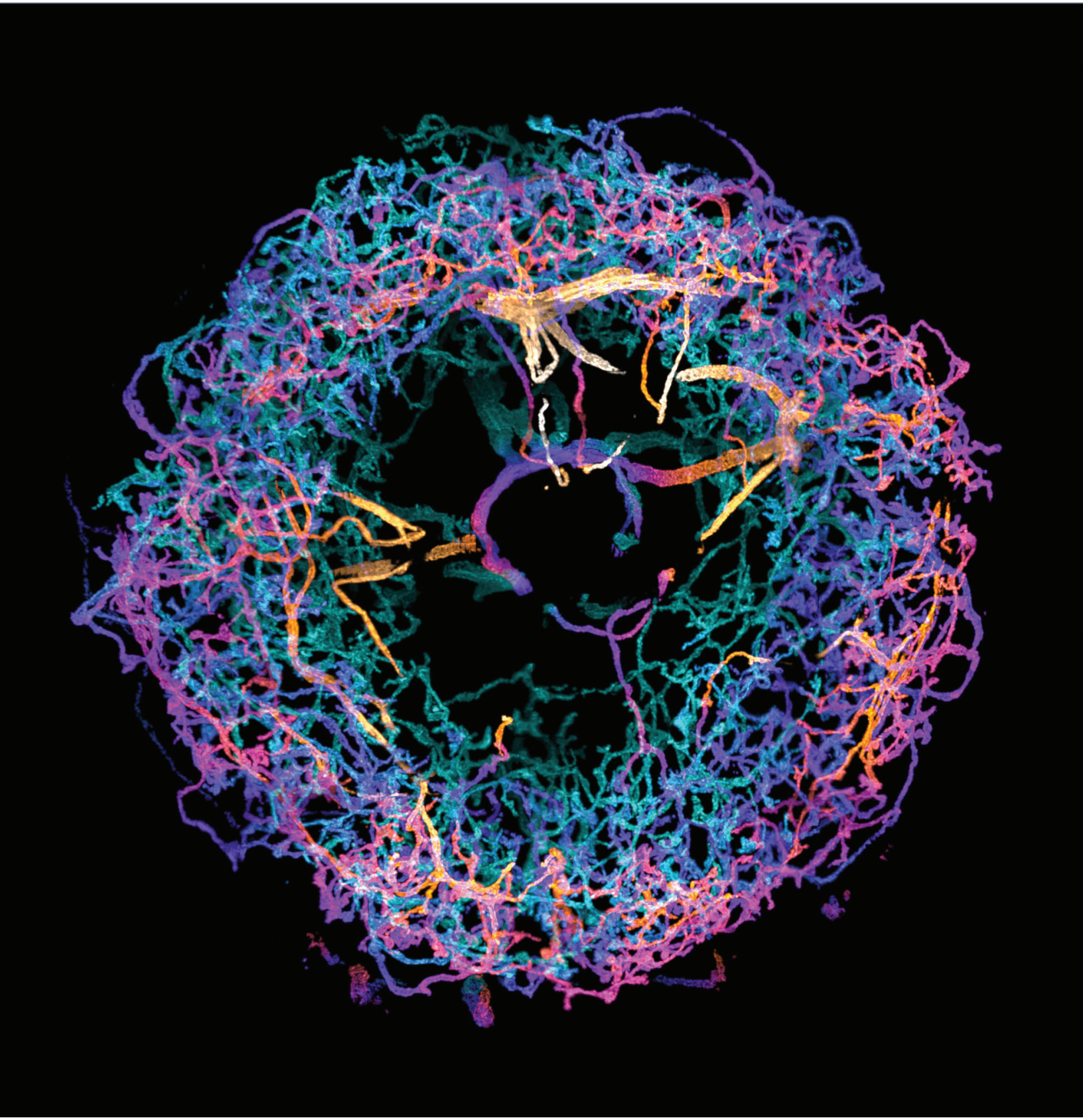
Berkeley College of Letters & Science

SPRING 2021

DIVISION OF BIOLOGICAL SCIENCES



Letter from the Dean

Dear Friend,

The extraordinary events of 2020 — many of which stemmed from the disruptive force of the COVID-19 pandemic — have made clear the relevance of the work of our division. The pandemic emphasized the vital importance of the biological sciences as a source of relief and public good. In response to the crisis, many in our division shifted focus to address the virus and everyone had to adapt to sheltering in place. I am deeply proud of the work we have done this past year and heartened by so much that was positive — not the least of which were Polina Lishko's MacArthur Genius Award for her work on non-hormonal contraceptives, and Jennifer Doudna's Nobel Prize for her development of the CRISPR-Cas 9 gene editing tool.

Scientists at the Innovative Genomics Institute (IGI), which was founded by Jennifer Doudna, developed new methods for viral testing using nasal swabs and saliva. In record time, faculty including Bob Tjian, Dirk Hockemeyer, and Fyodor Urnov, working with graduate students and postdocs, created and staffed a CLIA certified lab. The new lab tested hundreds of people every day, including frontline responders most exposed to risk. Additionally, Julia Schaletzky mobilized our drug screening center, affiliated with the Henry Wheeler Center for Emerging and Neglected Diseases, to test combinations of drugs for potential treatments, with promising results.

Our division is working to level the playing field for rising generations of young scientists. Our graduate student-led initiatives in molecular and cell biology and integrative biology, iMCB and iIB, are cultivating a climate of inclusivity (see page 9). The Biology Scholars Program (BSP) is nearing its 30th year of transforming lives by encouraging low-income and first-to-college students to thrive in the biological sciences. In 2020, the first cohort of undergraduates in our SEED (Stem Excellence through Equity and Diversity) Scholars Honors Program bonded over Zoom and pursued biology research from home, using kits we provided. We've made strides toward ensuring that Berkeley fulfills its potential as an engine of economic and social advancement on par with the excellence of its research enterprise.

As a top-ranked institution of higher learning with the capacity to develop and deploy scientific excellence at scale, we must foster the curiosity and drive that inform everything we do. In this newsletter, I'm delighted to share with you some of our recent achievements. Together, our community of researchers, students, and engaged supporters is meeting the challenges of our time and laying the groundwork for better days to come.

Thank you for your support!

Warmest Regards,

Michael Botchan, Ph.D.
Dean of Biological Sciences

COVER PHOTO: Neurons fire through the brain of the fruit fly *Drosophila* in this revealing three-dimensional image captured by combining expansion microscopy and high-speed lattice light-sheet microscopy at Berkeley's Advanced Bioimaging Center (abc.berkeley.edu). Credit: Gokul Upadhyayula, Ruixuan Gao, and Shoh Asano.

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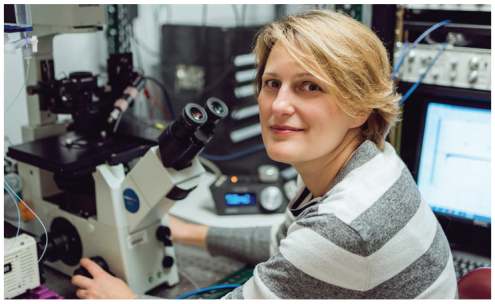
The division making news

Jennifer Doudna



Polina Lishko

CRISPR Discoverer Awarded Nobel Prize

As UC Berkeley commemorates its 150-year history of educating women, it is also celebrating another exceptional milestone: honoring the first woman on faculty to be awarded a Nobel Prize. Jennifer Doudna, founding director of the Innovative Genomics Institute (IGI) and professor of chemistry and molecular and cell biology, shared the 2020 Nobel Prize in Chemistry with Emmanuelle Charpentier. As the first all-women team to win a science Nobel Prize, they were recognized for their collaborative development of the groundbreaking genome editing tool CRISPR-Cas9.

"This year's prize is about rewriting the code of life," said Göran K. Hansson, secretary general of the Royal Swedish Academy of Sciences at the announcement ceremony. Dean of Biological Sciences, Michael Botchan, concurred: "Professor Doudna laid the groundwork for one of the most significant inventions of the 21st century."

CRISPR-Cas9 comes from an immunological defense system called CRISPR that bacteria use against infecting viruses. Doudna and Charpentier's team engineered this product of evolution into a programmable, easily deployable pair of molecular "scissors," able to execute precise changes to the genetic code of any organism.

"Who knew that a bacterial immune system would emerge as a world-changing technology, but here we are," said Doudna. In 2014, Doudna founded IGI — a partnership between Berkeley and UCSF — to further develop and apply CRISPR technology to address problems of human health and sustainability.

She is an impassioned advocate for making any application of CRISPR-based technology affordable, accessible, and ethical.

"I feel like this represents a recognition of some foundational work that was started at Berkeley. It really was a curiosity-driven project from the beginning," said Doudna. "I don't think it would have happened if I wasn't at Berkeley."

Reproductive Researcher Receives MacArthur Genius Grant

When it comes to contraceptive research, the MacArthur Foundation singled out UC Berkeley professor Polina Lishko as a promising partner. In October, the foundation surprised the Ukrainian-born physiologist with a highly coveted $625,000 MacArthur "genius grant" for her work in reproductive physiology.

"When they called and told me I had been awarded a MacArthur fellowship, my first reaction was, 'Well, that is a mistake, I haven't applied!'" Lishko said, laughing. "Of course, you do not apply; somebody nominates you."

Lishko, an associate professor of molecular and cell biology who joined the Berkeley faculty in 2012, studies the cellular steps that allow sperm to swim through the reproductive canal to find and fertilize eggs. Her research led to the discovery of a switch — a protein receptor on sperm cells — that triggers the "kick" that sperm use to penetrate and fertilize a human egg.

By focusing on the ion channels dotting the membranes of sperm cells, she identified several potential drugs that can interfere with sperm movement and prevent fertilization without the use of hormones, which have side effects in many women. In 2018, when she found two natural chemicals that block this receptor, she co-founded YourChoice Therapeutics to develop them into a non-hormonal contraceptive for women — one that could lead to male or unisex contraceptives.

"The MacArthur fellowship is a lifechanger," said Lishko, who will use her five-year grant to continue her work on reproductive physiology, including the effects of aging on the female reproductive system. "Psychologically, it is a huge boost — not only for me, but for the team as well, because it shows a recognition of the importance of the field of reproductive physiology."

COMING TOGETHER AGAINST A PANDEMIC
The Results?

When the COVID-19 pandemic reached California last year, faculty, students, and administrators from multiple units quickly rechanneled their research time and resources to fight this infectious disease. The outcomes came quickly: stakeholders established pop-up testing sites, launched collaborative ventures, and published open-source research and technology. In addition to the timeline of highlights below, the Division of Biological Sciences continues to make promising inroads toward understanding and managing this devastating disease.

FEBRUARY

Bat Immunity Dooms Humans

Cara Brook, a postdoctoral fellow in the Department of Integrative Biology (IB), reveals why bats are a unique reservoir of rapidly reproducing and highly transmissible viruses like SARS-CoV-2: with their exceptional immune response, bats drive viruses to replicate faster. When a virus jumps to other mammals with average immune systems — like humans — the virus can quickly overwhelm its new host.

"Some bats are able to mount a robust antiviral response, but also balance it with an anti-inflammatory response," said Brook, who collaborated with IB Professor Mike Boots on the study. "Our immune system would generate widespread inflammation if attempting this same antiviral strategy."

MARCH

IGI Launches Testing Lab

As doctors were scrambling to diagnose cases of COVID-19, scientists at UC Berkeley's Innovative Genomics Institute (IGI) created a diagnostic lab from scratch that processed more than 1,000 patient samples per day. Using PCR analysis, the lab tested swab samples obtained from the nasal passages of symptomatic people or those with potential exposure to the virus, such as utility workers, firefighters, and residents of nursing homes and homeless encampments.

"One of the goals . . . was to provide testing to our broader community . . . to people who don't have access to testing," said IGI founder Jennifer Doudna.

The IGI also published an open-access "Blueprint for a Pop-up SARS-CoV-2 Testing Lab" in the journal *Nature Biotechnology* to enable other institutions to create similar labs.

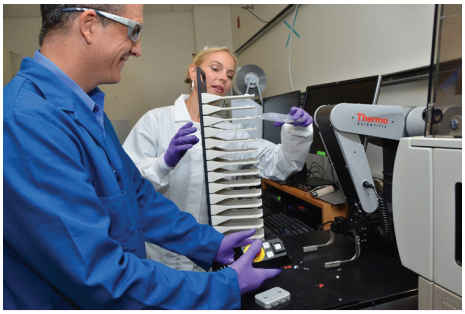
APRIL

Sanitizer Sent to Underserved

When the campus closed in March, graduate student Abrar Abidi and his Berkeley colleague Yvonne Hao '19, a research assistant in Professor Robert Tjian's lab, were on a mission: help underserved populations protect themselves from the deadly pandemic. Along with fellow lab mates, they worked day and night to mix nearly 500 gallons of sanitizer a week using a student teaching lab in Berkeley's Li Ka Shing Center for Biomedical and Health Sciences. Professor Tjian, who fully supported the project, provided discretionary research funds to cover the cost of supplies. With the help of several dozen volunteers, these good Samaritan students produced and distributed more than 900 bottles of liquid sanitizer to homeless shelters, senior centers, hospices, jails, and other locations with vulnerable or underprivileged populations in the East Bay and San Francisco.

Rapid Testing and Research Breakthroughs

MAY



"Fast Grants" Spur Rapid Research

Thanks to a rapid funding program thrown together by philanthropic entrepreneurs — including The Chan Zuckerberg Initiative, and LinkedIn founder Reid Hoffman — several Berkeley faculty were awarded $2.2 million to help expedite new diagnostics and potential treatments to address the deadly pandemic. Through a "Fast Grants" process, grant applications were reviewed and awarded within an unprecedented 48 hours. Several Berkeley faculty, including Stephen Brohawn, assistant professor of molecular and cell biology (MCB), received funding to help expedite new diagnostics and potential treatments.

"We had already started work on this project, so we had some promising data," said Brohawn, who was awarded $100,000 to look for drugs that target an ion channel in the membrane of SARS-CoV-2. Together with fellow MCB professors Diana Bautista and Hillel Adesnik, they've been utilizing UC Berkeley's recently opened Drug Discovery Center to evaluate potential target drugs to fight the disease.

JUNE

Trial by Saliva

Scientists from the Innovative Genomics Institute (IGI), the same UC Berkeley group that created a pop-up testing laboratory in March, trialed a quicker way to obtain patient samples: through saliva. Until then, diagnostic tests for COVID-19 relied on samples obtained by swabbing deep into a person's nasal passages or mouth, but those tests require trained medical staff wearing personal protective equipment (PPE). Saliva, collected in the same way companies like 23andMe get samples for DNA genealogy analysis, can be gathered without medical supervision, and that saves time, money, and precious PPE. While it did not yield improved testing results, it did serve to narrow best practices for testing modalities.

Integrative biology graduate student Alex Ehrenberg, shown above with Jennifer Doudna, facilitated approvals for the Free Asymptomatic Saliva Testing (FAST) study. He said, "This whole experience has really illuminated for me what can happen when you bring many different kinds of scientists together to focus on a singular goal."

JULY

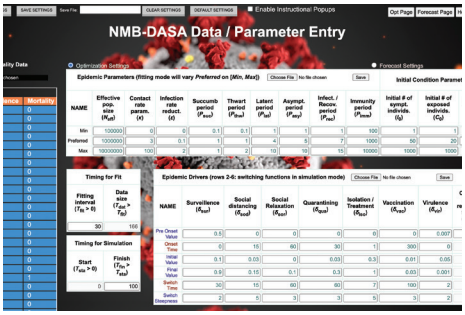
Successful Summer Rising

Recruiting and selecting UC Berkeley's new SEED Scholars was a carefully mapped-out process. These 20 rising freshmen — most from underserved communities — were thrilled to participate in the six-week summer boot camp. But when COVID-19 hit, it was clear to program director Ira Young that he and collaborating faculty would have to scramble to host the program virtually. The greatest hurdle? Doing the lab work remotely.

"We ended up sending all the components they needed to conduct their experiments via Zoom," said Young. This included laptops, lab kits with pipettes, and goggles. "It was almost like a real lab. It was amazing."

But the ultimate success? All 20 rising freshmen completed the program. Learn more at seedscholars.berkeley.edu.

AUGUST



Web App Tracks Mitigation Measures

To gain ground on the novel coronavirus pandemic, policy makers often need to make quick decisions. Unfortunately, they often lack powerful analytical tools to inform their recommendations. Faculty from the Center for Emerging and Neglected Diseases, Wayne Getz and Richard Salter, are making their tough jobs more doable. They designed a new web app called NMB-DASA, which evaluates the impact of different data points that drive incidence rates, including surveillance, social distancing (rate and efficacy), social relaxation, quarantining (linked to contact tracing), patient treatment/isolation, and vaccination processes.

"No versatile web app exists that allows epidemiologists and managers around the world to fully analyze the impacts of COVID-19 mitigation," said Getz. "The NMB-DASA web app fills this gap."

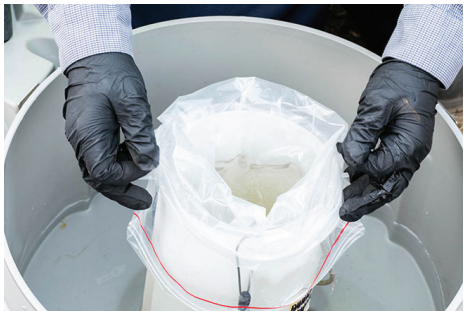
SEPTEMBER

Biological Perspectives on the Pandemic

The Basic Science Lights the Way series devoted an evening discussion to "Searching for COVID-19 Solutions." Professors Diana Bautista, Mike Boots, James Hurley, and moderator Jeffery Cox shared pandemic-driven pivots in their previous research to study SARS-CoV-2.

Hurley homed in on the protein ORF8 with a distinctive atomic structure that may allow SARS-CoV-2 to disarm our immune system. Bautista began investigating how the virus triggers interactions between neurons, lung cells, and immune cells that lead to respiratory distress. Boots built computational models for campus COVID-19 infections, revealing that the key to controlling an epidemic involved stopping superspreading events and scaling rapid-result testing. Watch a video of these presentations and others at basicscience2020.berkeley.edu.

OCTOBER



Human Waste Flush with COVID Clues

A team of Berkeley scientists and students have turned to wastewater to track the prevalence and spread of COVID-19, but detecting tiny virus particles that are flushed down the drains of thousands of homes is a bit of a crap shoot. After months of research, the team — including students and faculty from the Department of Molecular and Cell Biology — refined a rapid, low-cost technique to test wastewater and quickly developed a 1,200-square-foot pop-up lab.

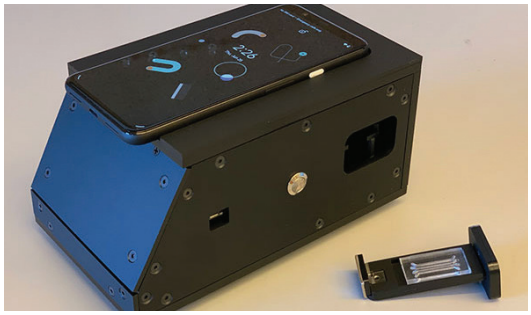
Through its COVID-WEB (COVID Wastewater Epidemiology for the Bay Area) project, the lab now processes 30+ samples a week for 11 wastewater utilities and public health agencies. The team, led by Kara Nelson, professor of civil and environmental engineering, plans to scale up to as many as 200 samples a week to meet the growing demand from regional public health agencies. They're now sharing their research and techniques with others around the world interested in creating wastewater testing labs.

NOVEMBER

Bat Biologist Honored

Cara Brook, a postdoctoral fellow in the Department of Integrative Biology who in February published groundbreaking work on bats and deadly disease spread, received one of five highly coveted L'Oréal For Women in Science fellowships. The award comes with a $60,000 grant to support her research, which she hopes will help inform the development of therapeutics against viral transmission in humans.

DECEMBER



COVID Caught on Camera

UC Berkeley faculty, including Jennifer Doudna, partnered with the Gladstone Institutes to develop a new CRISPR-based COVID-19 diagnostic test that, with the help of a smartphone camera, can provide a positive or negative result in 15 to 30 minutes. Unlike most current tests, it will also provide an estimate of viral load, or the number of virus particles per sample. This can help doctors monitor the progression of a COVID-19 infection and estimate how contagious a patient might be. The goal is to create a personal device, similar to a mobile phone, that can detect whether you have COVID or merely the common cold. "CRISPR-based diagnostics have the potential for quick, accurate results at the point of need," said Doudna. "It could eliminate a lot of the bottlenecks we've seen with COVID-19."

FROM DIAGNOSIS TO DRUG DISCOVERY

Berkeley professor Sarah Stanley normally researches tuberculosis in her lab, but when COVID-19 suspended normal research operations, she quickly utilized her own discretionary funds to mobilize her lab and students to study the SARS-CoV-2 virus instead. "It was not a hard decision to make because there's such a clear need," said Stanley, "and it's a rare moment where the entire world has the same problem."

Collaborating with Julia Schaletzky, executive director of Berkeley's Center for Emerging and Neglected Diseases (CEND) and the newly opened Drug Discovery Center, they are testing more than 1,000 drugs already approved in the U.S. and Europe for their potential to kill the virus. "The Drug Discovery Center really allows us to hit the ground running," said Schaletzky, who received $300,000 in Fast Grant funding to conduct this high-throughput screening.

Stanley's lab has since developed genetically engineered animal models to study how the coronavirus replicates in organisms and has generated cell lines from human lungs. These resources will advance the search for potential therapeutic drugs and new methods for rapid diagnosis of infection. "My lab is really involved in screening for new possible drug candidates that may be effective in inhibiting viral replication," said Stanley.

Research continues along this promising path.

Mark Robinson

David Kirn

The Biotechnology Entrepreneurship Center: A Fast Track for Innovation

Mark Robinson '88 and David Kirn '85 know what it takes to launch a new therapeutic or life science enterprise — and how obstacles can doom even the most amazing idea.

That's why Robinson and Kirn, whose careers span the worlds of scientific discovery and business, have teamed up to supercharge innovation at Berkeley. With generous gifts, the two friends and their spouses are creating a campus hub called the Biotechnology Entrepreneurship Center that will empower Berkeley scientists to propel their work from the lab to the marketplace. The center complements other remarkable life science and entrepreneurship programs on campus, including the California Institute for Quantitative Biosciences (QB3), the Innovative Genomics Institute, and the forthcoming Bakar BioEnginuity Hub, among others.

"What high technology was in the last century, biotechnology is going to be in this century," said Kirn, an M.D., co-founder of four therapeutics companies, and adjunct professor of bioengineering and molecular and cell biology at Berkeley.

Serving students, postdoctoral scholars, professors, and other aspiring bio-entrepreneurs, the new center will be a coordinating destination for guidance on everything from company creation and product development to managing regulations and technology transfer.

"There's just a litany of different unknowns that someone with a great idea needs to learn about," said Robinson, an investment banker who advises healthcare companies. The center's suite of services will include mentoring, educational workshops, internships, networking opportunities, and more.

The gift from Robinson and his wife, Stephanie '89, is part of the couple's visionary commitment to bio-entrepreneurship at Berkeley. Their philanthropy also created the Robinson Life Sciences Business and Entrepreneurship Program (LSBE), an undergraduate dual-degree program in the biological sciences and business.

Longtime college friends, Robinson and Kirn are deeply engaged with Berkeley and the LSBE, where Kirn co-directs the LSBE introductory biotechnology-business course. "We asked the question, 'What else could we do?'" recalled Kirn. That's when they hatched the plan for the center, with funding focused on the next five years.

Kirn, who specializes in viral vector-based gene medicines, has firsthand experience with the hurdles involved in product and company development. "There was no textbook, there was no course. There were no resources," he said. With the center, Kirn, his wife Kristin Ahlquist, and the Robinsons aim to remedy that.

Empowering Tomorrow's Bio-entrepreneurs

Saloni Patel '22 came to Berkeley hoping to blend her passions for business and biology. She found that academic path in the Robinson Life Sciences Business and Entrepreneurship Program (LSBE), where she's earning concurrent degrees in molecular and cell biology and business.

"It was just a really great combination of my interests with a lot of great perks," said Patel, one of 12 juniors in LSBE's inaugural class. Pairing course offerings with internship, networking, and other opportunities, the program equips students for high-powered careers bridging scientific exploration and entrepreneurship.

Despite the challenges posed by remote instruction, Patel, who is eyeing a career in life science consulting, said, "I've enjoyed the academic breadth I've experienced in my first semester — it's not often you get to learn about neurology and financial accounting at the same time."

Building a Sense of Belonging

Former molecular and cell biology graduate student Lisa Eshun-Wilson (Ph.D. '19) took the goal of "inclusion" as a call to action. In 2017, she launched a student-run mentoring program for incoming students from underrepresented backgrounds. Inclusive MCB (iMCB+) has grown into a community that impacts over 300 committed faculty, staff, postdocs, and graduate students across several departments. Along with Inclusive IB (iIB), founded in 2020, the programs match students with faculty mentors and provide academic support, peer groups, and opportunities to learn about issues surrounding diversity, equity, and inclusion in the biological sciences. Eshun-Wilson is thrilled by the progress: *"With an increased culture of inclusion and support, we can all become resilient, more courageous scientists."*

Arash Komeili
iMCB+ Faculty Mentor
Professor (Affiliated) of Cell and Developmental Biology

"The iMCB+ program addresses major areas where underrepresented graduate students lack support—especially as first years. The program tries to lift the veil off the secret world by pairing students with a faculty mentor who isn't in charge of their academics. There's nothing at stake, so it allows them to share ideas and concerns more freely without worrying about downstream consequences. I was really excited to participate in iMCB+; it's been one of the best parts of my job."

Jessica Aguilar
iIB Co-organizer
Integrative Biology Ph.D. student

I attended the inaugural iMCB symposium and thought, 'We need something like this in Integrative Biology!' With iIB, we've tried to carry forward a solutions-focused approach to address issues of inequality in STEM, with community building at the center. It has been a great space for our department to learn about DEI topics together, which I think ultimately makes us better scientists."

Michelle Soto Reid
iMCB+ Co-student Director
Molecular and Cell Biology Ph.D. student

"With COVID, we had to take our annual conference virtual. The upside is that it helped us expand. We had double the number of attendees (270), and we were able to get phenomenal speakers at low cost. Since the iMCB+ program budget is independent, with no long-term commitment from donors, we work with what we have. We're always innovating and recreating ourselves."

Keeping Cal Fit: A Pioneering Professor's Legacy

Roberta "Robbie" Park '53, Ph.D. '70 rarely missed an opportunity to put her beliefs into practice.

Every noontime, the emeritus Berkeley professor and former chair of the university's Department of Physical Education took a break from her research and writing with a swim in the Hearst Memorial Gymnasium's pool. It was a longstanding routine she maintained until shortly before her death at the age of 87.

Park, a noted scholar of sport history and a force of nature, frequently extolled the virtues of exercise and fitness. Her passion for physical education was first sparked when, as an undergraduate at Cal studying Romance languages, she spotted female students carrying "swords" in the Hearst Gym. That curiosity led her into fencing and the field of physical education. Park joined Berkeley's faculty in 1959, setting in motion a lifelong legacy of advocacy and scholarship. A believer in "physical fitness for all," she was convinced that staying active was not only good for the body but also the mind and society as a whole.

Park's legacy will live on, thanks to a generous bequest she left to the campus's Physical Education Program (PEP) upon her death in 2018. The program, which Park helped build during her 35-year career, typically serves 5,000 students annually and always has lengthy waiting lists. Its dozens of course offerings range from dance to martial arts. Her gift will support PEP's robust future by funding additional lecturers and new courses.

"She thought every single person should have access to quality physical education," says PEP director Steven Murray. "She felt it helped the mind, spirit, and the body. She believed it wholeheartedly, and she lived it."

A Winning Strategy

When in-person classes suddenly shuttered last year, how would dance students continue to perfect pirouettes or volleyball players master spikes?

Physical Education Program department manager Andrew Park and faculty quickly cleared every hurdle in the race to online instruction. And going virtual even proved a winning strategy. Certain courses, including boxing, 5k training, and hiking skills, expanded their offerings due to popular demand.

Another gratifying outcome was the ability to serve students more broadly. "Faculty were not just transferring knowledge," said Park. "They took a holistic approach, checking in with students, ensuring they were eating well, sleeping. We were there to help reduce anxiety and stress."

The year 2020 changed everything.
Now what?

The emergence of SARS-CoV-2 triggered an irreversible shift across the globe, upending not only how we do our jobs and socialize, but also our understanding of public health and biology. UC Berkeley — and our division — certainly felt this shift. Students abandoned their classrooms to conduct their studies from home, and lab groups continued their vital research over Zoom as they adapted to widespread restrictions on campus research space. Our community grappled with political and social upheaval and strove to build a safer, more inclusive, space for all our members. Meanwhile, we continued to forge a transformative path for the future of the life sciences. In many ways, 2020 was a reset, a time for our division to reevaluate and ask the question: where do we go from here?

While 2020 presented unique challenges, our division remains at the apex of a revolutionary moment in biology, which now more than ever persists as the defining research enterprise of the twenty-first century. As you read in this newsletter, many researchers pivoted to better understanding and addressing the SARS-CoV2 virus, but beyond that, says MCB co-chair Iswar Hariharan, "There is a revolution happening in the life sciences, with imaging and computational biology on the rise." With resources like our Advanced Bioimaging Center (see cover photo and caption), biologists are seeing deeper into cells than ever before, and great strides are being made in the world of disease. Researchers in our division — including Randy Schekman, Dirk Hockemeyer, and Donald Rio — are pushing the boundaries of molecular biology as they study genetic diseases like diabetes, Parkinson's, and Alzheimer's.

Underpinning these endeavors, says Dean Michael Botchan, is a desire to drive greater momentum toward inclusivity — both on campus and off — from faculty hiring to how our research enhances equity in public health. "This past year has revealed how much underprivileged communities are vulnerable to any stressor the world brings," he says, "particularly regarding healthcare access. Basic discoveries happening within our division will tremendously affect how treatments can be done at low cost. The goal should not just be to make great discoveries, but to make those discoveries accessible to everyone."

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Remarkable Research from the Department of Integrative Biology

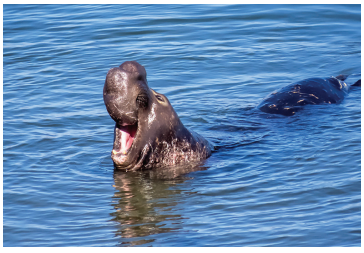
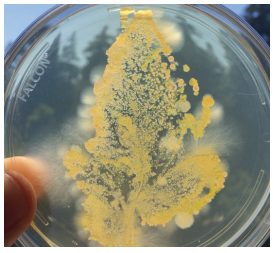

Photo credits: elephant seal: © Joseph Morlan; Tibetans: © Antoine Taveneaux

From deep-diving marine mammals to our big brain, what underscores the unusual form and function of our biological systems? Faculty and students in integrative biology are decoding these myriad mysteries in beguiling and beneficial ways. A few highlights:

- Elephant seals are breathing new life into old-school approaches to cardiovascular health. Professor José Pablo Vázquez-Medina found that the cellular mechanisms that enable elephant seals to dive a mile deep for up to 1.5 hours may one day help us better treat human heart attacks and strokes.
- Therapeutic drugs that may halt or reverse cognitive decline are no longer mere thought experiments, thanks to Professor Daniela Kaufer. Her research on the blood-brain barrier is sparking insights into promising interventions for declining grey matter.
- Using tomato plants, the Britt Koskella Lab developed a plant probiotic that fosters a healthy microbiome, critical to plant growth and yield, reducing the need for damaging pesticides and synthetic fertilizers.
- Professor Rasmus Nielsen revealed that the genetic variant that enables Tibetans to thrive in extreme altitudes was inherited from ancestors who interbred with now-extinct hominines called Denisovans.

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