BIOSCIENCE REGIONAL PROGRAM ADVISORY

Los Angeles Community College Program Look Book October 14, 2022 11:00am - 1:00pm

In partnership with:







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MEETING AGENDA

Date and Time	October 14, 2022 from 11:00 am – 1:00 pm			
Occupation Focus	Bioscience			
Location	4130 Overland Ave., Culver City, CA 90232 & Zoom Meeting			
Contact	Mariana Hernandez at <u>mariana.hernandez@laedc.org</u> 213-236-4885			
Opening Remarks	- Welcome and Introductions Jose Pelayo, LAEDC			
	 Bioscience Demand and Supply Data Arthur Girard, LAEDC & Luke Meyer, COE 			
Discussion Topics	- Workforce Trends			
Moderated by Jermaine Hampton	 What trends are you and your industry experiencing overall? 			
	 What workforce trends do you see that our community colleges should be aware of in order to prepare a more competitive workforce? 			
	 How would you describe the future of the field in terms of evolving workforce needs? 			
	 Do you see the demand for talent growing, leveling off, or shrinking in our region? 			
	- Technology, AI and Equipment			
	 How has new technology including automation and Al impacted the industry? 			
	 What are the software programs and equipment that our community colleges should be using to ensure their graduates are work ready? 			
	 What do you think are some of the core competencies, skills, and knowledge that graduates need in order to be prepared to leverage technology? 			
	- Workforce Gaps			



٠	What are the current and projected gaps in workforce
	skills and competencies—both for those in the field and
	those looking to enter it?

- What are the solutions that you as an employer are looking to implement to close the skills gaps that the community colleges could also replicate?
- Are there any additional opportunities to bridge knowledge, talent and certification gaps?
- Do you have an upskill need for your current workforce that the community colleges could provide?
- Talent Pipeline

	 What are the current talent pipelines to entry-level positions?
	 In Los Angeles County, what is the pathway to middle- skill jobs in this industry? 2 yr College vs 4 yr College?
	 Do you have any systems or programs in place to ensure you have access to, and are cultivating, a diverse workforce?
	 What are the leadership competencies (soft skills and work readiness) that you expect entry-level talent to have?
Curriculum Discussion	 Discussion and Feedback Feedback Poll
Closing Remarks	 Next Steps and Adjournment Jermaine Hampton, LAEDC



LOS ANGELES COUNTY ECONOMIC DEVELOPMENT CORPORATION

The Los Angeles County Economic Development Corporation, a non-profit organization, champions equitable economic growth across the Los Angeles region.

LAEDC is committed to developing a competitive regional workforce because we know that a robust workforce and our economic growth as a region should not be separated from each other. We bring industry leaders and educational partners together within the economic development process. We want our education infrastructure to train the next generation of the workforce and ensure they receive relevant training and can join the industry of their choice. We know there needs to be an alignment between industry and our educational systems.

Vision

A reimagined Los Angeles regional economy – growing, equitable, sustainable, and resilient – that provides a healthy and high standard of living for all.

Mission

Reinventing our economy to collaboratively advance growth and prosperity for all.

Learn more at <u>www.CompetitiveWorkforce.LA</u>.



Funded by the California Community Colleges Chancellor's Office under the Strong Workforce Program (SWP) as a Los Angeles Regional Project.

The Los Angeles County Economic Development Corporation (LAEDC) was founded in 1981 as a nonprofit, public-benefit organization to harness the power of private sector in collaboration with L.A. County, to guide economic development and create more widely shared prosperity. LAEDC collaborates with all stakeholders in the region including education, business, and government. Learn more at <u>www.LAEDC.org</u>.



Contact Information



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INDUSTRY REPRESENTATION

Vicki Brannock, Director of Workforce Strategy and Innovation at Biocom Institute



Vicki Brannock is the Director of Workforce Strategy and Innovation at Biocom Institute. Biocom Institute is a nonprofit organization dedicated to developing and promoting a skilled and diverse pipeline of talent for the life science sector. Brannock works with industry and education leaders to create viable sustainable programming from K-12 teacher training, employee upskilling and career change, as well as leadership development. Prior to joining Biocom Institute Brannock was Senior Director of Programs for Brandman University School of Continuing Education and served as Director of Programs for the San Diego Workforce Partnership who received the Trailblazer Award from the National Association of Workforce

Boards for innovation in programming and training. She consults and writes on the future of work and leadership.

David J. Whelan, Chief Executive Officer at BioscienceLA



David J. Whelan serves as Chief Executive Officer of BioscienceLA. Having spent 20 years in Los Angeles, he is passionate about leading the growth of a vibrant ecosystem that will create new opportunities for all stakeholders. Dave is a seasoned strategy, business development, and general management executive, building businesses and inspiring entrepreneurs at the intersection of technology, health, and wellness. His experience spans genomics, wearables, digital health, consumer health services, wellness and nutrition, enterprise health services, and healthcare providers, among other areas. He was an integral part of the creation of New York Genome Center, a unique not-for-profit scientific research institute, where he served as

Senior Vice President, Business Development & Chief Strategy Officer. Recent engagements include incubating a digital health and media start-up, steering a multi-year strategic and financial plan for a leading synthetic biology organization, launching a cancer diagnostic spinoff from a leading hospital, and developing a market assessment and strategic plan for an innovative integrative healthcare research institute. Dave has spent many years as a start-up advisor, mentor, and judge with organizations like Larta Institute, Cedars-Sinai Accelerator, and Women Founders Network. His experience also includes product management and channel strategy for a division of 24 Hour Fitness, where he helped to launch one of the first fitness wearables. Earlier in his career, he spent over six years as a retained executive search consultant. Dave began his career with a biotechnology incubator in San Francisco. He holds an MBA with Honors from the UCLA Anderson School and a BS in Symbolic Systems from Stanford University, and he remains very involved in alumni activities with both schools. He also studied at London Business School and Carnegie Mellon University. He has held a Top Secret Security Clearance.

Rita Blaik, Director of Education at the California NanoSystems Institute (CNSI) at UCLA



Rita Blaik is the Director of Education at the California NanoSystems Institute (CNSI) at UCLA. Her life's goal is to find new and innovative means of education in the sciences through handson workshops, interactive discussions, art, and other media. She is also an artist, and an adjunct faculty member at ArtCenter College of Design in Pasadena. She received her PhD in Materials Science & Engineering in 2015 at UCLA working on nanotechnology and enzymatic biofuel cells under the direction of Professor Bruce Dunn.



Lucy Abgaryan, Chief Executive Officer at Gritt Gene Therapeutics



Dr. Lucy Abgaryan is a scientist and entrepreneur with over 15 years of experience in drug development. She obtained her doctoral degree in Biophysics and conducted postdoctoral research in the field of Experimental Medicine at The Scripps Research institute. Her team's research resulted in an FDA-approved drug, Ozanimod at a Scripps spin-off, Receptos. Subsequently, two more compounds laid the basis for Blackthorn biotherapeutics (now part of Neumora Therapeutics, Inc) that are now drug candidates for Phase 1 and 2 clinical trials. This prompted her to continue her education at UCSD in pursuit of an MBA in Innovation and entrepreneurship. For the last 5 years, she has been involved in the formation of several

startup companies (Biotech, digital-tech, Bioprinting, etc.) in the US, Armenia, and Israel where she performs business strategy developments, operations, market entries, and regulations advisory as well as advisory work for several investment funds. She founded/co-founded 4 science-based organizations including Proone Labs and GrittGene Therapeutics where she is also the CEO.

Rohit K. Shukla, Chief Executive Officer at Larta



Rohit K. Shukla is the Chief Executive Officer at Larta, and an expert and leader in innovation, commercialization and entrepreneurship across several industry sectors. He is the chief architect of Larta's NIH CAP program. As such, he has designed and created much of the program content, the tracks, the deliverables and the monitoring of company performance. He has personally mentored over 20 CAP participants, and has worked with hundreds of startups and more established entrepreneurs in his 31 year career. In addition to NIH's CAP, he has also designed Larta's offerings in similar programs for NSF, USDA, NIST and DARPA. Governments overseas have turned to him to design commercialization programs, Australia, Canada,

Colombia, Hong Kong, Israel, Japan, Korea, Malaysia, New Zealand, Romania, Serbia, Taiwan and the UAE. The impact of these programs has been acknowledged, including substantial increases in external financial support for publicly-funded innovations, acquisitions and new transactional relationships established between various players brought together in the programs. He has also designed innovative approaches to technology transfer that seek to "bundle" innovative research concepts Rohit in alignment with industry and sectorial developments. He has also keynoted and spoken at scores of events around the globe, including those specifically coordinated through U.S. government outreach efforts.

Judy Hsieh, Head of Program Operations and interim Program Director at Larta



Judy Hsieh is the Head of Program Operations and interim Program Director for Larta's bioscience and healthcare portfolios. In her role as the Head of Program Operations, she leads the Program Operations function, processes, roles, and responsibilities in collaboration with her colleagues. She shapes the strategy, goals, and plans for high-priority cross-functional programs/projects in close collaboration with key stakeholders; establish alignment at all levels of the organization and across projects to optimize execution. She leads the team in charge of setting strategic directions, budget planning, development, and execution of various Commercialization Programs, funded by Federal agencies in the U.S., foreign governments, and

corporates, who fund science-based research, domestic and global key stakeholders, and startups. The Commercialization Programs help entrepreneurs accelerate their market readiness bring world-changing ideas into usage. One of the most recent initiatives includes Heal.LA. which is to identify, nurture and scale promising bioscience innovations in the Greater Los Angeles region. Judy also promotes the development and cultivation of Larta's innovation platform and ecosystem engaging networks of domain and functional experts to drive growth and impact.



Shannon O. Sullivan, Executive Director at The Leukemia & Lymphoma Society



Shannon O. Sullivan is an entrepreneurial leader with a passion for improving health outcomes at the local, national and global levels. Through her executive positions at The Leukemia & Lymphoma Society, Safe Kids Worldwide, The Parkinson Foundation, and Accelerate Brain Cancer Cure, she has spent her career inspiring communities to create and support high-impact programs, raising tens of millions of dollars along the way. A graduate of Dartmouth College (BA) and University of Houston (MBA), Shannon has strong communication, interpersonal, motivational, and strategic skills. In addition to being an Executive Committee Member with LAEDC, she serves as a member of the LAUSD Superintendent's Business Advisory Council and

an Advisor to Scale Health. She is an active volunteer within her faith community as well as the Girl Scouts of Greater Los Angeles.

Bryan Gerber, Co-Managing Director at Nucleate



Bryan Gerber is a 5th year PhD student at Caltech and is one of the Co-Managing Directors for the Los Angeles chapter of Nucleate, a student lead non-profit that helps transition translational research out of labs into startups. Nucleate connects PhDs, post-docs, and early career scientists who have IP with MBA students and put them through a biotech startup program with mentorship and expert workshops to refine their strategic plans. Bryan also is President of the Caltech Entrepreneurship Club and Co-President of the Caltech Biotech Club.

John Chi, Chief Executive Officer and Founder at Synova Life Sciences



John Chi is the CEO and Founder of Synova Life Sciences. Synova helps people live longer healthier lives by making it possible for everyone to get their own stem cells. As CEO and a technical founder, John has been responsible for leading strategy and fundraising for Synova, and for inventing and developing Synova's core stem cell technology and science – a device that extracts stem cells from fat. He has raised over \$3 for Synova and holds multiple patents for the technology. John holds degrees in Electrical Engineering and Biotechnology from Stanford and Cal State Fullerton, LA and Pomona, and is also an alumnus of YCombinator, Stanford StartX, Creative Destruction Lab, Mass Challenge, LA BioStart, and FastStart Studio.

Formerly, John has been CTO of a post-production and visual effects company, a lead developer at an e-commerce company, and CTO of an telecommunications company, and an expert analyst at an academic institution. He currently serves on Stanford's StartX Med COVID-19 Task Force, and is an advisor to several companies. He's always up for a good game of chess and loves dad jokes.



BIOTECHNOLOGY DEMAND DATA

Current Landscape

Exhibit X-X Biotechnology Employment Los Angeles County, 2017-2021



Source: CA EDD

Exhibit X-X Average Annual Pay in Biotechnology Industries Los Angeles County 2021

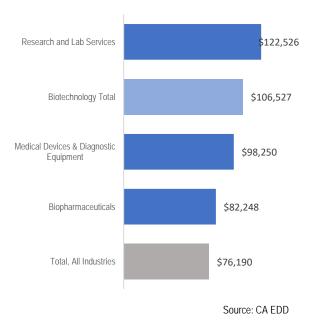
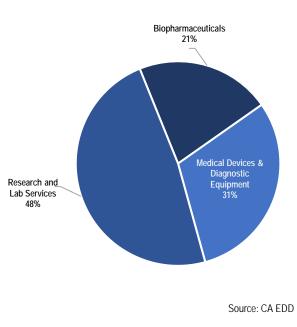


Exhibit X-X Employment Distribution for Biotechnology Los Angeles County 2021

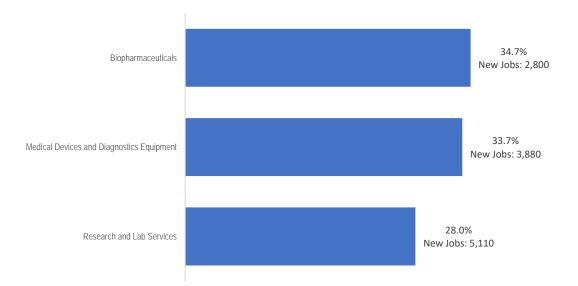




Employment Forecast

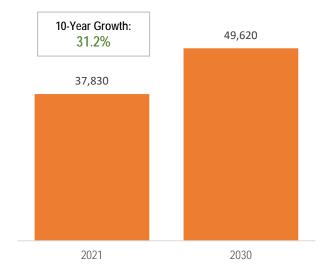
Exhibit X-X

Forecasted Employment Growth in Biotechnology Industries Los Angeles County, 2021 - 2030



Source: CA EDD, EMSI Lightcast, Estimates from LAEDC

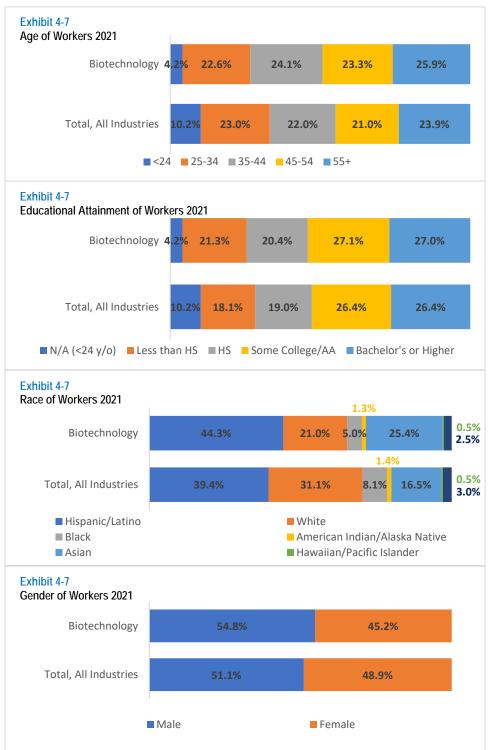
Exhibit X-X Forecasted Overall Employment Growth in Biotechnology Los Angeles County, 2021-2030



Source: CA EDD, EMSI Lightcast, Estimates from LAEDC



Industry Demographics



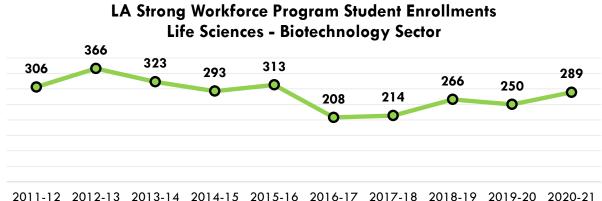


COMMUNITY COLLEGE TALENT SUPPLY

Five community college programs have historically prepared students for careers involved in the Life Sciences – Biotechnology sector, providing education and career preparation related to the theories, operations, and technical skills used to assist researchers and engineers engaged in developing or manufacturing biological, biotechnical, or medical systems or products:

- Biotechnology and Biomedical Technology (0430.00)
- Biomedical Instrumentation (0934.60)
- Electron Microscopy (0934.70)
- Chemical Technology (0954.00)
- Laboratory Science Technology (0955.00)

Since the 2011-12 academic year, there have been more than 2,800 enrollments in courses related to Life Sciences – Biotechnology. The exhibit below shows the breakdown by academic year over the last decade.



^{2011-12 2012-13 2013-14 2014-15 2015-16 2016-17 2017-18 2018-19 2019-20 20}

Source: California Community Colleges LaunchBoard

Between 2018 and 2021, community colleges in the region conferred an average of 93 awards across these five training programs in the Life Sciences – Biotechnology sector, rising steadily over the last three years.

Regional community	college awards	certificates and de	egrees), 2018-2021

ТОР	Program	2018-19 Awards	2019-20 Awards	2020-21 Awards	3-Year Average
0430.00	Biotechnology and Biomedical Technology	60	81	67	69
0934.60	Biomedical Instrumentation	17	7	17	14
0954.00	Chemical Technology	8	4	6	6
0955.00	Laboratory Science Technology	2	1	5	3
0934.70	Electron Microscopy	3	-	-	1
	LA Supply Total/Average	90	93	95	93
Source Calif	ornia Community Colleges Chancellor's Office	MIS Data Mai	+		

Source: California Community Colleges Chancellor's Office MIS Data Mart



Regional Biotechnology Programs

Thirteen of the nineteen regional community colleges offer career education programs that prepare students for careers in biotechnology. While the majority of the colleges listed in the table below offer core training in biotechnology, several offer more specialized training related to specific areas – biomanufacturing, chemical technology, biomedical instrumentation, computational biology, stem cell culture, fermentation and brewing processes, and others.

	LA Biotechnology programs and award types offered by college						
College	Local Program Title	Award Offered					
Citrus	BiotechnologyBiomanufacturing	AS DegreeCertificate of Achievement					
Compton	 Biomanufacturing Biomanufacturing Technician Biotechnology Laboratory Assistant 	AS DegreeCertificate of AchievementCertificate of Achievement					
East L.A.	BiotechnologyChemistry Technician	Certificate of AchievementAS Degree/Certificate					
Glendale	 Biotechnology Biotechnology Research Lab Assistant Biotechnology Research Lab Technician 	 AS Degree/Certificate Certificate of Achievement Certificate of Achievement 					
L.A. Harbor	BiotechnologyBiotechnology Lab AssistantBiotechnology Research Lab Assistant	AS DegreeCertificate of AchievementCertificate of Achievement					
L.A. Mission	 Biotechnology Biotechnology Lab Assistant Biotechnology Research Lab Assistant 	AS DegreeCertificate of AchievementCertificate of Achievement					
L.A. Pierce	Career Exploration: Biotechnology Careers	Noncredit program					
L.A. Trade-Tech	BiotechnologyChemical Technology	AS Degree/CertificateAS Degree/Certificate					
L.A. Valley	Electronics: Biomedical InstrumentationBiotech Bridge Training Academy	AS Degree/CertificateShort-term training					
Mt. San Antonio	 Applied Laboratory Science Technology Histologic Technician Training	AS DegreeAS Degree					
Pasadena City	 Biological Technology Biological Technology - Laboratory Assistant Biological Technology - Computational Biology Biological Technology - Stem Cell Culture 	 AS Degree/Certificate Certificate of Achievement Certificate of Achievement Certificate of Achievement 					
Rio Hondo	Biotechnology	Certificate of Achievement					
West L.A.	Biotechnology Lab Technician	Certificate of Achievement					

LA Biotechnology programs and award types offered by college

Source: California Community Colleges Chancellor's Office Curriculum Inventory (COCI)



LA's Emerging Biotechnology Programs

A few community colleges in the region are currently in the process of finalizing and launching new programs related to biotechnology, some scheduled to begin as early as spring semester of 2023.

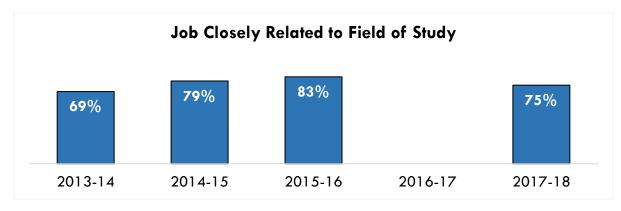
College	Local Program Title	Award Offered						
	Biotechnology	AS Degree						
Cerritos	Basic Wet Lab Skills	Certificate of Achievement						
	Biomanufacturing	Certificate of Achievement						
El Camino	Biotechnology	AS Degree/Certificate						
L.A. City	Food Chemistry & Technology	Certificate of Achievement						
	Biotechnology	AS Degree						
	Cell Culture	Certificate of Achievement						
Santa Monica	Cell Therapies	Certificate of Achievement						
	Biomanufacturing	Certificate of Achievement						
	 Immunological Testing 	Certificate of Achievement						

Emerging LA Biotechnology programs and award types offered by college

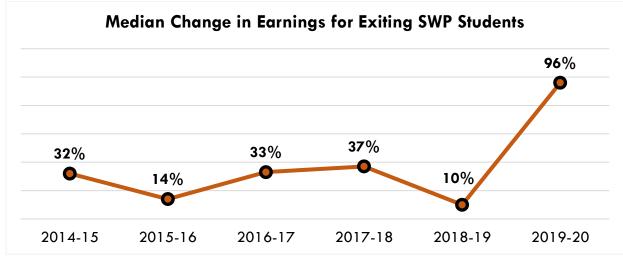


Student Employment Outcomes

According to LaunchBoard data, 75 percent of exiting students from these programs report working in a job closely related to their field of study (2017-18). Median annual earnings for exiting students have fluctuated from a high of over \$54,400 in 2017-18 to just over \$31,250 in 2019-20. Despite the recent lower annual earnings, biotechnology programs are positively impacting our students' lives, increasing their earnings by 96% in 2019-20.







Source: California Community Colleges LaunchBoard – Strong Workforce Program



Target Occupations for Regional Training Programs

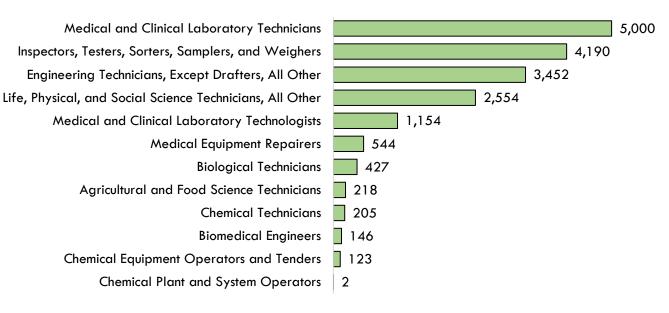
soc	Occupation	2021 Jobs	2026 Jobs	5-Year % Change	Annual Openings	Entry- Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
51- 9061	Inspectors, Testers, Sorters, Samplers, and Weighers	16,197	14,060	(13%)	1,802	\$16.58	\$18.72	\$27.56
29- 2018	Clinical Laboratory Technologists and Technicians	7,471	7,828	5%	553	\$22.21	\$28.53	\$37.62
19- 4099	Life, Physical, and Social Science Technicians, All Other	2,353	2,409	2%	299	\$21.57	\$28.58	\$35.95
17- 3029	Engineering Technologists and Technicians, Except Drafters, All Other	2,062	2,036	(1%)	190	\$22.94	\$29.72	\$38.18
19- 4031	Chemical Technicians	1,772	1,731	(2%)	190	\$17.93	\$22.80	\$28.57
49- 9062	Medical Equipment Repairers	1,598	1,580	(1%)	165	\$21.57	\$28.39	\$43.76
19- 4021	Biological Technicians	1,172	1,237	6%	162	\$17.24	\$22.37	\$28.98
51- 9011	Chemical Equipment Operators and Tenders	1,446	1,305	(10%)	138	\$17.71	\$22.92	\$28.97
19- 4013	Food Science Technicians	364	348	(4%)	45	\$18.22	\$22.51	\$28.98
17- 2031	Bioengineers and Biomedical Engineers	460	455	(1%)	28	\$35.84	\$47.25	\$60.44
19- 4012	Agricultural Technicians	180	180	0%	23	\$16.31	\$19.63	\$27.36
51- 8091	Chemical Plant and System Operators	186	181	(3%)	19	\$16.10	\$19.76	\$21.75
	Total	32,657	30,785	(6%)	3,356	-	-	-

Source: Lightcast, datarun 2022.3



Employer Job Postings

Over the past 12 months (Sep 2021 through Aug 2023), there have been 18,015 online job postings related to the occupations of interest. The majority of job postings (88%) were for *medical and clinical laboratory technicians*, followed by *inspectors, testers, sorters, samplers, and weighers* (23%), and *engineering technicians, except drafters, all other* (19%). The highest number of job postings were for laboratory technicians/assistants, quality control inspectors, production technicians, and manufacturing technicians. The top skills sought by employers were quality assurance and control, repair, good manufacturing practices (GMP), chemistry, data entry, and vaccination. The top employers, by number of job postings, in the region were Cedars-Sinai, University of California, Gilead, Takeda, Lab Corp, and Grifols.



Number of job postings by occupation

Top job titles and employers from job postings

Job Title	Job Postings	Employer	Job Postings
Laboratory Technician	637	Cedars-Sinai	711
Quality Inspector	338	University Of California	257
Laboratory Assistant	284	Gilead Sciences	179
Quality Control Inspector	245	Anthem Blue Cross	176
Quality Assurance Specialist	207	Takeda Pharmaceuticals	175
Production Technician	194	University of Southern California	128
Quality Assurance Technician	194	Laboratory Corporation of America	114
Manufacturing Technician	184	Grifols	106
Quality Control Technician	164	Northrop Grumman	104
Medical Laboratory Technician	126	Integrated Resources Incorporated	94
Quality Assurance Inspector	122	The Boeing Company	93
Quality Technician	115	Quest Diagnostics	91

Source: Burning Glass Technologies Labor Insight



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