

Berkeley Bioengineering

September 2020

Dear Friends and Colleagues,

It goes without saying that 2020 is one of the most challenging years any of us have faced. COVID-19 has turned our lives upside down and physically separated us from each other, while we cope with new stresses and learning new ways of doing our jobs. Here at Berkeley, we went from business as usual to near-complete shutdown of onsite research and teaching in just over a week.

And yet, **there are so many reasons for us to be proud and optimistic.** I have found great hope and inspiration in the way our community has risen to all of these challenges with immense energy, creativity, enthusiasm, and compassion. We have adapted to online instruction, and faculty laboratories are up and running again with rigorous safety precautions in place. Berkeley Bioengineering faculty and students have been at the forefront of COVID-19-related research on our campus, ranging from developing new PPE decontamination strategies to validating antibody tests to developing new diagnostic tools. Our campus has looked to Berkeley Bioengineering for leadership, and we have delivered!

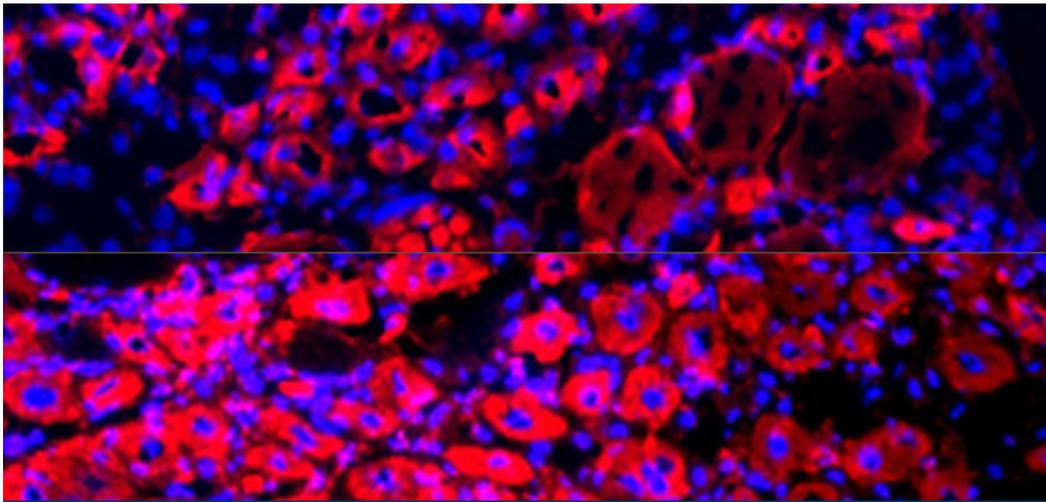


This year has also been marked by a heightened awareness of racism, xenophobia, and injustice in our society. Many of us have been horrified and heartbroken by the killings of George Floyd, Ahmaud Arbery, Breonna Taylor, and so many more of our Black citizens. Our international and undocumented scholars have faced unprecedented threats to their ability to live and study in this country with confidence and security. I'm so proud of the sincere desire of so many of our students, faculty, and staff to create meaningful progress toward justice in our community.

As a department, we have partnered with Black Bioengineering graduate students to identify and address sources of inequity in the graduate student experience. We are re-investing in programs to engage underrepresented communities in bioengineering, ranging from our very successful BioEngineering Scholars Program for undergraduate research, to a new Next Generation Faculty Symposium co-organized by Prof. Aaron Streets with colleagues at Stanford and UCSF. Under the leadership of Professors Chris Anderson, Tejal Desai, and Dan Fletcher we have also convened a Bioengineering Community Working Group to make Berkeley Bioengineering an even more welcoming place. We stand ready as a community to do the work.

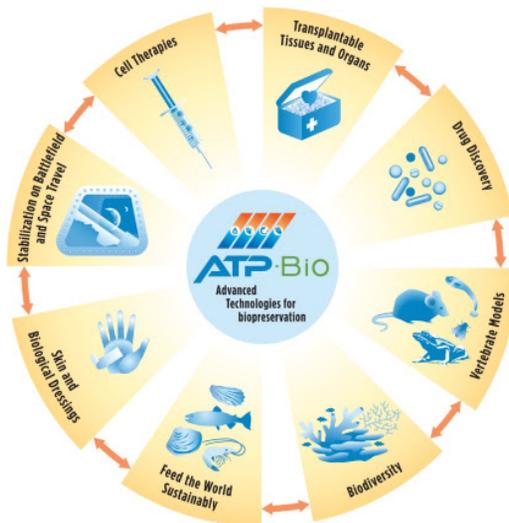
As you'll see below, nothing stops Berkeley Bioengineering. **Go Bears!**

Sanjay Kumar
Chair, Department of Bioengineering



Diluting blood plasma rejuvenates tissue, reverses aging in mice

New research from Irina Conboy found that diluting the blood plasma of old mice has the same or stronger rejuvenation effects on the brain, liver and muscle as surgical pairing with young mice or young blood exchange. This discovery shifts the dominant model of rejuvenation away from young blood and toward the benefits of removing age-elevated, and potentially harmful, factors in old blood.



UC Berkeley joins NSF center for bio-preservation research

Kevin Healy will lead Berkeley's efforts in a new multi-university NSF research center with the University of Minnesota, Massachusetts General Hospital, and UC Riverside. The Engineering Research Center for Advanced Technologies for the Preservation of Biological Systems (ATP-Bio) will advance methods for storing and preserving biological cells and tissues, work that could benefit biomedical research and dramatically expand organ transplant networks.



Welcome Professors Delcassian and Clark

We are excited to welcome new Assistant Professors joining us January 1, 2021!

Dr. Derfogail Delcassian received her Ph.D. in the Department of Materials, Imperial College London. She brings to us expertise in building precisely designed chemical tools in combination with 3D printing and materials to controllably deliver signals which direct immune cell behavior.

Dr. Iain Clark has a PhD in Environmental Engineering from UC Berkeley and an MS in Biosystems Engineering from UC Davis. With experience in microfluidics, microbiology and immunology, he is developing tools to study cell-cell interactions in the context of neuroinflammation.



Growing and Changing

Our undergraduate program is now **ranked #7 in the nation by USNWR.**

In addition to our two new faculty, this year we've added experienced Graduate Program Advisor **Rocío Sanchez** to our staff team, managing the Berkeley-UCSF PhD program.

We have more students than ever before, with 500 undergraduates, 45 professional masters students, and 203 PhD students.

Our largest-ever undergraduate cohort of 166 new bioengineers is also our most diverse ever, at **48% female and 23% underrepresented minority**.

We're learning how to do new things, like our first successful online orientation, our recent Fall Welcome, and more virtual career events planned for later in fall.

Thank you to all of the alumni who have participated in online events with current and prospective students. Your willingness to help has been inspiring! Stay tuned for more opportunities this year.

COVID-19 Impact

Teresa Head-Gordon has received a new [C3.ai Digital Transformation Institute](#) award for her project, "[Scoring Drugs: Small Molecule Drug Discovery for COVID-19 Using Physics-Inspired Machine Learning.](#)"

Bioengineering graduate student Gabriela Lomeli [interviewed five scientists](#), including four from Amy Herr's lab, who have pivoted their research during COVID-19 to write decontamination guidelines for personal protective equipment.

Liana Lareau and IGI scientist Stacia Wyman received an [Excellence in Research Award](#) from the Laboratory for Genomics Research to explore rapid, low-cost, high-throughput viral and metagenome sequencing of COVID-19 patient samples for outbreak surveillance.



[Patrick Hsu's COVID-19 antibody test review featured on 60 Minutes](#)



[Video: Professor Liana Lareau uses genome sequencing to study how COVID-19 spreads around the Bay.](#)



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Stay safe out there!



There's always so much going on at Berkeley BioE!
Check out the latest news on [RESEARCH](#), [ALUMNI](#), and [MORE](#) on our website.

Ready to give back?
Give to BioE, and help us keep offering outstanding
opportunities for the next generation of bioengineers.



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