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LOOKING FORWARD
Goodbye 2020, hello 2021!
— John Proctor, Ph.D., Sr. Vice President, Marketing

To say 2020 was a year for the books would be quite the understatement. Looking back on this past year, one thing I am most proud of is how our BLI family was able to come together under these unusual circumstances to support our dedicated customers.

Despite the challenges of 2020, BLI had an extremely productive year, with the release of the Opto™ Plasma B Discovery 2.0 and 3.0 workflows, the Opto™ Viral Neutralization 1.0 workflow, the new Culture Station™ system, the Opto™ CLD 2.0 workflow, and the Opto™ Cell Therapy Development 1.0 workflow, including Multiplex Cytokine and Cytotoxicity Assays and our Opto™ Antigen Presenting Bead kit.

While releasing all of these new products, we also managed to successfully enter the public market with our IPO over the summer. Hats off to the entire BLI team for pulling all of this off in the midst of a global pandemic!

Another highlight was watching our customers' achievements and success in real-time through the work of Vanderbilt University and the University of Queensland — they were able to utilize the Berkeley Lights Platform to combat the SARS-CoV-2 outbreak. Antibodies discovered using our new Opto™ Viral Neutralization 1.0 workflow on the Beacon® system are now in Phase III Clinical Trials with AstraZeneca to be manufactured by Lonza. Learn more about how BLI helped enable our customers in these crucial discoveries in Racing to Find the Right Cells.

We are Berkeley Lights so we're not slowing down in 2021. We're pleased to announce our new Opto™ Plasma B Discovery 4.0 workflow, which allows you to put function first and screen up to 100,000 plasma B cells in less than a week to find rare antibodies against difficult targets. Check out our new product feature to learn more about how you can rapidly tackle the most challenging targets.

We hope you enjoy this newsletter. We're proud of everything that we and our customers accomplished in 2020 and we look forward to sharing our journey throughout 2021.
SARS-CoV-2 has been met with a global mobilization of science rivaling the space race. Multiple vaccines around the world were granted emergency approval within a year. The same effort for Ebola took more than five years. From identification to the first clinical trials, the polio vaccine took 30 years.

Science has a habit of advancing rapidly, especially in the face of a raging pandemic. Early on, a promising therapeutic antibody was discovered in record time at the Vanderbilt University Medical Center. In another corner of the globe, a cell line was developed at University of Queensland to produce a unique vaccine. Our technology and people — our two core strengths — helped make these potential treatments a reality.
Finding antibodies against a pandemic pathogen

The Vanderbilt University Medical Center (VUMC) in Nashville has been working since 2018 on a pipeline for developing antibody treatments that can be dispersed within 60 days of a viral outbreak. Our Beacon® optofluidic system had just been added to the pipeline when SARS-CoV-2 became a pandemic virus. It was the ultimate proving ground: when every day mattered, how fast would the Beacon system identify human antibodies capable of fighting a COVID-19 infection?

One of our Program Managers, Vincent Pai, spearheaded the project at BLI. To identify antibodies capable of countering the SARS-CoV-2 Spike protein, Pai saw opportunity in pairing a newly developed antigen blocking assay with an established antigen binding assay. “We had just developed the blocking assay, but it was worth bringing to the table.”

Pai flew to Nashville in early February to meet the VUMC team in person. Our Field Application Scientist, Jonathan Didier, joined him to prepare the Beacon system. Didier remembers, “It was a lot of hurry up and wait, because we weren’t the only ones in line for samples.” Convalescent samples are valuable as bearers of life-saving antibodies. But, it takes a month, post-infection, for your immune system to produce the memory cells researchers need. Convalescent samples were in high demand and getting one perfectly timed wasn’t guaranteed — the team was likely to get only one shot.

PUTTING THE OPTO™ VIRAL NEUTRALIZATION WORKFLOW TO THE TEST

About a month later a sample was ready. Didier was helping the team in Nashville while Pai called in and watched the experiment live from his home in California. “The first couple of [binding] assays we ran were a success. Hundreds of pens were lit up. It was the first time we’d immediately seen a live cell from a human secrete against SARS-CoV-2.” It was time to run the blocking assay and find the most capable antibodies.

In the blocking assay, darkness rather than bright fluorescence indicates a promising antibody. When the sample didn’t go as dark as expected, there was momentary confusion. The binding-blocking behavior they were hunting...
for was present in what would end up being fewer than 10 cells in nearly 1,000. Pai remembers the moment like it was yesterday, “I freaked out, literally jumped out of my chair. And I’m yelling into my phone, ‘The assay works! We found cells, we found antibodies.’”

By early June, AstraZeneca announced that they’d signed an agreement with VUMC to advance a two-antibody cocktail into clinical development as a preventative treatment for COVID-19. Within 4 months, the cocktail proved promising enough to go into Phase III Clinical Trials. The antibodies in the cocktail, COV2-2196 and COV2-2130, were discovered in only 18 days on the Beacon system by our viral neutralization binding and blocking assays. You can explore the methods behind them, as well as the data, in our application note.

**Optimizing production of a unique vaccine**

The University of Queensland (UQ) is an institution with world-leading expertise on viruses and, in particular, pandemics. Trent Munro, Keith Chappell, and Paul Young have led the UQ COVID-19 vaccine program equipped with something distinctive: their molecular clamp.

When SARS-CoV-2 infects a cell, the Spike protein extends and changes to reveal entirely different residues. The UQ molecular clamp protein is designed to stabilize Spike proteins to stay in their pre-infection conformation, allowing the native immune system to respond before infection. The approach has already been used successfully by the team against influenza and MERS.

To develop their unique vaccine candidate as quickly as possible, the UQ team needed a bespoke cell line development assay. Our Head of Business Development, Troy Lionberger, was close to the project. “Having been on the development team behind our original CLD workflow, I had a pretty good idea our development team could come up with a solid solution here and so introduced UQ to Philip Elms.”

Elms, one of our Application Engineers, had theorized to Lionberger that modifying our diffusion assay could make characterizing tricky proteins possible. Elms explains, “I actually had the hypothesis for a while. It was something I’d mentioned to Troy. If we ever ran into the need to find proteins, and we couldn’t use our standard flush assay, this could be the solution.” The modified assay uses fluorescent reagent to illuminate the most productive clones, but isn’t limited to antibodies or other large proteins. It’s a robust approach that can be applied to almost any protein and still be sensitive.

**FINDING A SOLUTION, FROM THE OTHER SIDE OF THE PLANET**

Helping the UQ team in the middle of border closures meant Elms’s assay would have to be tested on the other side of the planet, without him physically being there. Luckily, a bespoke solution
could come in the form of a simple program script. Lionberger explains, “Philip had written a script that he emailed to UQ. He told them what to load into the Beacon system. In real time, he could analyze their data and troubleshoot with them.” Using Elms’s assay, in two weeks, the team got 10 times higher titer than with any other technology they’d ever tried before.

Four months later, the molecular clamp vaccine headed to human trials. By the end of the year, the vaccine, called UQ-CSL V451, entered Phase IIb/III trials and CSL Limited committed to manufacturing nearly 100 million doses if it proved successful. From the time UQ-CSL V451 went into Phase I to the CSL announcement, COVID-19 infections more than doubled from 12 million to nearly 27 million. Just under 1 million people had died.

The best cells can be found, even from afar
Each of these stories highlights something special about the Berkeley Lights Platform — in the time it takes to quarantine for international travel, teams can discover and develop even when they can’t all be in the lab. In only a few months following cell processing, human clinical trials started (a process that once took years).

Covering our accomplishment with UQ in an interview with our SVP of Marketing, John Proctor, Samantha Black wrote, “Perhaps most impressive of all, these significant changes…were all made online. Due to COVID-19 travel restrictions, the scientists at Berkeley Lights and the University of Queensland worked together virtually to develop an entirely new assay and push the vaccine candidate toward a Phase I clinical trial.”

Hitting a virus smaller than a dust mote with the technological force of a planet has expedited progress. In his interview for this piece, Troy Lionberger remarked that the Berkeley Lights Platform and the methods it makes possible helped researchers get to their target faster than before. “Today, we’d be even faster. With the next virus, we’ll be faster than that.”

By the end of the year, the vaccine, called UQ-CSL V451, was pulled from Phase IIb/III Trials. It showed great efficacy early on in Phase I Trials, but yielded the side-effect of false-positive HIV tests in some individuals. The team at UQ has since said they’ll continue investigating the molecular clamp approach for other pathogens.

There’s still work to be done. If the Berkeley Lights Platform can help you, reach out to us and we’ll be in touch within 24 hours. 😊
NEW PRODUCT FEATURE

Find the best T cells, now on the Beacon® system
— James Lovgren, Vice President, Cell Therapy Marketing

Our Opto™ Cell Therapy Development workflow made it possible to find the best T cells using the Lightning™ system. We’re excited that our capabilities are now available across the entire Berkeley Lights Platform, including the Beacon optofluidic system.

You can now use your Beacon system to:

• Measure antigen-specific functions of thousands of single T cells
• Combine the T Cell Proliferation Assay with other functional assays like the Cytotoxicity Assay and the Cytokine Secretion Assay to deeply characterize single T cells
• Correlate data generated from multiple assays to understand the mechanisms and gene expression driving optimal T cell phenotypes

How can you learn more?
• Reach out to your account manager
• Explore our datasheets, webinars, and application notes

You’ve asked, we delivered! Now you can run T cell assays on both the Lightning and the Beacon system.
— James Lovgren, Vice President, Cell Therapy Marketing
NEW PRODUCT FEATURE

Tackle the most difficult targets and meet the most challenging timelines

— Anupam Singhal, Ph.D., Sr. Product Manager, Antibody Discovery

The new Opto™ Plasma B Discovery 4.0 workflow for the Beacon system enables direct functional profiling of the B cell repertoire. The workflow allows you to:

• Advance from B cells to lead molecules in 1 week
• Succeed where traditional hybridoma and phage display methods have failed
• Drastically reduce campaign costs by saving time and resources

How can you learn more?
• Watch the Opto Plasma B Discovery 4.0 new product tour
• Reach out to your account manager

“Now you can accelerate lead molecules into the clinic by directly screening the B cells by putting function first.”

— Anupam Singhal, Ph.D.
Sr. Product Manager, Antibody Discovery

up to 10 fold
more hits against difficult targets

under 6 months
from target to lead molecules in the clinic

less than $100
per lead molecule
NEW PRODUCT FEATURE

Rapidly develop antibody therapeutics when every day matters

— Anupam Singhal, Ph.D., Sr. Product Manager, Antibody Discovery

As the world was grappling with the COVID-19 pandemic, the need for rapid development of therapeutics became clear. We partnered with our customers to step up to the challenge — within months of the pandemic’s onset, our Opto™ Viral Neutralization 1.0 workflow was used to identify lead molecules that resulted in a therapeutic cocktail that is now in Phase 3 clinical trials.

The Opto Viral Neutralization 1.0 workflow combines the Opto™ Plasma B Discovery workflow with virus-specific assays to let you directly screen plasma B cells from infected human donors or immunized animals using blocking and binding assays. Using these assays, it is possible to characterize and down-select functional antibody lead candidates against SARS-CoV-2 in a single day.

How can you learn more?

• Reach out to your account manager
• Download our Viral Neutralization application note
• Get a behind the scenes look at the development of antibodies in phase 3 clinical trials

The Opto Viral Neutralization 1.0 workflow could enable a global strategy to combat future pandemics by allowing early identification of promising therapeutic candidates.

— Anupam Singhal, Ph.D.
Sr. Product Manager, Antibody Discovery

Multiple binding and blocking assays run on the same population of plasma B cells enable selection of antibodies that both bind SARS-CoV-1 and SARS-CoV-2 S1 and RBD Spike protein subdomains and block binding of SARS-CoV-2 RBD to human ACE-2.
NEW PRODUCT FEATURE

Map serial killing and cytokine secretion of the same T cell
— James Lovgren, Vice President, Cell Therapy Marketing

To harness the true potential of modified T cells, like CAR T cells, we must understand the relationship between target cell killing and other critical functions. This is now possible using the T Cell Cytotoxicity Assay, which is part of the Opto™ Cell Therapy Development workflow.

The T Cell Cytotoxicity Assay paired with our Cytokine Assays lets you assess which cytokine secretion profiles correlate with efficient killing behavior. This lets you interrogate antigen-specific serial killing activity of single CAR T cells and correlate this to other functional attributes, such as cytokine secretion and proliferation. T cells of interest can then be recovered for downstream analysis or expansion, which is critical to developing more efficacious therapies.

Continued on next page

“This is the only commercially available platform that lets you measure target cell killing, cytokine secretion, and proliferation on live, single cells. And at the end, you can recover your cells of interest alive.”
— James Lovgren, Vice President, Cell Therapy Marketing
The Cytotoxicity Assay measures cytokine secretion and target cell killing in single CAR T cells. A. Images from representative NanoPen™ chambers show loading of anti-IFNγ capture beads, which are fluorescent in the Cy5 channel (magenta). B. Anti-CD19 CAR+ T cells are identified by fluorescence in the Cy5 channel (magenta) and are selectively loaded into NanoPen chambers. C. CFSE+ Raji cells are identified by fluorescence in the FITC channel (green) and selectively loaded into NanoPen chambers with T cells and cytokine capture beads. D. T cells and target cells are co-cultured and perfused with cell culture media containing a fluorescent reporter of caspase-3 activity. Fluorescent images are captured at intervals over 11–16 hours. Target cells which have activated caspase-3 are identified as PE+ (red). E. Chip is incubated with PE-conjugated α-IFNγ antibody (yellow).

How can you learn more?
• Download our Cytotoxicity application note

Download our Cytotoxicity application note
NEW PRODUCT FEATURE

Expand and rapidly validate antigen-specific function of T cells using fewer cells
— James Lovgren, Cell Therapy Marketing

The Opto™ Antigen Presenting Bead (Opto APB) Kit is the newest addition to our Opto™ Cell Therapy Development workflow. It functions upstream of the workflow to offer a more efficient way to activate and expand antigen-specific T cells than traditional dendritic cell stimulation, while maintaining a high degree of quality control. Our kit provides vital assays that let you:

- Validate binding and stability of a putative antigenic peptide before initiating costly cell simulations
- Remove variability in antigen presentation and expand rare (0.001%) antigen-specific T cells from healthy donor blood
- Save time, labor, and cells by avoiding dendritic cell differentiation

Once your desired population of T cells is expanded, our Opto™ Cell Therapy Development workflow on the Lightning™ and Beacon® systems can be used to validate antigen-specific function using fewer cells, avoiding lengthy cell expansion protocols that may skew the composition of T cell populations.

How can you learn more?
- Watch the Opto APB kit product tour
- Download the datasheet

With this new kit, scientists can expand and validate rare T cells, measure cytokine secretion, and visualize tumor cell killing on the Beacon® and Lightning™ systems.
— James Lovgren, Vice President, Cell Therapy Marketing
SHOW ME HOW

Deciphering natural killer cells
— Guido Stadler, Ph.D., Staff Scientist; Maryam Shansab, Ph.D., Senior Scientist; Natalie Marks, M.Sc., Staff Scientist

In the world of immunotherapies, most treatments aim to activate T cells that target tumor cells, but an increasing number of natural killer (NK) cell-based therapies are emerging. NK cells are part of the innate immune system and can recognize and eradicate cancer cells, but deciphering these important cells requires understanding them at a single-cell level.

Why are NK cells challenging to work with?

NK cells are complex lymphocytes and their function isn’t easily understood at a single-cell level. This lack of insight makes it difficult to develop immunotherapies that effectively harness the full potential of these potent killers. Since these cells are so complex, it’s tricky to get the whole picture of NK cells using traditional evaluative methods, which rely on bulk measurements of these heterogeneous cell samples.

How does the NK Cell Cytotoxicity Assay help?

With the Cytotoxicity Assay, part of the Opto™ Cell Therapy Development workflow, you can gain a deeper understanding of what NK cells secrete, identify cell surface markers, and measure the rate of target cell killing. After we gain this knowledge of cells on-chip, the NK cells with potent cytotoxicity can be recovered for downstream analysis.

Expert tips

- Only load the live cells by utilizing Annexin V-based target penning and selection (TPS). This allows for a cleaner analysis (use BLI Loading Reagent for best results as well!)

- Use negative controls — always have cells that shouldn’t be targeted by NK cells on the same chip

- Use TPS with cell surface markers to selectively load pure NK cell populations and remove unwanted cells from the assay

- Use fluidic shifts and TPS penning to maximize the amount of NK cells for screening

- Compare different NK cell treatments on the same chip

Continued on next page
Show me an example!
In the example shown here, we directly measure NK-mediated cell killing using the Cytotoxicity Assay.

Show me more data...
Read our Unravel the Complexity of Single Natural Killer Cell Cytotoxicity and ADCC Mediation application note to see the entire data set, including mapping single NK cell killing kinetics.

Direct measurement of NK-mediated cell killing using the Cytotoxicity Assay. A. Images from representative NanoPen chambers show selective loading of CD56+CD3-Annexin V- NK cells (yellow). B. CFSE+ K562 target cells (green) are then loaded into the NanoPen™ chamber and cultured with media containing a fluorescent reporter of caspase-3 activity. C. Fluorescent images are captured every 30 minutes to identify PE+ apoptotic K562 cells (red).
ASK ME ANYTHING

A world of change

— Laurelle Turner-Clemons, M.Sc., Content & Engagement Specialist

One of the functions at Berkeley Lights that changed the most in 2020 was that of Sales and Account Managers. Not only have our teams met the challenges of a pandemic, but they've discovered new skills and strategies along the way.

We asked Veronica Mankinen, Head of North America Sales, Mio Muelthaler, Account Executive in Europe, and Yue Geng, Vice President of Asia Pacific Sales to tell us a bit about how the pandemic has changed things for them.

WHAT DO YOU REMEMBER ABOUT THE BEGINNING OF RESTRICTIONS?

Veronica: At the end of February, I was in Japan with Yue to meet with our distributor there. Everyone was already wearing masks and they actually had a quarantine cruise ship in Yokohama. Then, I traveled to HQ in Emeryville for a meeting. By that time, we couldn't shake hands and there were sanitizers everywhere. I had travel scheduled for the following week, the second week in March. And all of a sudden, it was like a door just shut. As somebody who has traveled for work for the last 20 years, at least 50% of the time, it's been very strange to be home since March.

Mio: The last show I attended was in London, in February. Everybody knew about COVID-19 back then, but restrictions weren't yet in place. It wasn't expected that everyone would be wearing masks and washing their hands. Shortly after, we were in lockdown, which made it very difficult to travel. I have been able to go between Switzerland and Germany, because of my passport, but that's it.

Yue: Chinese New Year is in late January and it's an important holiday when families travel to reunite with each other. In the middle of the New Year, we were all at home, and that's when travel restrictions started. The first thing I did was check with the team to make sure everyone was alright. I had actually scheduled a trip to Singapore for the end of January and a trip in February to Japan with Veronica. I was able to go, but I will always remember the day I got back. Now that I can travel within China, I have to show a proof stamp of the last time I entered the country. I've been here since March 3rd. It's the longest I've been in China since I was in elementary school.

SINCE THEN, WHAT HAS CHANGED THE MOST ABOUT TAKING CARE OF CUSTOMERS?

Veronica: What's changed the most has been figuring out how to ensure the success of customers when they all have different regulations. If I have a customer who needs to have an Application Scientist or Engineer on-site, we need to be clear on their guidelines so they can get the right resources on time. That can be quite challenging.
HOW DO YOU GET IN FRONT OF NEW CUSTOMERS?
Veronica: We’ve gotten a lot more creative in our approach. LinkedIn has been a great tool to find the people we should be talking to. Twitter can work, as well, if you follow scientific journals and conversations. It’s a lot more one-on-one types of reach outs, which is always the most effective approach and it shows we’re paying attention. It’s more time intensive, but it’s been the best way to get a response from someone new.

Yue: I am really, really proud of the team. Because of the SARS-CoV-2 work we did with GenScript, there has been a lot of interest in the Beacon® system. February alone, we had over fifty Zoom calls with potential new customers in China. There was confusion early on, because people weren’t working, and no one had really equilibrated. A few months later, things got better. We’ve been engaging customers nonstop since then.

ALONG THOSE LINES, YUE, YOUR TEAM PLACED A HIGH NUMBER OF INSTRUMENTS THIS YEAR. TELL US ABOUT THE PROCESS.
Yue: It really depends on when the installation happened. In February, we were supporting an install at a designated hospital for COVID-19. The team was provided with biosafety level 3 protective gear, just because of how serious the risk was. Every effort was made from BLI and the customer to make sure the install would be safe and that the team felt comfortable. I know the research center appreciated us moving forward with placing the system, but I appreciated the level of care. Today, it’s much easier. There are still challenges, but not quite like it was in the beginning.

WHAT’S CHANGED IN HOW YOU WORK WITH YOUR TEAM?
Mio: Usually, we would try to utilize every opportunity when we are visiting customers to meet in person and spend time together. We kicked off the annual European Sales Team meeting in Paris last year but we couldn’t meet together this year. We’re doing more phone calls and Zoom meetings, but that in-person interaction is something I’m really missing.

VERONICA, YOU SIGNIFICANTLY EXPANDED YOUR TEAM IN 2020. WHAT WAS THAT LIKE, DURING A PANDEMIC?
Veronica: I just had this conversation with one of our new Account Managers, because he and I have never met in person. I’m used to being remote, but I’m also used to seeing my team at conferences or a global sales meeting. Coordinating my new team members and their training from afar has been strange. But, on top of that, there are members of the team who’ve never met each other, never met another BLI employee in person.
Despite that, I've encouraged them to stay in touch with each other, coach each other and strategize together. And they've done such a wonderful job. Everyone's still present, trusted, and valued.

**YUE AND MIO, YOU’VE ACTUALLY BEEN ABLE TO VISIT CUSTOMERS AND HAVE IN-PERSON MEETINGS. WHAT WAS NEW?**

**Mio:** That's right, there was a conference in Switzerland in October before restrictions went into place again. I remember that there were the things that you would expect. Dividers, sanitizers, masks, et cetera. People weren’t shaking hands and they were keeping distance for the most part. I believe that might be the case for the next shows, too. Some people will be very cautious and keep business virtual for a time. But, there were valuable connections there that I could still engage. I was grateful for that.

**Yue:** I think in late May, we had an offline in-person conference in Shanghai. It was almost a bit awkward, realizing that we could interact with people. Like, wait, you’re right in front of me? We've had a few in-person meetings with the team since then and it was really clear that so many of us appreciated that in-person contact. Even more than before. Being able to shake hands became more meaningful. Being able to be in the same room together, we cherish that. I feel we enjoy each other’s company a little bit more.

**WHAT DO YOU LOOK FORWARD TO ONCE YOU CAN VISIT CUSTOMER SITES AGAIN?**

**Veronica:** I miss being physically present to talk about the science and what they’re trying to achieve. You know, being able to draw out a project on a piece of paper and then dive into how we can help them achieve that. I miss sitting with someone in their lab, seeing everything, and catching the nuance. I’m looking forward to that, again. 😊

“I miss sitting with someone in their lab, seeing everything, and catching the nuance. I’m looking forward to that, again.”
From rooms to Zooms: virtual conferences are keeping us connected

With the COVID-19 pandemic reshaping the way business is conducted on a global scale, conferences and meetings across our industry have pivoted as well. While we miss seeing our friends and colleagues in-person, we’re happy that we are still able to connect and share ideas with scientists around the world (even if it’s on a Zoom call).

See what we’ve been up to and check out our tips and tricks for how to make the most of your virtual conference experience.

KEEPING OUR “FOCIS” ON IMMUNOTHERAPIES

The FOCIS Virtual Annual Meeting brought together researchers and clinicians to share advances in the immunology community, including a keynote address from Dr. Anthony Fauci.

Berkeley Lights presented at the FOCIS Directors meeting about our Opto™ Cell Therapy Development workflow, and how it facilitates the deep characterization required to develop effective T cell therapies.

Learn more about Opto Cell Therapy Development.

SYNBIOBETA 2020: IPO OF THE YEAR AWARD GOES TO BERKELEY LIGHTS

The SynBioBeta Global Synthetic Conference this year was a highlight for us. We were honored to receive the 2020 IPO of the Year award, which recognized our path to becoming a public company in July, as well as our contributions to the COVID-19 response. In addition to the award, we participated in several discussions regarding vaccine development.

Our own Troy Lionberger, VP Technology and Business Development, moderated a panel that brought together industry experts from pharma, academia, and synthetic biology to discuss what it takes to engineer and select the highest producing cell line for biomanufacturing. Panelists included:

- Trent Munro, Director of the National Biologics Facility and Program Director for the CEPI funded Vaccine Rapid Response Pipeline, University of Queensland
- Jeff Hou, Director of Scientific & Technical Affairs, Thermo Fisher Scientific
- Narendra Maheshri, Head of Mammalian Foundry, Ginkgo Bioworks
- Michael Leavell, VP Research & Development, Amyris

Listen to the discussion here.

Want to be a virtual conference pro? Here’s a few tips…

- Make sure to build in snack breaks — nothing is worse than not being able to hear your favorite talk because your stomach is growling
- Take it one-on-one — virtual conferences aren’t just for learning, be sure to take advantage of networking by setting up 1:1 conversations with other attendees
- Be a world traveler from the comfort of your couch — no need to fly around the world to attend conferences now, take this opportunity to attend shows you’ve always wanted to!
- Focus now, notes later — virtual conferences provide the unique opportunity to truly listen and enjoy a session, and find the session on-demand later to catch anything you may have missed
ASK THE EXPERT: DE-RISKING INDS
One benefit of meetings and conferences going virtual? Our experts can come to you! In December, Tanner Nevill, VP of Program Management, showcased his expertise in cell line development for BioProcess International’s “Ask the Expert” series. He discussed how monoclonality assurance is a central regulatory requirement for all cell line manufacturing therapies, and how our Opto™ CLD workflow meets that challenge with over >99% monoclonality assurance in under 1 week.

Listen to the webinar.

OUR APAC TEAM IS HAPPY TO SEE YOU (IN-PERSON!)
Berkeley Lights has a global presence with team members around the world, and we’re excited for our APAC team to get back to in-person meetings. Our team in China has been busy, and recently attended the 2020 Immunotherapy Congress: Basic Frontier and Clinical Translation.
Life at BLI
— Elise Morrison, Marketing Communications Specialist

Here at BLI, we not only enjoy working together, we really consider ourselves family. One of the core values we abide by is “work hard, play harder.” And while the COVID-19 pandemic means we can’t see each other in person as much, that hasn’t slowed us down! Check out what Life at BLI has looked like lately.

Work hard, play harder!

2020 BLI VIRTUAL RUN
From Zoom happy hours to virtual workouts, we know how to have (socially distanced) fun. When COVID-19 precautions mandated social distancing, co-organizers Eric Sackmann, Associate Director R&D Applications, and Maaz Hussaini, Product Engineer, didn’t hesitate to pivot our BLI run to virtual. Employees around the country participated in their own way, running and biking 5ks and 10ks (and even a half marathon!). We not only play hard, but we also give back: all funds raised benefited the efforts of the NAACP.

HEALTHY & HAPPY
Our People Success team has been busy this year, ensuring our BLI family stays healthy and happy. In October, we kicked off Wellness Week 2020, a week-long event to make sure our employees are staying healthy in all ways. Events included virtual meditation and yoga, seminars on workplace burnout and financial wellness, and a virtual health fair.

But why stop at a week? That’s why we ended 2020 by introducing Berkeley Life, a holistic wellness program that provides our employees resources for physical, mental, emotional, and financial well-being. As our People Success Generalist Katie Regan puts it, “Our Berkeley Lights workforce is growing both nationally and internationally, and Berkeley Life will help us support not just our employees here in Emeryville, but will help support our BLI family all over the world.” The Berkeley Life program is just one more aspect of how we’re making Berkeley Lights one of the best places to work, period. ☝️
How many socks would a yeast cell sew if a yeast cell could sew socks?
— Laurelle Turner-Clemons, M.Sc., Content & Engagement Specialist. Art: Elise Morrison, Marketing Communications Specialist

Years ago, material scientists identified spider silk as the holy grail of commercial fibers. A single strand boasts the unique abilities to be as strong as steel, to stretch to 5 times its relaxed length, yet remain soft¹. And unlike other popular fibers such as chemical synthetics and microfibers, spider silk is renewable and biodegradable. Farming spiders like cotton, however, is out of the question — spiders are known to be cannibalistic and difficult to breed. Instead, spider silk is spun by cells.

Protein-making machines (yeast cells in many cases) are genetically engineered to produce spider silk as a product of fermentation. Given enough sugar and water, cells create a proprietary blend of silk proteins carefully chosen from various spider species to get an ideal mix of characteristics. The proteins are refined into fibers in much the same way as their chemically synthetic counterparts; from there, the fibers are woven into fabric².

There’s a significant benefit to using cells as weavers: genetic precision. With generations of meticulous breeding and a pinch of luck, superior wools and cottons are made the old-fashioned way. By directly manipulating production at the genetic level instead, qualities can be rapidly refined or eliminated. For example, spider silk shrinks 50% when wet — a trait that can be edited out of the final product by manipulating the cell-made proteins³.

Genetic control presents endless possibilities. Extra-strength, higher levels of dye permeability, increased stretchiness, perhaps even fiber films to replace common plastics can someday be achieved. In the meantime, the latest Paris runways are already featuring bespoke fibers and fabrics that have never existed before, made entirely by cells⁴.

We find the best cells.