Winning Over the Inquisitive Public
LOOKING TO THE FUTURE

Welcome to our spring 2016 edition of LifeLines, our quarterly magazine highlighting the collaborative achievements of Biocom and our 750 member companies and organizations. Last year was a highly successful 20th anniversary for Biocom, during which we grew in California and globally, opening our new Tokyo office and expanding partnerships with international organizations, such as the Japan Bioindustry Association, EuroBioMed in France and One Nucleus in the U.K.

I am proud that last year Biocom welcomed 185 new members into the association. These members can now access the outstanding advocacy, networking, professional development and group purchasing efforts of California’s longest established life science association. I am also proud of the successful move to our Torrey Pines Mesa facility, where we experience the high-energy collaborative environment of our life science community on a daily basis. It’s been an outstanding experience to move to “the Mesa,” where we can rub elbows with cutting-edge research and development talent.

In this edition, we launch our 2020 Strategic Vision, a plan to grow the Southern California life science community. More than a year in the making, this plan was developed by our Biocom staff and board with input from hundreds of members. As senior vice president and COO Jennifer Landress will tell you, this plan will define the path to this cluster’s next era of growth. We envision experienced leadership, world-class research and financial investment accelerating our ability to discover and develop technologies that will vastly improve human health and wellbeing. With our growing genomic powerhouse, I envision a time, five years from now, when southern California will be known throughout the world as the center of precision medicine.

Keeping with this theme, our cover story features the importance of engaging the inquisitive public and helping them understand our industry. We know that public perception can shape our success, as well as failure, when assessing the value of new and innovative therapies and the investment and risk required to develop them. Related stories focus on the growing areas of big data and digital health, both of which are important to our industry’s future. Another important aspect of our outreach is the public policy arena and our relationships in Sacramento and Washington, DC. Our senior vice president of Public Policy, Jimmy Jackson tells you what to expect in the coming year.

People are our most important asset. You’ll also hear about the increasingly popular concept of human-centered design from Joan Gregor, an international expert in the field. On a more basic level, we know that STEM education provides the future talent we will need to sustain life science innovation, with a focus on women in STEM. We will also look at the importance of collaboration between payers and providers, as explored by Cynthia Ambres with KPMG. I look forward to working with all of our members, and Scott Peters, to protect intellectual property and successfully oppose negative
Imagine the following scenario: You’re at a friend’s backyard party and find yourself in conversation with the man who recently moved in across the street. You learn he’s a software developer and entrepreneur who has built and sold a handful of technology companies over the last decade. He’s a smart guy, for sure. But you’re guessing he’s had little exposure to the life science industry—and he probably isn’t well-versed in drug development, which is your specialty.

“So, what kind of work do you do?” he asks.

How do you respond?

This type of situation plays out every day in a variety of settings, presenting a prime opportunity for you to build excitement about San Diego’s life science industry and the important work you do to improve human health. Maybe you’ll even land a new investor.

But unless you choose your words carefully, you risk turning the conversation into a mind-numbing thread of jargon. Yes, you may be tempted to talk about antibody drug conjugates, protein therapeutics and preclinical pipelines, but there’s a better option.

Start off with a compelling big-picture statement. “I work in the life science industry,” you say. “I’m helping create a new medicine that goes after a particularly challenging type of cancer.”

And then the conversation can really begin.

The truth is, once you step outside the life science industry, most people struggle to understand what biotechnology is. Even if they have a vague idea, they’re unaware of the industry’s major impact on the economy or on life itself, through innovations in genomics, synthetic biology, digital health and more.

But if each member of the life science industry were able to explain the impact of their work in a memorable way, a ripple effect of informed enthusiasm could benefit the entire industry—potentially leading to smarter policymaking, a robust supply of future workforce talent and a larger pool of investment dollars for promising biotech startups.
According to the most recent data from the San Diego Regional Economic Development Corp. (EDC), San Diego County is home to more than 1,100 biotech, pharma and medical device companies, which together employ more than 34,000 people. The employment numbers climb more than 51,000 if you include closely related industries such as biofuels and scientific research institutions.

Indeed, life science activities account for more than $31.8 billion in annual economic impact in San Diego, which makes the industry notable to pretty much anyone interested in the local economy. (By comparison, San Diego's much-celebrated tourism and convention industry generates a far smaller economic impact, at $18.3 billion.)

Just as remarkable are the life science industry's salaries, which average about $134,000 annually, and are higher than any other traded cluster in San Diego County—also based on the most recent analysis from the EDC.

"San Diego is one of the largest hubs in the world for biomedical research, and yet so many people who live here don't know that," says Ellen Potter, a neurobiologist who serves as director of educational outreach for The Salk Institute of Biological Studies. "It's important for all levels of the community to be able to understand your story."

If You Can't Explain It Simply…

Much of Potter's outreach work at Salk is geared towards local middle-school students, with occasional programs for the general public. Since the institute's labs are off limits to anyone under 16, Potter works with the institute's scientists to orchestrate on-the-job videos and Skype sessions with science classes.

Salk's scientists often struggle at first to explain their complex research in accessible terms for young students, Potter says. But they emerge from the teaching experience as more successful, enlightened communicators—having honed skills that aren't typically stressed in the lab.

"A sign of a good scientist is being able to explain his or her scientific approach to people of all levels," Potter says. "They have that nice one-liner or elevator speech that clearly sums up what their work is all about."

It's a powerful lesson—not just for scientists at Salk, but for all members of the life science community. An informed, engaged public is advantageous on many fronts, particularly when it comes to financing.

"Our type of biomedical research is dependent on public funding and donations," Potter says. "If people don't understand what we do, they're not going to give us money."

The same can be said for life science companies that rely on investor capital. Take, for instance, Leading BioSciences, a biopharmaceutical company in Solana Beach that's developing a therapy for severe shock, multiple organ failure and post-surgical conditions that have limited treatment options.

The company's underlying science—born out of University of California, San Diego—is predictably complex. But Chief Operations Officer Greg Doyle says it's his job to make sure private investors “get it.”

"More than 90 percent of our stockholders are not from the biotech space," Doyle says. "It's critical that we learn to tell the story in terms that accurately describe the science and stages of drug development, but without getting too engaged in scientific language. Many of our investors don't know what an IND or CRO is, and we're very cognizant of that."

Rather than use the term “phase 2 clinical trial,” for example, Doyle will say his company's is embarking on a "small sample-size study in humans." And he's been known to get creative with analogies, likening multiple organ failure to a theater production with a large cast of characters.

Doyle's talent for simplified storytelling also benefits patient communications.

"When speaking with families of patients who've experienced multiple organ failure, explaining our science in this way gives them tremendous understanding into what has happened to their loved ones," he says, recalling a recent impromptu conversation with a member of his church. "It can be very rewarding in that way."

Bursting the Jargon Bubble

Using crystal-clear language is even more important at a time when diverse sectors, such as software and genomics, are merging into one, notes Gavin Stone, an electronic engineer who navigated his career into life sciences via the wireless communications and semiconductor industries.

As vice president of marketing for Edico Genome in La Jolla, Stone regularly communicates with a varied set of investors and customers. He makes no assumptions that his audience will know the jargon.

"Every sector has its own zoo of acronyms, which helps people within that space converse in an efficient manner—but also creates a bubble that keeps other people out," Stone says. "As technologies converge, we have to be aware that very few people..."
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As just one example, a drug developer might hear the term “API” and think “active pharmaceutical ingredient,” while a software developer would think “application program interface.”

Like Doyle, Stone is a fan of analogies. He often compares the fast-accelerating field of genomics to the universally understood cell phone industry, where clunky phones gave way to sleek, powerful and affordable mini-computers. The analogy makes good sense for Edico, which developed the world’s first Bio-IT processor specifically for genomics. The platform vastly increases the speed and accuracy of genome analysis, replacing bulky computer servers.

Just as the public has become savvier about consumer electronics terminology over the last decade, Stone expects the same will become true for biotechnology. More people are getting their DNA sequenced, tracking their biometric data and doing their own disease research.

“People have a good reason to be interested in biotech; it impacts their life and longevity,” Stone says. “Especially with non-invasive screenings becoming more common, consumers will be taking a much greater interest in the life science industry and will take a more active role in personalized medicine.”

Shifting Perceptions—One Dinner Party at a Time

When it comes to winning over the public, life science companies have their work cut out for them, notes Randy Woods, president and CEO of Sophiris Bio. But it’s work that must be done, as the industry’s reputation is at stake.

“As CEOs, we need to be doing a better job as ambassadors of the biotech industry,” says Woods, whose company is developing a new type of therapy for benign prostatic hyperplasia, a condition also known as enlarged prostate. “We need to share our passion for the science and technology, and help people understand what biotechnology means.”

When Woods began his career in the pharmaceutical industry 40 years ago, before the biotechnology sector emerged, he recalls that Big Pharma was revered for introducing life-changing innovations such as insulin and Prozac.

“The emphasis then was on saving patients’ lives, and that’s how the public saw it,” Woods says. “ Somehow, over the years, the public has come to believe that the emphasis has shifted to making the quarterly numbers. Now when people hear ‘pharma’ or ‘biotech,’ they think ‘price gouging.’ It’s overshadowing our industry’s breakthroughs and the brilliant scientists who still out there improving lives.”

Woods welcomes dinner party conversations as a way to dispel the negative pricing story that’s been overtaking media headlines for months.

“If you just look around here in San Diego, the work we’re doing is revolutionary,” Woods says. “People generally don’t understand how much effort and risk goes into making discoveries and developing a product.”

Better social capital will go a long way towards building stronger government support, notes Salk’s Potter. The industry will continue to seek innovation-friendly legislation and the best-possible infrastructure for Torrey Pines Mesa—and both will require public support.

“The whole community will benefit as more people know about what we’re doing here,” Potter says.

YOUR BIOTECH CONVERSATION TOOLKIT

Need help explaining what you do or discussing the life science industry at large? Here are some tools to help you approach a conversation with ease.

• A good definition is your foundation. Before you dive too deep into the science, start with the basics. Many people don’t even know what “biotech” means. Merriam-Webster defines biotechnology as “the manipulation of living organisms or their components to produce useful usually commercial products (such as pest-resistant crops, new bacterial strains or novel pharmaceuticals). From there, you can introduce your specialty and begin a more nuanced conversation.

• Economic facts with impact. Keep some ear-perking “did you know” factoids at the ready to help others understand why the life science industry is so important for San Diego, California and the world. For example: California has the largest bioscience industry employment base among all U.S. states, employing more than 15 percent of the national sector. Or, did you know that San Diego’s life sciences employees, on average, earn more than $134,000 per year?

• Memorable stories that highlight significance. Think of a local drug innovation or life science discovery with special significance for your audience. Maybe the story of Vertex Pharmaceuticals’ development of the first medicine to treat the underlying cause of cystic fibrosis, or how scientists are using equipment from Illumina to identify desirable genetic traits that lead to healthier and more productive crops and livestock to feed a growing population.

Continued Pg 6
• Replacements for jargon. Doesn’t everyone know what NGS means by now? Nope, not even here, in the nation’s capital for genomic innovation. Don’t expect your audience—even if they’re well educated—to figure out your favorite acronyms. When you’re talking to people who are not in the life science industry, clean your vocabulary even of “common” terms like NDA, CRO and CMC. Also, keep in mind that most of the population doesn’t understand how drug development works. Words like “preclinical” ring hollow.

• Great follow-up resources. If your conversation partner wants to learn more, offer to send a link to a pertinent article (not a jargon-ridden scientific article, however) or video to illustrate some of the topics you discussed. Keep a collection of these on your computer so you can share easily. The TED science channel, for example, is filled with videos that explain topics as varied as neuroscience, proteomics and emerging strategies for cancer diagnosis.

• Lots of practice. The best way to cultivate a compelling story is to practice telling it. Spark up conversation with friends, family and the occasional stranger. Participate in the annual San Diego Festival of Science & Engineering, either as an attendees or exhibitor, to engage with the future life science workforce. Make note of messages that resonate with the general public.

Kelly Quigley is science journalist who serves as content director at San Diego-based Canale Communications, where she specializes in thought leadership strategy and copy development for life science companies.
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Biocom’s membership recruitment is at an all-time high, but we are also focused on member retention. The power of retention ensures that our members have a long-term investment in Biocom, that we build a network of members working together as a region and that we invest in delivering better value for all members. This year, I will personally hold more than 50 meetings with member CEOs specific to retention, and my team will hold countless more with company representatives.

We are especially pleased that our partners at Alexandria Real Estate have provided amazing meeting and presentation facilities. We can now hold a number of our events, including quarterly breakfast meetings, at our facility. As a result, we are launching a variety of new events, including a CFO speaker series and Fireside Chat program with regional CEOs. Our first chat was a remarkably candid and engaging discussion with Illumina CEO Jay Flatley in our on-site Illumina Auditorium. I look forward to more next quarter.

Finally, you will read how the Biocom Purchasing Group, which we began not long after Biocom was founded, is making a push to ensure that all of our contracts, with more than 40 vendors, are competitive on a global scale. The Purchasing Group continues to be the gold standard for the life science industry, and we are making every effort to increase its value for our members.

Please enjoy this issue of LifeLines, come by and visit our beautiful new facility and engage with us as we continue to accelerate life science success in our region.
The new year is well underway, and with it come old challenges and new opportunities. As you may have heard by now, the industry will face a November state ballot initiative to implement price controls. In addition, Congressional hearings continue to scrutinize the cost of therapeutic innovation, often focusing on industry outliers. Biocom will continue to educate influential community leaders and policymakers at all levels on the investment in capital and man hours, as well as the substantial risks taken, to develop a successful drug.

Part of Biocom’s responsibility in educating policymakers is to make sure they are aware of the opportunities presented by new technologies, as well as the challenges faced by pioneering companies. Biocom hosted a Precision Medicine Advocacy Fly-In, February 9 to 11, inviting member companies in the precision medicine space to Washington, DC to meet regulators and legislators in small, conversational settings.

Fly-In participants had the opportunity to meet at the Food and Drug Administration (FDA) with Center for Devices and Radiological Health (CDRH) director Jeff Shuren and his senior precision medicine team. There were also meetings at the Centers for Medicare and Medicaid Services (CMS) with Coverage and Analysis Group (CAG) director Tamara Syrek Jensen; the National Institutes of Health (NIH) with Josephine Briggs, interim director of the Precision Medicine Initiative Cohort Program, as well as meetings with San Diego Representatives Susan Davis and Scott Peters, and senior staff of the Senate Health, Education, Labor & Pensions (HELP) Committee.

In addition, on January 26, Biocom submitted comments to the Senate Finance Committee Chronic Care Working Group in response to their policy options document. Established last year, the working group seeks to improve the lives of Medicare beneficiaries with chronic conditions. Biocom supports the committee’s initiative and specifically welcomes recommendations that acknowledge the importance of telehealth and remote patient monitoring (RPM) technologies. In our comments, we urged the committee to take additional steps to integrate remote monitoring into the Medicare program, such as establishing a separate RPM benefit.

Now that the deadline for introducing state legislation has passed, there will be a number of bills of concern to the industry, although most still need to be populated with substantive language. The Biocom Legislative and Public Policy Committees will do an extensive review of all legislation introduced, and we will keep you apprised of anything that might impact the industry.

Finally, while we have begun to feel the effects of El Niño, the recent rains haven’t alleviated drought conditions, and there is still an acute need to curtail water use throughout the state. On February 2, the State Water Board adopted an extended emergency regulation to ensure that water conservation continues into 2016. Statewide water conservation is expected to exceed 20 percent compared to 2013 water use (down from a 25 percent reduction in 2015).

As part of the new regulations, local water jurisdictions may apply for credit based on investments toward creating drought-resilient sources of potable water. The City of San Diego plans to apply for credits for its investments in the Carlsbad Desalination Plant and Pure Water, the city’s program to recycle drinking water. If the credit is approved by the state, the city’s 2016 target could be lowered to an 8 percent reduction compared to 2013 consumption. The city’s 2015 target was 16 percent, which has been continually surpassed since it was implemented last year.

Jimmy Jackson is the Senior Vice President of Public Policy for Biocom. He oversees government affairs and public policy for the organization.
We know that Southern California is more than sandy beaches and year-around sunshine. We know that there is world-changing research and discovery coming out of our region. We know that we are the center of genomics, big data, personalized medicine and so much more – but does the rest of the world?

This is one of the key themes in Biocom’s five-year strategic plan. During 2015, we held six Big Think sessions with participants from more than 100 companies and organizations, representing all segments of our membership. The Biocom team spent countless hours reviewing the feedback, debating next steps and ultimately coming to consensus on our most visionary and aggressive plan to date. To make the necessary changes, we need to be bold. We need to aggressively change our approach and identify new ways to make an impact.

We consistently heard several reoccurring themes from you our members that helped shape the plan: developing genomic information, analyzing it and moving it to patients, doctors and the clinic; the need for more philanthropic/angel/super angel and venture funding to support our rapid company creation and growth; the understanding that our region will continue to attract large pharma and how to take advantage of their attention; the fact that Southern California is being positioned as a global biotech center, but we need to do a lot more to remain competitive; and, of course, talent, talent, talent.

The Science of Life is YOU will be our mantra for the next five years. The success of the Southern California life science industry is driven by You, You the innovator and You development team. You, the capital provider. You, the academician. You, the business advisor. You, the patient.

Our 2020 Strategic Plan is organized into three key themes: COMMUNICATE – In Southern California we work hard and play hard. Our life science sector is fueled by top-tier research institutions, breakthrough discovery and fast-paced start-ups. Biocom creates international buzz for our thriving cluster to support our members, attract a top-notch workforce, promote legislative initiatives and transform healthcare by attracting capital, strategic partners and creative innovation.

COLLABORATE- Biocom works with academic organizations, industry, government entities, business advisors and life science clusters around the world to build a collaborative, supportive, knowledge-sharing environment. From San Diego to Japan, we orchestrate programs and events that optimize and capitalize on our members’ many diverse skills and business objectives.

ACCELERATE - Through strategic communication and collaboration, Biocom will help drive the next five years of growth and innovation in the Southern California cluster. This is the place where every leading pharmaceutical and life science company will want to have a workforce—the place where young talent will gravitate in greater quantities than ever before, because they can have it all. This is where the future of healthcare will be generated.

Each year the Biocom team will review the long-term goals and evaluate any changes that need to be made. We will track the achievements to date and develop top priorities for that year to propel our region forward. Here are just a few of our main objectives for year one:

• Measurably increase awareness of member to member resources throughout Southern California and highlight the growth, strength and breadth of services and purchasing group contracts Biocom provides all members.
• Expand the 2016 California Science of Life Workforce Trends report to include more robust data for Southern California.
• Strengthen partnerships and identify ways to increase engagement between: policymakers and industry representatives; pharma, big biotech, medical device and academia; super angels and family offices; veterans and the life science community; members and financial resources; CROs and other membership segments, all focusing on strengthening the Southern California Science of Life community.
• Cultivate events, securing key industry speakers for all programming, educational seminars and conferences. Target all Biocom membership sectors, increasing the geographic reach of events while ensuring a diverse mix of attendees and robust networking opportunities.

With the cluster we have created, together we can achieve the vision of tomorrow.

Jennifer Landress is Senior Vice President, COO and heads the Capital Development Initiative for Biocom.
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Meeting Customers Where They Are

The ever-changing healthcare landscape continues to present challenges for life science companies in their product development efforts. As cost containment pressures are applied broadly across payers and providers, both for-profit and not-for-profit, medical device and pharma companies feel the trickle-down effect of these pressures and must adapt how they develop products and services.

Lower reimbursements, and calls by the healthcare industry and consumers for price transparency, add to this complexity. As life science companies take stock of these issues, they are also faced with stockholder concerns about growth strategies and sustaining margins and profits.

The need for a collaborative approach with payers and providers has never been more important. Payers want to be at the table when pricing, and even product development, decisions are being made, as they attempt to get out in front of future FDA approvals and associated costs. Physicians are no longer making individual decisions regarding device or drug use, as they become employees of large groups and hospitals where collective pricing controls and tight, tiered formularies are becoming more common.

Patients are carrying more costs and, as a result, are shopping more carefully by price. Consumers are generally becoming more sophisticated and have a greater understanding of drug labeling and generic substitutions. Globally, in countries like India, we see the growth of government price cap programs. In the United States, comparative effectiveness research is gaining traction.

Development must be focused on products that add significant value to the delivery system by improving compliance and subsequent outcomes or showing strong positive outcomes with lower complications and costs. Providers and payers are developing programs to assist patients in compliance with medication protocols, lifestyle changes and expense management.

Manufacturers are seeing the need to be involved at the delivery level to remain relevant in this value equation. Population health efforts attempt to divide consumers into buckets defined by primary health issues and socioeconomic barriers to treatment.

These concerns are redefining a patient-centered approach that keeps people on the path to better health. Knowing which patients will benefit from certain products, and which patients will not, is a major differentiation opportunity for a pharma or device company. Combination drugs, monitoring devices to enhance ease of use and compliance and personalized diagnostics are all ways that companies are working within the delivery model to improve patient outcomes and add real value.

As product developers target their corporate customers, understanding where the individual customer is on the trajectory of risk-based contracting is very important. The saying “meet the customer where they are” has never been more relevant. Some provider and payer organizations are already deep into pilots or actual risk arrangements with physicians and other caregivers. Some hospitals have developed partnerships with payers that base portions of their rates on patient outcomes. If a life science company is dealing with more advanced providers in this space, it must be ready and willing to engage in outcomes-based reimbursement opportunities.

Just as payers have been forced to reinvent themselves in a market facing increased consumerism, so do product development and service companies. High deductibles and greater transparency around quality are changing the way healthcare consumers consider both provider and even device and diagnostic choices. This disruption in the environment will only increase as data supporting clinical decision-making becomes more ubiquitous in the public domain. Drug and product developers, as well as service providers, similar to insurers, are struggling to become a ‘trusted resource’ in the face of a suspicious public.

Companies must reevaluate their R&D portfolios to assure they are in step with what the market now requires. This can be summed up in one word: Relevance. However, we must answer these questions: “Is this new/different/better/more cost effective than a product that has come before, and will its use improve a patient’s life in some measurable way?”

Cynthia Ambres is a partner with KPMG Global Healthcare.
Southern California offers the perfect climate for innovation in the medical technology industry. Our region’s highly collaborative spirit and concentration of world-class wireless technologies and medical device companies has created a foundation to revolutionize the digital health industry.

Biocom’s Digital Health committee brings together the Southern California community’s unique strengths in these sectors to help facilitate and promote the development, commercialization and adoption of digital health technologies.

Digital health – the combination of biomedical sensors, network-connected devices (e.g., smartphones) and cloud computing – has emerged as a means to substantially improve the cost-effectiveness of health care. A recent Goldman Sachs Equity Research Report (The Digital Revolution comes to US Healthcare, June 2015) estimated a total commercial opportunity exceeding $30 billion in revenue, and a total health care savings opportunity of more than $300 billion. These estimates are based on the forecasted effectiveness of three digital health initiatives: remote patient monitoring to prevent acute events; telehealth to reduce the cost of patient-physician interactions; and behavior modification to prevent the progression of chronic disease.

Biocom’s Digital Health committee is comprised of more than 20 member representatives from the medical technology industry, healthcare institutions and health insurance payers. This diversity helps ensure that the perspectives of key stakeholders in the effectiveness of digital health are reflected in the committee’s work and its impact.

The committee’s near-term goals are threefold. First, raise awareness about the value of digital health, both locally and on the state and federal levels, by advocating for legislation that will facilitate its development and adoption. In October, we hosted a Digital Health 101 Congressional Briefing to help legislative staff better understand the sector.

Second, we aim to demonstrate the opportunity digital health brings to healthcare by assessing the opportunity of digital health technologies in two chronic disease conditions: Type 2 diabetes and congestive heart failure. We need to understand the gaps in the existing care model across the entire patient journey, from diagnosis onwards. From there, we will publish a white paper that consolidates the various lessons learned about digital health from committee members and their organizations.

Finally, we aim to create a digital health adoption vision for Southern California to facilitate greater adoption nationwide.

We have continued to provide our members with a supportive environment by making inroads at Southern California clinical sites. For example, we have held Kaiser Day events, during which representatives from Kaiser Permanente share some of their unmet needs in a particular hospital unit with an audience of digital health companies. Attendees leave with a better understanding of the key challenges that need to be addressed to get into that hospital setting. Our spring event will be focused on dementia. We hope to see you there.

We will also be showcasing our digital health industry at our DeviceFest Conference this fall. This full-day medical device conference offers engaging, insightful and relevant educational content.

If you are a digital health company and would like to get involved in our committee, please contact Kira Jenkins at kjenkins@biocom.org.

Apurv Kamath is Senior Director of R&D at Dexcom and also chairs Biocom’s Digital Health Committee.
We are entering an age of convergence, in which industry boundaries are blurring between healthcare, automotive and consumer technologies, products and services. Business challenges are rife with complexities such as new unexpected competitors, increased compliance and customers who have higher expectations and less loyalty.

Designing strategies to be more competitive and responsive to consumer expectations is becoming the hallmark of the most successful companies. Look around and you will see that everything – from the products we use, to the services we employ and the experiences we enjoy – has been designed. But not always has it been designed with the full human experience in mind. A growing trend is employing “human-centered design” into innovation and strategies to build winning products, services and companies.

Simply stated, Human-Centered Design is an approach that places people at the center of the development of products and services to improve business outcomes and create desirable experiences. It is a method to humanize technology and interactions by deeply understanding how and why all stakeholders engage in a meaningful way.

The renown Director at UCSD Design Lab, Don Norman, states, “Human-centered design is a framework for addressing complex issues at the intersection of people and technology, using evidence to guide continual refinement. It treats systems of people, organizations and technologies. It applies the findings of many fields, especially the cognitive, behavioral and social sciences through a process of doing and making, testing and probing, experimenting to make things better, working with specialists from relevant disciplines, as well as the people for whom the designs are intended.”

Corporations to start-ups are seeing that successful businesses, such as SAP, J&J and GE, are using human-centered design to create desirable products and experiences that solve business challenges and deliver user satisfaction, improving both the adoption curve for products and their competitive advantage. Companies are beginning to institute training programs to educate their engineers, scientists, marketers, and management in the use of human-centered design tools and methods within a dynamic, multi-disciplined team framework. The goal is to integrate a human-centered, empathetic mindset in product and service design early in the process and creatively solve complex business challenges. One example is the use of a method such as iterative prototyping to help prioritize appropriate and meaningful solutions, mitigating risk and improving outcomes.

The human-centered design approach considers the end to end experience for all users, both internally and externally from how the product is marketed, purchased, manufactured, distributed, used and serviced. Once companies see the value of this approach, they employ it in areas that may not have been previously considered, such as more empathic devices to administer drugs, reducing the fear of needles or pain and improving adoption. More intuitive interactions between users and products increase efficiency and make them safer to use. This approach is a catalyst for innovation, improving user satisfaction, achieving patented differentiation and creating experiences that connect users emotionally to the company’s brand.

Why Human Centered Design Matters to Business, Users and Patients

One case study is GE Healthcare Carescape R860 patient ventilator which delivers significant value by providing exceptional interaction for users and highly valued benefits for patients. A full-touch, human-centered user interface, designed by Intersection-Inc. in collaboration with GE Healthcare’s multi-disciplined team, enabled three different users a clearer window into their patient’s condition using a human-centered empathetic design. The patented user interface accesses faster historical patient data, current patient status and future clinical decision support. For GE, it improved the adoption curve and generated intellectual property; for the users it created ease of use and efficiency, and for the patients it reduced the average length of stay.

Today, product development is complex, as more human inputs, not just technology requirements, need to be addressed. Patients and users expect a seamless, personalized experience as technology becomes integrated into their lives through connected devices and predictive data. Savvy companies are integrating human-centered design earlier in their product development process to humanize technology to creatively solve business challenges and shift culture to be more empathic. This translates into value for all stakeholders while elevating brand equity, business success and innovation outcomes in a highly competitive marketplace.

Joan Gregor is Co-Founder and President of Intersection-Inc. Joan and her team were instrumental in the development of Biocom’s 2020 Strategic Vision.
Upon graduation, my Rady MBA has already had a huge impact on my career. Most recently I was promoted to a national position as an innovation advisor for the entire Kaiser Permanente program. Having acquired the business acumen during my Rady MBA, there is no doubt that Rady helped separate me from the crowd and secure this executive role.

Jeff Benabio, MD, MBA ’15  
Physician Director of Healthcare Transformation  
Kaiser Permanente
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Hack-A-Thon for Health

The Biocom Institute is excited to be working with LiveGoode Programs & Analytics to launch the Hack-A-Thon for Health (H4H) as a capstone to the 2016 San Diego Festival of Science & Engineering. The Hack-A-Thon brings health-related businesses and social sector organizations together with data analytics students to provide pro-bono data analysis and inform nonprofit health sector goals.

The 2016 Hack-A-Thon for Health’s nonprofit partner is the County of San Diego with their regional Live Well San Diego vision, which focuses on reducing the four diseases that cause more than 50 percent of the deaths in San Diego County: cancer, lung disease, heart disease and diabetes. The H4H partnered with the County of San Diego to better understand how protective behaviors can reduce the prevalence of these four diseases.

The backbone of the H4H is a data competition. A recent study published by the Yale School of Medicine indicated that environmental, social and behavioral indicators account for about 60 percent of health issues. Genetics account for 20 percent and access to quality healthcare accounts for the remaining 20 percent. Given the many factors impacting public health, it has become increasingly apparent that governments and nonprofits must work closely with the companies developing the science behind our cures. We can develop potential cures for a disease, but if the public isn’t following treatment protocols or continues with behaviors that encourage the growth of disease, many of these solutions will be ineffective. Biocom Institute was excited to offer the first Hack-A-Thon to use the power of this social and behavioral data to bring together the private and public sectors to combat these four deadly diseases.

Our participating social sector organization, the County of San Diego, provided behavioral and social data for students to analyze. This process will help the County better inform local communities about disease prevention. Students from local universities’ data science programs, including UCSD Rady School, Masters of Data Science in Engineering Program and Undergraduate Math and Biology Departments; SDSU School of Public Health; Cal State San Marcos Undergraduate in Math and Science Programs; National University Masters Programs in Data Analytics, competed for cash prizes and internships from participating companies.

For students, this is an amazing opportunity to get in front of future employers and demonstrate their data science skills, using real-world data to solve meaningful problems. The event includes opportunities to engage students with varying levels of statistical knowledge, from beginners to experts.

Local companies with health science missions contributed to this science workforce development initiative by providing social leadership. Dr. Evan Muse, assistant professor at the Scripps Translational Science Institute (STSI), notes that: “STSI is excited by the opportunity to help identify and support local, young data scientists and coders. With the continued advances in genomics, mobile health technologies and data sharing, it is more vital than ever to foster the growth of bright young scholars who will one day be leaders in the field.”

Other companies are looking to this event now and in the future as a great chance to attract the best and brightest talent, highlight the data-focused careers in their companies and vet new, talented interns. Organizations that offer internships can both judge and exhibit at the event. Judging the data contest provides an opportunity to observe students’ skills ahead of time. Some of our early partners on H4H are Illumina, STSI, Dexcom and Tusker Data Labs.

Andrea Yoder Clark is CEO at LiveGood Programs & Analytics and works closely with Biocom Institute supporting their special programs and initiatives.
The life sciences sector is in the path of a virtual tsunami of information. Once understood and utilized, this data will dramatically transform the industry, affecting everything from discovery to personalized medicine.

According to a recent Forbes article more data has been created in the past two years than in the entire previous history of the human race. However, at this moment, only .5 percent of all data is ever analyzed or used. Big data presents San Diego life science companies with significant challenges, both inside and outside the lab, and new sources of competition and business opportunities.

To accelerate the success of the biotech cluster, Biocom launched a Big Data Committee in 2015. Comprised of a multidisciplinary team of more than 20 leaders – representing biotechnology, academia, government and healthcare – the committee has framed its efforts around three regional impact areas:

1. Help Biocom members, and the industry at large, better understand the big data opportunity and provide guidance to find solutions;
2. Work collaboratively to solve big data challenges and maximize opportunities that drive innovation for the cluster;
3. Promote and advance Southern California as the leading hub for health innovation, including digital health and precision medicine.

The committee surveyed Biocom member executives to evaluate their perceptions of big data – its importance to their business, the challenges they face and the kinds of support they need from Biocom. Nearly half (47 percent) answered that big data analytics is extremely important or very important to decision-making in their organization. More than three-quarters (77 percent) stated they were leaving large amounts of data untapped (50 percent or more of the data produced). The most cited challenges to extracting value from data were too much data, too few resources to manage it and not having the right skillset within the organization to manage data effectively. The survey also showed member companies need Biocom to provide workshops and seminars to further their success.

With a clear need and directive in mind, the committee is planning a Big Data Executive Summit for May 25. The half-day event will feature illuminating talks about how big data is transforming the business of life science and healthcare. The summit will also offer interactive use-case sessions with local industry leaders, providing practical ways to make the strategic and technological decisions critical to big data success. Best-in-class technology partners will also be on-hand to demo technology and services.

It is critical that Biocom members are exposed to the best big data resources available to them through this event and other committee efforts. Biocom has teamed up with UC San Diego and the San Diego Supercomputer Center (SDSC) to offer members large-scale computing, storage and networking services for big data projects, along with discounted educational programs and free workshops. SDSC recently launched Comet, a new peta-scale supercomputer designed to transform advanced scientific computing by expanding access and capacity for traditional and non-traditional research domains. The computing power and associated expertise available to San Diego biotechs through SDSC is a unique differentiator for our region.

Larry Smarr, director of the California Institute for Telecommunications and Information Technology and a member of the Biocom Big Data Committee, envisions a future for the San Diego region in which optical fiber connects many of the major biomedical data producers and consumers – with speeds 100 to 1000 times today’s shared Internet. With its enormous computing and storage resources, SDSC would become a “super node” on this big data freeway. Smarr believes this cyberinfrastructure is essential to quickly move research on integrated omics to new products and therapies from Biocom member companies.

Biocom is also working on a new and unprecedented technology offering through its Purchasing Group set to launch in Q2 of 2016.

If you would like to learn more about the Big Data Committee’s efforts, please contact George Bonaros at 858-455-0300, ext. 107.

George Bonaros is the Director of Business Development for the Biocom Purchasing Group and oversees our Big Data Committee.
Biotechnology innovation in areas such as genomics, microbiomics, pharmaceuticals, and precision medicine is increasingly driven by informatics, requiring large scale computation and storage.

SDSC’s array of computational infrastructure and storage, along with its cadre of experienced scientists and engineers, is leveraged by local companies to provide support in next-generation sequencing analyses, drug discovery, translational medicine, and other areas. We provide:

- Collaborative Research Opportunities
- HPC and Storage System Architecture and Design
- Big Data Expertise and Training
- Machine Learning and Predictive Analytics
- Bioinformatics Programming and Applications
- Data Science Training

Join us for breakfast May 4th for an SDSC workshop on computing and storage. Contact us or visit us online to see how your company can work with us to reach your research objectives.

www.sdsc.edu/collaborate/ipp.html | ipp@sdsc.edu
Representing San Diego’s most notable bio-tech, pharma and life sciences companies is a role we take seriously. As the leading provider of commercial real estate services in the San Diego market and around the world, we are committed to harnessing our unmatched real estate services platform to deliver exceptional outcomes that build competitive advantage for everyone we serve.
WE’VE BEEN BUSY: A capacity crowd gathered for our “Ask An Inspector” workshop featuring subject experts. The February 2016 Washington DC Precision Medicine Fly-In was an opportunity for Biocom members to meet with top federal regulators and policy makers sector. The 6th Annual HR Conference continues to provide valuable knowledge and networking to HR Professionals. Through Biocom’s Global networks we brought together delegations from Japan and France for some dedicated meeting time prior to the Partnering Conference.
MEMBERS IN ACTION

BIOCOM GLOBAL LIFE SCIENCE PARTNERING CONFERENCE:
Biocom’s 6th Annual Global Life Science Partnering Conference featured the who’s who of the BD community from the leading pharmaceutical and biotech companies. We were honored to have Dr. Patrick Soon-Shiong as our keynote speaker during the conference.

Photos by J.T. MacMillan Photography

We understand it is difficult to navigate a world where ethics, experience, trust and a solid reputation are hard to come by. JLL asks you to put our team to the test.
Women in STEM: Communications and Media

Public relations manager, event planner, advertising and promotions manager – according to employment website CareerCast’s recently released list of the best careers for women in 2015, these are three of the top ten. A science, technology, engineering and math (STEM) education can lead to any of the three. By the same token, people with non-STEM educations often adapt to technology-driven environments.

“I don’t have an academic background in STEM, but technology and math particular touch my life daily, says Music Watson, chief communications officer at the San Diego County Office of Education. “I manage a budget and am constantly calculating ways to make things happen within my financial constraints. I am also constantly relying on technology, whether it’s social media to inform the community about great events like the Festival of Science and Engineering or conference phone lines, to bring together stakeholders from all over the state.”

Science, technology, engineering and math enter our everyday lives in unexpected ways. Watching your favorite cable show on TV, reading a gossip blog or even watching streaming videos on Facebook requires multiple layers of technology. Many women contribute to the development and implementation of technology processes behind the scenes.

“As today’s populations rely on technology for not only their entertainment but for vital health and communications tasks, it is clear that an increasing number of occupations involve knowledge and tasks based in science, technology, engineering and math,” says Denise Scatena, founding partner of Scatena Daniels Communications, which is also a sponsor of this year’s San Diego Festival of Science & Engineering. “As a public relations professional for nearly 20 years, I have had to radically shift and adopt methods to develop and distribute information to news media.”

Over the next ten years we are going to see huge growth in big data and precision medicine. New methods will improve patient care on a daily basis. People in the life sciences see these approaching changes and understand the logic and value behind them. However, for a patient who just walks into the doctor’s office with the hope of solving his mysterious on-going migraines, these approaches may be difficult to understand and appreciate at first. As medicine advances, so will the need for better communication to help the public identify with these advances, generating greater harmony between patient and doctor.

“Science is time-consuming, sharing research results is not,” says Kristen Cusato, communications manager for Sanford Burnham Prebys Medical Discovery Institute, and the moderator of the Women in STEM: Communications & Media panel event held during the 2016 Festival Week. “My job is to share the findings in a way that makes sense to non-scientists. We use email, blogs and social media on a daily basis to let people know about the great work happening at SBP. Within moments of a shared discovery or research paper, hundreds of interested parties can read the results and, if they are scientists, can build on work that is now proven.”

Today’s young women gain a huge advantage if they have a good foundation in STEM.

As part of the Women in STEM: Communications & Media event, middle, high school and college age women could imagine being a public relations manager for a biotech company or research institution, working with media and creating social media campaigns to share a company’s story or working in the media on air or behind the scenes in a variety of STEM-related roles.

According to Tory See, community relations manager at ViaSat: “Although most students aren’t exactly sure where they will land, it has become increasingly imperative for everyone to realize that most every job will encompass some element of technology. Embracing this as we think about career paths will enable nimble thinkers who are ready for the ever-changing technology landscape and all the opportunity it has to offer.”

A key message point from this year’s Festival, we wanted attendees to embrace career paths within the industry that don’t come immediately to mind but do play a large role in the economic growth within our city. Not every person will excel at physics or pass their advanced math class, but the love of science and passion for collaboration can still thrive. These other paths allow for creative and bright individuals, our future innovators of content, to leave their own mark.

For more details on STEM programs that we offer and the Festival of Science & Engineering, please visit www.lovestemsd.org.

Sara Pagano is the Managing Director of the San Diego Festival of Science & Engineering
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Together We Can Accomplish Great Things

A quick snapshot of the past five years illustrates some encouraging trends for the Biocom Purchasing Group. Since the end of 2011, we have seen Biocom membership increase by 33 percent and member savings by 360 percent. To us, that means we’re on to something here.

We believe small increases in our membership base can lead to exponential returns for our members with regards to savings. Your participation on our committees, contracts and advisory boards has helped us create new contracts, improve existing ones and push the market to come up with innovative solutions specifically for our member base. With your help, we’ve been able to create a unique, industry-changing health insurance program, a full suite of business and leisure travel solutions and Biocom member-only terms and conditions for many of our contracts. And we believe that we’ve only scratched the surface on what we can do for this industry.

Thanks to your guidance, we have turned a small discount contract operation into a bona fide clearinghouse for the industry. This carefully crafted vetting organization is supported and guided by a range of advisory and RFP committees and held to the highest standards by our board of directors. They have been tasked with negotiating the best prices for the best products, securing cost protection, improving quality control programs and performing consistent market monitoring.

The cost avoidance achieved when utilizing Biocom Purchasing Group contracts is monumental, particularly when you consider the hours that pour into determining contract requirements; bid preparation and submission collection; contract evaluation and implementation; and ongoing market competition analysis.

Our most recent bid – the Lab Supply RFP – is the biggest in Biocom’s 20-year history. We are a full year into this bid now and are closing in on the finish line. We have engaged countless scientists, lab managers and purchasing, supply chain, financial and executive leaders from all corners of our member base to assemble a review process that has never been seen before in this industry. While we can’t currently divulge details of the process, I can confidently say the results will truly be industry-changing. We couldn’t be more optimistic with how things are progressing and know that you will be pleased with the outcome.

Overall lab spend is roughly 90+ percent of biotech budgets, made up predominantly of general laboratory supply purchases, chemicals, equipment and instruments. That’s a lot of market share up for grabs right now. It’s an exciting time to be out to bid, and Biocom members couldn’t be in a better position to negotiate for more dedicated resources, access to new technologies, contract flexibility and timelier customer service and communication structures.

Biocom Purchasing Group continues to raise the bar on quality and industry impact, making it critical for member companies to get involved and share intellectual acuity, resources and best practices. We have committed to a very aggressive strategic plan for the next five years, and we are excited to make history with our Biocom members. For more information on our processes and to find out how you can become a part of the movement, please email us at PGSupport@biocom.org.

Rick Fultz oversees membership and sponsorship efforts, business development opportunities, and the Biocom Purchasing Group.
At Biocom, we are strong because of our members. Each of Biocom’s member companies and organizations contribute in a unique, impactful way to the innovation that makes this region such a powerful force in the global life science industry. Every day, you are working to save lives and make a difference. Together we are all Biocom Strong.

Here is one example of a testament provided to us by our member Dexcom:

As a busy mother of three—two of whom have diabetes—Jen is the ultimate multi-tasker. Between keeping track of her children’s extracurricular activities as well as their glucose levels, Jen is really thankful for the help of Dexcom Continuous Glucose Monitoring (CGM) System. “I truly don’t know where we would be as a family without Dexcom,” explained Jen. “With Dexcom CGM, my husband and I are a lot more comfortable and confident about the daily decisions we make about our children’s diabetes management.”

Jen Poston, Mother of three - two with diabetes
Dexcom, Biocom Member since 2012

If you are a Biocom member and would like to be featured in our Biocom Strong campaign please email Kira Jenkins at Kjenkins@biocom.org.
**Name:** Brain Landrum  
**Job title:** Account Manager

Favorite movie: Gladiator, Godfather, Unforgiven  
Favorite books: A Lifetime of Observations and Reflections On and Off the Court: Wooden, The 5000 Year Leap  
Favorite quote: “Do unto others as you would have done unto you”  
Favorite TV show: The Shark Tank, Anthony Bourdain Parts Unknown, Game of Thrones

**Name:** Hugh Leslie  
**Job title:** Client Executive

Favorite movie: Aspen Extreme  
Favorite books: The Power of One by Bryce Courtenay  
Favorite quote: “Far and away the best prize that life has to offer is the chance to work hard at work worth doing.” - Theodore Roosevelt  
Favorite TV show: The Wire  
Favorite restaurant or meal: Pandora’s Pizza in Leucadia - my brother’s restaurant!  
Favorite city: Encinitas, CA  
Favorite actor/actress: Jimmy Fallon  
Favorite thing to do on the weekends: Surf  
What CD can we find in your car: Who has Compact Discs?  
Favorite hobby: Skiing  
Favorite website: nytimes.com  
Favorite spot in Southern California: Cardiff Reef  
First job: Paperboy in 4th Grade  
Favorite part of your job: Learning about amazing life science developments and achievements that are changing the world.  
If you could have another career, what would it be: Ski Patrol or FedEx / UPS delivery person - everyone loves receiving good mail.  
Why did you start working in your industry: I get to meet brilliant people, help them protect their business, and become friends along the way.

**Name:** Amanda Seimer  
**Job title:** Vice President

Favorite movie: What Dreams May Come  
Favorite books: Thesaurus  
Favorite quote: “Anytime, is a great time for donuts.” - Amanda Seimer  
Favorite TV show: House of Cards  
Favorite restaurant or meal: BIGA in San Diego, 6th and Broadway, the Porchetta  
Favorite city: Paris  
Favorite actor/actress: Julianne Moore  
Favorite thing to do on the weekends: Beach  
What CD can we find in your car: Who listens to CD’s?? I listen to my iPhone playlists which varies in terms of genre, but mostly consists of hip hop and electronic  
Favorite hobby: Improv  
Favorite website: www.bloomingdales.com  
Favorite part of your job: My clients and the team I work with in the office, and of course, donut Fridays  
If you could have another career, what would it be: Comedian  
Why did you start working in your industry: Because I love design and helping clients figure out what to do with their spaces!

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- Lowy Medical Research Institute
- MiraCasta College Biotech Program
- Mt. San Jacinto College

- PhRMA
- Point Loma Nazarene University
- PRISM
- Rady School of Management, UCSD
- Salk Institute For Biological Studies
- San Diego Biomedical Research Institute
- San Diego Blood Bank
- San Diego Clinical and Translational Research Institute, UCSD

- San Diego Community College District
- San Diego County Water Authority
- San Diego Employers Association
- San Diego Regional Chamber of Commerce
- San Diego Regional Economic Development Corp.
- San Diego Supercomputer Center (UCSD)
- San Diego Workforce Partnership
Sanford-Burnham Medical Research Institute
Scottish Development International
Scripps Health
Scripps Research Institute
SDSU, School of Business Administration*
The Bioindustry Association
Torrey Pines Institute for Molecular Studies
UC San Diego Extension
UC San Diego Office of Innovation & Commercialization*
UC’s Office of Research
UCSD, Department of Bioengineering
UCSD School of Medicine
UK Trade & Investment
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INDIVIDUAL Antoinette Azevedo
Bernard King
Carol Gallagher
Decky Goodrich
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Elliot Parks
Gary Friedman
Jack Florio*
John Kavanagh
Julie Ames
Mike Van Horn
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Richard Ledford
Stan Kim
Tom Murphy

KEY PROVIDER
Cushman & Wakefield
Foley & Lardner
Qualcomm
San Diego Gas & Electric

PROVIDER
2Connect
Accentys
AER Travel
Alliant Insurance
AMN Healthcare
Assay Depot
Bank of America
Beckloff Associates
Bionest Partners
BioSurplus
Biotech Primer
Biotechnical Services
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Blue Sky Broadcast
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CSM
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EquiNet
Ferguson Pape Baldwin Architects
Fisher & Phillips
Forward Ventures
Fragmenen, Del Rey, Bernsen & Loewy
French Biobeach
Frequentz
Global Source Ventures*
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Green Charge Networks
Gunderson Dettmer
Hart Team-Private Banking & Investment Group- Merrill Lynch
Haworth
HCPR Life Science Estates
H.G. Fenton Company
Hyatt Regency La Jolla at Aventine
Innovative Lease Services
J.T. MacMillan Photography
Jackson & Blanc HVAC Contractors
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Knobbe, Martens, Olson & Bear
Leadership Edge
Leverage Concierge
Life Science IT
Lonza AG
Managed Laboratory Services
Managed Solution
Mayer Hoffman McCann
McKenna Long & Aldridge
Medline Industries
Michael Ehrenfeld Company
Morrison & Foerster
Newhoff Healthcare Communications
Objective Capital Partners
Occupational Services
Orion International Patent Office
Oxford Finance
PR Newswire
Prevost Construction
Procopio, Cory, Hargreaves & Savitch
Project Management Advisors
Prudential Cleanroom Services
Retirement DNA
Sartorius
Savills Studley
SecureDocs
Scent Federal Credit Union
Scripps Center for Dental Care*
Sharp Business Systems
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Shred San Diego
Signature Analytics
Silicon Valley Bank
Sofinnova Ventures
Sonobezo Corporation
Speid & Associates
Springer Science & Business Media
Square 1 Bank
SteelWave*
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TelePacific Communications*
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TUV SUD America
Unanet
Unilife
United Parcel Service (UPS)
Vault Bioventures
VDP Direct
Veolia
Virdisgroup*
Watson Biolab USA*

* New Members from October 2015 to March 2016

FOR MORE INFORMATION CONTACT
Jane Jones at JJones@biocom.org

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