

SPECIAL REPORT: LIFE SCIENCES

Industry Looks at Ways to Sustain Growth After Pandemic

Biomedical Device Makers, Diagnostic Companies See Future in Paradigm Shift Toward Telemedicine and Teliagnostics

■ By NATALLIE ROCHA

While the world faced a major pandemic, diagnostic companies and biomedical device makers alike innovated to help our healthcare system through COVID-19. Now, as vaccines become more widely available and conditions of the pandemic change, these businesses wonder: how can the industry sustain this growth going forward?

It's the question everyone in the industry is asking themselves, according to **Doug Bryant**, president and CEO of **Quidel Corp.**, a local diagnostics company that has experienced massive growth over the past year with its lineup of molecular diagnostic COVID-19 tests leading the way.



Doug Bryant
President & CEO
Quidel Corp.

Growth and Innovation Amid the Pandemic

Bryant said that for companies like, Quidel he sees the future life sciences landscape as a place where telemedicine and point-of-care diagnostics go hand-in-hand. The company recently received approval from the **U.S. Food and Drug Administration (FDA)** for the Emergency Use Authorization (EUA) of its QuickVue At-Home OTC COVID-19 Test — something that would allow people to test at home.

“We actually expect and envision a paradigm shift for telemedicine that’s coupled with what we call teliagnostics,” Bryant said. “We think we’re incredibly well positioned to leverage what we’ve done, and built over the past year and propel the company into the borderless diagnostic marketplace of the future. I think this has created something that would have taken many years to come to fruition, but it’s sad that we had to have this happen to our communities across the country. But at the same time, it is sort of propelling medicine forward, in my opinion.”

According to life science executives surveyed for the 23rd edition of the EY Global Capital Confidence Barometer, they are increasing investment in “digital transformation (67%) and customer engagement (65%) to help grow long-term value.”

In the short-term, companies like **Illumina** have managed to grow revenues during the pandemic with the ultimate goal of strategically reinvesting in future growth.

“Illumina achieved its first billion-dollar revenue quarter in company history and delivered a very strong start to 2021, exceeding our expectations,” said Illumina’s CEO, **Francis deSouza**. “Our core business is growing strongly, with both clinical and



Photo Courtesy of Hologic

Hologic developed SARS-CoV-2 assays on both its Panther and Panther Fusion systems to meet the public need for high-volume diagnostic testing.

research customers exceeding pre-pandemic activity levels. As the world continues to move through the pandemic, we’re seeing global investment in the creation of a genomic epidemiology infrastructure to combat COVID-19 as well as monitor for future pathogen outbreaks.”



Francis deSouza
President & CEO
Illumina

Investing in Technology Beyond the Pandemic

Across the industry, the wide embrace of digital transformation has been swift and necessary during the pandemic. But for biomedical device makers like **NuVasive, Inc.**, the integration of technology has always been a part of its mission and the broader recognition of med-tech highlights the effective application of these solutions for doctors and patients alike.

“Despite the challenges of 2020, NuVasive made key investments in infrastructure, talent, and technologies to execute on its long-term strategy and deliver the strongest innovation pipeline in spine,” said **Chris Barry**, CEO of NuVasive. “Along with the dedication and hard work of our employees around the world, this foundation positions us well to drive further value for our stakeholders as we build the largest spine technology company in the world.”

Not only is having technology integrated into patient care necessary for future growth and evolution, but investing in the digital infrastructure of the company is also a crucial sticking point from a year of telecommuting and doing business from home, said the Chief Administrative Officer of **Tandem Diabetes Care, Inc.**, **Susan Morrison**.

“With regards to COVID-19 specifically, we happened to make an investment in remote work technology in 2019 (video conferencing, virtual meetings, etc.),” Morrison said. “Obviously, that investment paid off in 2020, and continues to be a huge asset in 2021. Tandem also has the only virtual insulin pump trainer app in the industry. This is great for patients new to our technologies, especially during a pandemic.”

Mick Farrell, CEO of **ResMed Inc.**, which produces cloud-connected CPAP machines and ventilators, said that “as a result of the pandemic, we’ve seen accelerated awareness of the importance of respiratory health, growing adoption of digital health, and an increased focus on the importance of healthcare delivered at home – three focus areas that have long been at the core of ResMed’s business.”

The company pivoted manufacturing to produce and deliver more than 150,000 ventilators to countries in need — representing a 3.5 times increase in its ventilator production, Farrell said.

“We are seeing increasing demand for our digital health solutions from patients, physicians, providers, and healthcare systems around the world, as they embrace remote patient engagement and adopt population health management,” Farrell said. “The incredible data assets we have allow us to unlock value for all of our customers: patients, physicians, payer-providers, as well as private and government insurers around the world.”

Joining Forces for Accelerated Growth

With the pandemic demanding life science companies to innovate, at scale and fast, it makes sense that approximately half of the executives in the EY report cited acquisitions as a main way to achieve future growth, “such as new types of products from adjacent business (27%) and talent (22%).”

For **GenMark Diagnostics**, being acquired by **Roche** has been a positive move for the company and San Diego



Mick Farrell
CEO
ResMed Inc.



Chris Barry
CEO
NuVasive, Inc.

as they are actively hiring and expanding manufacturing capabilities, said GenMark CEO, **Scott Mendel**. In March, the Carlsbad-based diagnostics company announced that Roche would acquire the company for approximately \$1.8 billion.

GenMark develops and manufactures syndromic tests that are used to identify which of dozens of bugs that could be causing a patient's symptoms, from a single sample, Mendel said. He added that GenMark's "expanding customer base and increasing menu of tests are expected to sustain growth in 2021 and beyond, given the strong market growth for molecular diagnostic testing."



Scott Mendel
CEO
GenMark Diagnostics

"Roche's global commercial infrastructure can help drive adoption of GenMark's syndromic tests around the world to address unmet medical needs," Mendel said. Our syndromic molecular platform is a perfect strategic fit within the already existing Roche molecular portfolio, and we can accelerate our innovation and priorities as part of Roche.

Kevin Thornal, division president, diagnostics solutions at **Hologic** said that in recent months, the company has expanded and diversified its diagnostics business through strategic acquisitions which were made possible by its strong cash flow.

The public company has shipped approximately 100 million COVID-19 tests to 40 countries and in the second quarter of 2021, Hologic reported worldwide molecular diagnostics revenue of \$935.3 million.

"These include **Biotheranostics**, a San Diego-based leader in molecular tests for breast and metastatic cancers, which enabled us to expand into the adjacent growth market of oncology," Thornal said. "Shortly after that, we acquired **Diagenode**, a Belgian developer and manufacturer of molecular diagnostic assays and epigenetics products. Most recently, we announced plans to acquire **Mobidiag**, an innovator in near-patient, acute care diagnostics, a large, rapidly growing area that we don't compete in today."

For **Thermo Fisher Scientific**, their growth strategy is focused on innovation in high-growth and emerging markets and its mergers and acquisitions strategy hones in on expanding its customer offerings, said Executive Vice President and Chief Operating Officer, **Mark Stevenson**. "The recent acquisition of Mesa Biotech is an example of our commitment to that strategy," Stevenson said. "Adding gold-standard PCR technology in a rapid point-of-care offering creates additional opportunity for rapid diagnostics. Thermo Fisher is rapidly scaling manufacturing volume to bring the innovative Mesa diagnostics platform to market faster."

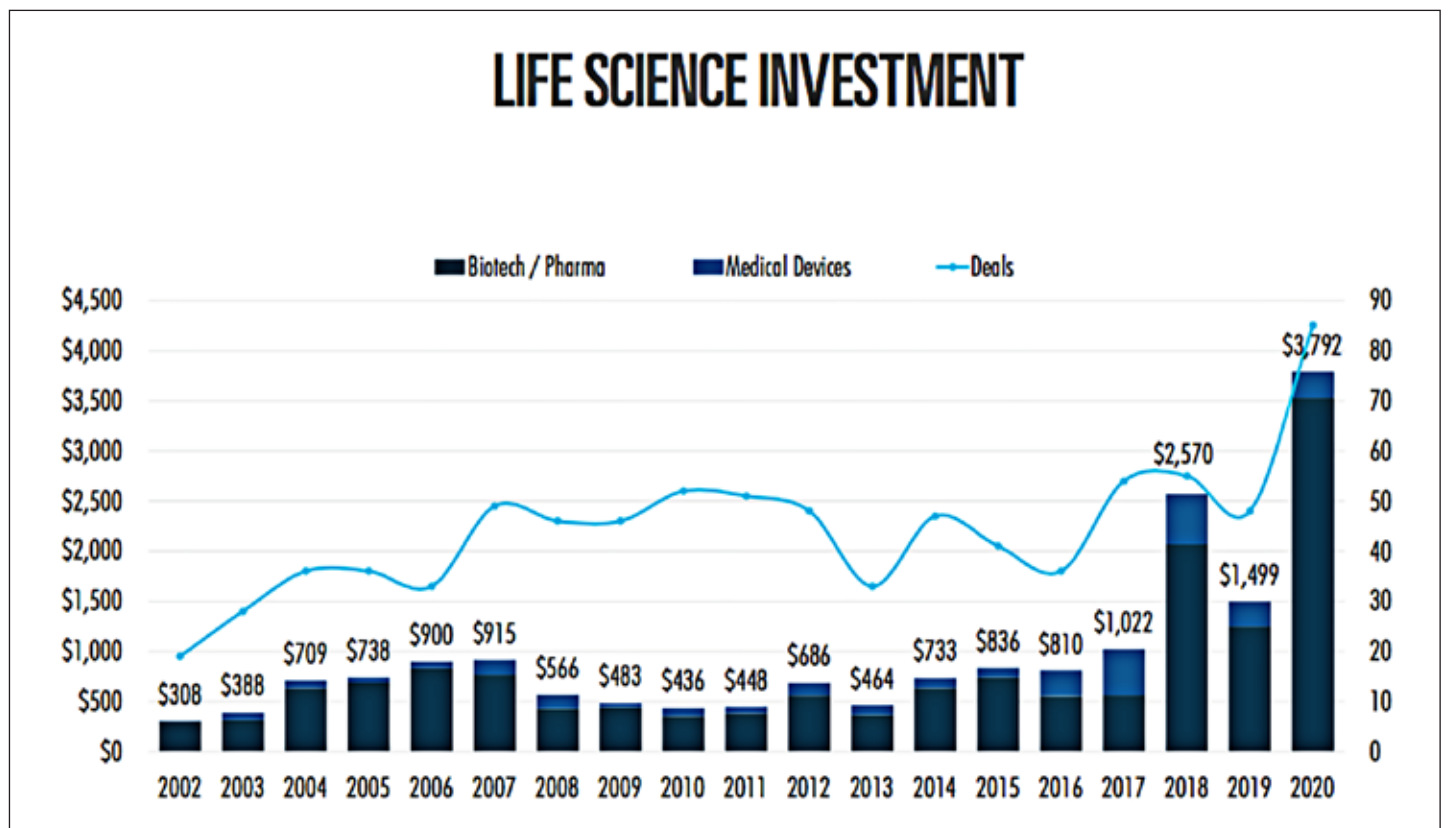
"We're the laboratory provider, so the specimens come in here to our lab and we turn around the test nowadays in less than 24 hours on average, and historically well less than 48 hours for the vast majority of the specimens we process," said **Michael Nall**, president and CEO of Biocept. "Currently we process over 350,000 specimens in the last



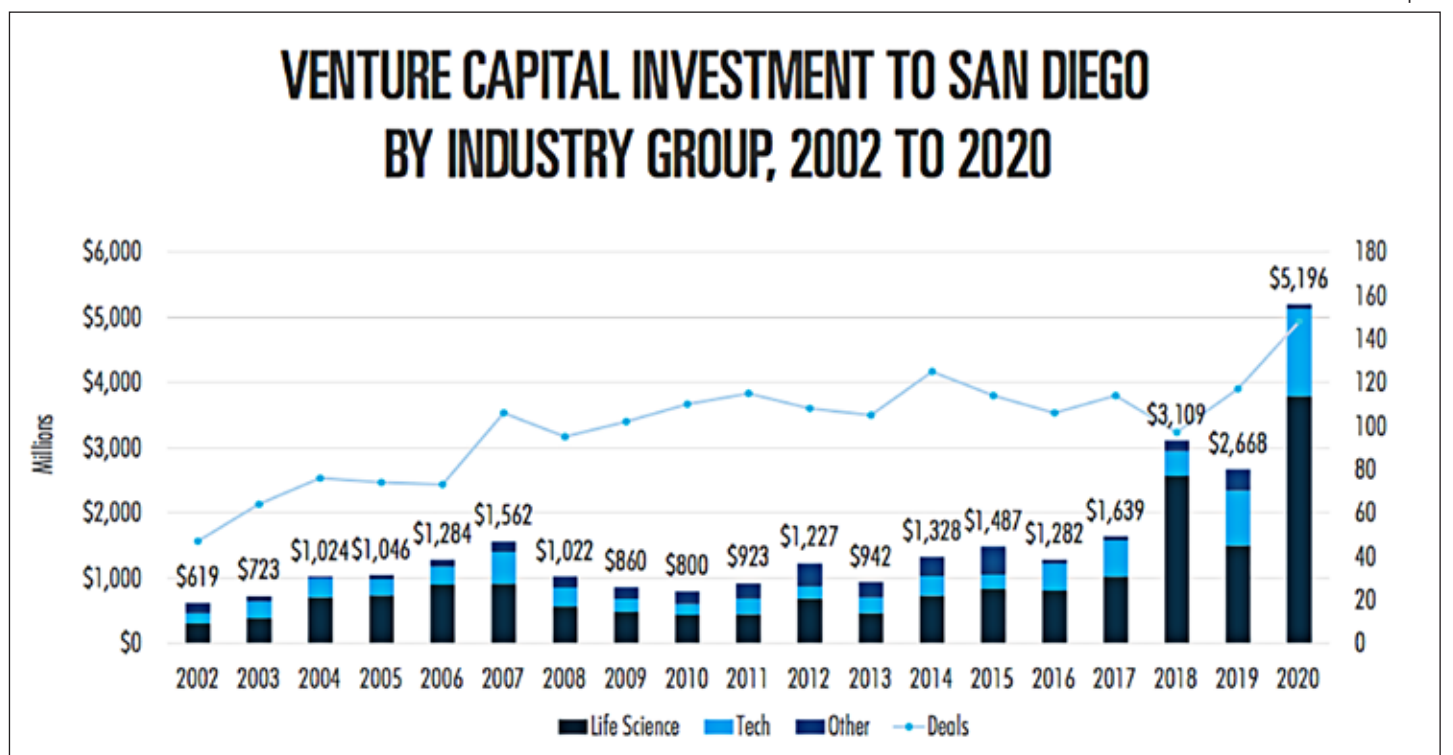
Kevin Thornal
Division President,
Diagnostic Solutions
Hologic



Michael Nall
President & CEO
Biocept Inc.



Source: CBRE Report



Source: CBRE Report

Strategic Partnerships

Acquisitions are not the only path for expansion — strategic partnerships such as the collaboration between Thermo Fisher Scientific and **Biocept Inc.** have also led to mutual growth for companies.

During the pandemic, biomedical device maker, Thermo Fisher Scientific and diagnostics company Biocept Inc. expanded their commercial collaboration to execute COVID-19 testing solutions. Using Thermo Fisher Scientific's Taq-Path SARS-CoV-2 assay, Biocept, a liquid biopsy company, processes the specimens at its local labs.

"We're the laboratory provider, so the specimens come in here to our lab and we turn around the test nowadays in less than 24 hours on average, and historically well less than 48 hours for the vast majority of the specimens we process," said **Michael Nall**, president and CEO of Biocept. "Currently we process over 350,000 specimens in the last

public reporting ... around the first week of April."

In the broader community, Biocept is also partnering with the **Foundation for California Community Colleges** to provide COVID-19 testing to the 116 colleges in the state. Within San Diego County, the company plans to work with local schools such as **San Diego City College**, **Mira Costa** and **Miramar College** to provide tests to college athletes immediately as well as students and staff in the fall.

Growth Requires Space

With the current demand for products such as COVID-19 tests, companies need more space for a growing workforce, more lab space and manufacturing facilities. For instance, Quidel has expanded its manufacturing facilities in Carlsbad and is hiring an additional 700 employees for its workforce.

Downtown San Diego is also at the center of meeting the life science industry's need for expansion and a growing workforce. **Betsy Brennan**, president and CEO of the **Downtown San Diego Partnership** — a nonprofit organization that promotes the economic prosperity of downtown — said that this expansion makes sense with the central access to transportation and neighboring research institutions.

In fact, **CBRE** released a report that illustrates the momentum behind the San Diego life science industry as the pandemic has accelerated innovation and venture capital funding.

"In 2018, VC investment jumped 151% from the previous year, with 2020

being the second strongest year on record," Brennan said. "The region has seen sustained strong venture capital as investors recognize the potential of the San Diego life sciences environment."

"Downtown has had the majority of the recipe for the expansion of the life science industry into our neighborhoods for some time," Brennan said. "The thing that has always been anticipated would spur that expansion is space designed for the specific needs of the life science industry and we are fortunate to have several exciting projects with those specifications coming online in the coming years. With this new frontier of desirable space and opportunity for new tenants, the future of downtown as an industry cluster is bright." ■



Betsy Brennan
President & CEO
Downtown San Diego
Partnership

THE LIST BIOMEDICAL DEVICE MAKERS

► Ranked by number of local full-time employees as of March 1, 2021

Rank (Last year)	Company Address Website Phone		# of local full-time employees: 2021 2020 % + (-)	# of companywide employees	Description	Top local executive Headquarters Year est. locally	
1 (1)	BD (Becton, Dickinson and Co.) 3750 Torrey View Court, San Diego 92130 www.bd.com 858-617-2000		4,000 5,200 (23)	65,000	Manufactures devices for medication management, diagnostic testing & biomedical research	Michael Garrison Franklin Lakes, N.J. 1997	
2 (NR)	Dexcom Inc. 6340 Sequence Drive, San Diego 92121 www.dexcom.com 858-200-0200		2,760 2,070 33	5,630	Develops, manufactures & distributes continuous glucose monitoring systems for diabetes mgmt.	Kevin Sayer San Diego 1999	
3 (NR)	Thermo Fisher Scientific Inc. 5791 Van Allen Way, Carlsbad 92008 www.thermofisher.com 760-603-7200		2,400 2,400 0	80,000	Advance discovery, translational research, molecular medicine	Mark Stevenson Waltham, MA 1987	
4 (3)	Hologic Inc. 10210 Genetic Center Drive, San Diego 92121 www.hologic.com 858-410-8000		974 791 23	6,087	Innovative med tech company primarily focused on improving women's health	Kevin Thornal Marlborough, Mass. 1982	
5 (4)	Quidel Corp. 9975 Summers Ridge Rd, San Diego 92121 www.quidel.com 858-552-1100		866 808 7	1,401	Development, manufacturing & marketing of diagnostic tests, assays, instruments.	Douglas Bryant San Diego 1979	
6 (2)	Tandem Diabetes Care Inc. 11075 Roselle St, Suite 200, San Diego 92121 www.tandemdiabetes.com 858-366-6900		802 1,043 (23)	1,954	Maker of the t:slim X2 Insulin Pump with Control-IQ	John Sheridan San Diego 2006	
7 (5)	NuVasive Inc. 7475 Lusk Blvd., San Diego 92121 www.nuvasive.com 858-909-1800		700 600 17	2,700	NuVasive is the largest, spine focused global technology company with a commitment to transform surgery, advance care and change lives.	Chris Barry San Diego 1997	
8 (NR)	GenMark Diagnostics Inc. 5964 La Place Court, Carlsbad 92008 www.genmarkdx.com 760-448-4300		625 558 12	669	Molecular diagnostics company; develops, manufactures, sells, & supports instruments & tests for syndromic multiplex molecular diagnostics, including tests for respiratory and blood stream infections.	Scott Mendel Carlsbad 2010	
9 (NR)	ResMed 9001 Spectrum Center Blvd., San Diego 92123 ResMed.com 858-836-5000		530	7,500	ResMed is a global leader in digital health, helping millions of people across 140+ countries sleep, breathe, and live healthier lives outside the hospital.	Mick Farrell San Diego 1989	
10 (6)	Axelgaard Manufacturing Company Ltd. 520 Industrial Way, Fallbrook 92028 www.axelgaard.com 760-451-8000		130 147 (12)	135	Patented medical electrodes, hydrogels	Jens Axelgaard Fallbrook 1985	
11 (7)	ACI Medical LLC 1857 Diamond St., San Marcos 92078 www.acimedical.com 760-744-4400		36 36 0	36	Treatment of peripheral artery diseases, venous diagnosis, contract manufacturing, sports recovery	Ed Arkans San Marcos 1995	
12 (8)	Advanced Brain Monitoring Inc. 2237 Faraday Ave., Suite 100, Carlsbad 92008 www.advancedbrainmonitoring.com 760-720-0099		30 30 0	45	ABM is a neurotech company and pioneer in brain science. Our proven technology and extensive data libraries provide a stable platform to tackle a myriad of neurodegenerative issues facing society.	Chris Berka Carlsbad 1999	
13 (9)	Ichor Medical Systems Inc. 6310 Nancy Ridge Drive, Suite 107, San Diego 92121 www.ichorms.com 858-550-2022		16 25 (36)	20	Delivery technology for nucleic acids including DNA vaccines & RNA for vaccines or antibodies	Bob Bernard San Diego 1994	
14 (11)	AG Scientific Holdings, LLC 6450 Lusk Blvd., Suite E102, San Diego 92121 www.agscientific.com 858-452-9925		15 15 0	15	Biochemical components for life science research. Antibiotics, ionophores, enzymes and inhibitors, buffers, detergents and more.	Peter Chudy San Diego 1997	
15 (11)	AVACEN Medical 2365 Camino Vida Roble, Suite C, Carlsbad 92011 AVACEN.com 888-428-2236		10 15 (33)	10	AVACEN 100 & AVACEN PRO Dry Heat Therapy FDA-cleared Medical Devices.	Thomas Muehlbauer Carlsbad 2009	

(NR) Not Ranked

Source: The companies.

In case of a tie, companies are ranked by number of companywide employees.

To the best of our knowledge, this information is accurate as of press time. While every effort is made to ensure the accuracy and thoroughness of

the list, omissions and typographical errors sometimes occur. Please send corrections or additions to the Research Department at the San Diego Business Journal. Eric Alderete, calderete@sdbj.com. This list may not be reprinted in whole or in part without prior written permission from the editor. Some companies have declined to participate or did not return a survey by press time. It is not the intent of this list to endorse the participants or to imply a company's size or numerical rank indicates its quality.

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THE LIST DIAGNOSTICS COMPANIES

► Ranked by number of local employees as of March 1, 2021

Rank (Last year)	Company Address Website Phone	# of local employees: 2021 2020 % + (-)	# of companywide employees	Description	Top local executive Headquarters Year founded
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2 (NR)	Illumina Inc. 5200 Illumina Way, San Diego 92122 www.illumina.com 858-202-4500	 3,631 3,631 0	7,828	Improving human health by unlocking the power of the genome	Francis deSouza San Diego 1998
3 (2)	Thermo Fisher Scientific Inc. 5791 Van Allen Way, Carlsbad 92008 www.thermofisher.com 760-603-7200	 2,400 2,400 0	80,000	Advance discovery, translational research, molecular medicine	Mark Stevenson Waltham, Mass. 1987
4 (3)	Hologic Inc. 10210 Genetic Center Drive, San Diego 92121 www.hologic.com 858-410-8000	 974 791 23	6,087	Innovative med tech company primarily focused on improving women's health	Kevin Thornal Marlborough, Mass. 1982
5 (4)	Quidel Corp. 9975 Summers Ridge Rd, San Diego 92121 www.quidel.com 858-552-1100	 866 808 7	1,401	Development, manufacturing & marketing of diagnostic tests, assays, instruments.	Douglas Bryant San Diego 1979
6 (NR)	Cue Health Inc. ("Cue") 4980 Carroll Canyon Rd, Ste 100, San Diego 92121 www.cuehealth.com	 750 100 650	750	Cue is a health technology company whose mission is to enable personalized, proactive and informed healthcare that empowers people to live their healthiest lives.	Ayub Khattak San Diego 2010
7 (NR)	GenMark Diagnostics Inc. 5964 La Place Court, Carlsbad 92008 www.genmarkdx.com 760-448-4300	 625 558 12	669	Molecular diagnostics company; develops, manufactures, sells, & supports instruments & tests for syndromic multiplex molecular diagnostics, including tests for respiratory and blood stream infections.	Scott Mendel Carlsbad 2010
8 (6)	Biocept Inc. 9955 Mesa Rim Road, San Diego 92121 www.biocept.com 858-320-8200	 140 90 56	140	Molecular diagnostic company providing actionable information to help improve outcomes for patients with a variety of cancers, as well as PCR-based COVID-19 testing to support public health efforts.	Michael Nall San Diego 1993
9 (NR)	Truvian Sciences 10300 Campus Point Drive, Suite 190, San Diego 92121 www.truvianhealth.com 8582513646	 90 75 20	90	Truvian is a healthcare company at the intersection of diagnostics and consumer technology making routine health testing convenient, affordable, and actionable for today's connected consumers.	Jeff Hawkins San Diego 2015
10 (NR)	Helix 9875 Town Centre Drive, San Diego 92121 www.helix.com 415-916-2740	 50 45 11	120	Helix is a population genomics company. In response to COVID-19, Helix built one of the largest COVID testing labs in the country to meet the need for more testing - incl. for San Diego County.	Marc Stapley San Mateo 2015
11 (NR)	Advanced Brain Monitoring Inc. 2237 Faraday Ave., Suite 100, Carlsbad 92008 www.advancedbrainmonitoring.com 760-720-0099	 30 30 0	45	ABM is a neurotech company and pioneer in brain science. Our proven technology and extensive data libraries provide a stable platform to tackle a myriad of neurodegenerative issues facing society.	Chris Berka San Diego 1999
12 (9)	Innominata dba GenBio 15222 Avenue of Science, Suite A, San Diego 92128 www.genbio.com 858-592-9300	 13 13 0	13	Develops, manufactures, markets immunoassays for infectious & autoimmune diseases in four formats	Frederick Adler San Diego 1994
13 (NR)	Avelas Biosciences, Inc. 11099 N. Torrey Pines Road, Suite 290, La Jolla 92037 www.avelasbio.com 858-750-4700	 8 8 0	8	Avelas is pioneering the field of fluorescent imaging for real-time cancer detection. Our mission is to increase the precision of cancer surgery to improve long-term outcomes for patients.	Jay Lichter La Jolla 2008

(NR) Not Ranked

Source: The companies.

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