



BioMed-Tech Valley

Tijuana - San Diego Life Sciences Business



Opportunities in the Binational Megaregion

BioMed -

Tech Valley:

INDEX

	Page
Introduction _____	4
Briefing _____	5
1 US Life Sciences Market Size _____	6
2 Thriving Medical Device Industry _____	9
3 Software Centers of Excellence to accelerate innovation in the Life Sciences Industry and subsectors _____	10
4 Biotechnology Advancements _____	13
5 Pharmaceutical Excellence _____	13
6 Collaborative Research Ecosystem _____	15
7 Cali -Baja Life Sciences trending topics _____	16
8 CrossBorder Business Opportunities / From R&D to Marketplace _____	19
9 Baja California - LifeSciences Ecosystem Capabilities _____	23
10 Why is Tijuana for Tech and Life Sciences a strong ally to innovate? _____	25
11 USMCA benefits for Nearshoring BioMedTech in Tijuana _____	28
12 Successful business cases and testimonials _____	29
13 Directory of Key Players in the Binational Life Sciences Ecosystem _____	31
14 Talent Pool _____	32
15 Infrastructure _____	33
16 Conclusion _____	36
17 Bibliography _____	37

Introduction

This white paper will guide investors and companies interested in nearshoring solutions, showcasing legacy and emerging examples of Life Sciences success stories and business opportunities awaiting in Tijuana, Baja California, Mexico, as an essential strategic partner of California and San Diego.

Tijuana's strategic location on the border with one of the leading Life Sciences and Biotech Clusters in the US represents a unique opportunity to improve sustainable supply chain evolution with solutions that directly impact business growth. California is ranked #1 and San Diego is ranked #3 as a Biotech Clusters in the country.

Our city has emerged as a crucial player in the global Life Sciences industry, driven by its advanced manufacturing sector, and highly skilled workforce. Together, these regions constitute a cross-border ecosystem that offers numerous opportunities for entrepreneurs, investors, and industry professionals.

We call this initiative, The Bio MedTech Valley.

At Tijuana EDC, we strive to provide innovative and top-notch services to Investors and Entrepreneurs looking to expand their business by nearshoring in Mexico. Whether a company is seeking assistance with a specific service or product or seeking guidance on starting a business in Tijuana, our team of experts can support every step.

We believe in building long-term relationships with Tijuana investors based on trust, reliability, and open communication.

This document aims to provide an insightful overview of Tijuana's Life Sciences landscape while exploring its relationship with its neighboring city, San Diego, California.



Cristina Hermosillo
Chairman of the Board
Tijuana EDC 2023-2025

Briefing

From developing cutting-edge medical device manufacturing to software-enhancing data analysis capabilities, Tijuana EDC nearshoring solutions are designed to provide information of value and decision-making. San Diego and Tijuana, these two cities, can unlock new possibilities and propel Life Sciences innovations to unprecedented heights.

Tijuana Economic Development Corporation is a certified IEDC (International Economic Development Council) professional economic developer.

Since 1989, the EDC has guided over 300 multinational companies to soft-land their nearshoring manufacturing and services operations in Tijuana. The EDC understands the industry's complex demands and has a proven track record of connecting top life sciences companies to soft-land operating in Mexico. Professional business and economic developers equipped to tackle complex challenges, from manufacturing medical devices, advanced electronics, aerospace and defense projects, to bioinformatics, software development and AI-driven healthcare solutions.

Imagine harnessing the expertise of our nearshore capabilities to drive breakthroughs, to accelerate time-to-market, and to optimize operations. Together, we will shape a Binational BioMedTech Valley Life Sciences landscape and make a lasting impact on global health.

Visit the Tijuana EDC website, www.tijuanaedc.org, to discover the potential that awaits.

Tijuana EDC offers free-of-charge services to foreign investors to successfully soft-land innovative projects and manufacturing operations in Tijuana, Mexico. The associates comprise over 100 leading firms from both sides of the border, service providers to the industry highly committed to the industrial and economic development of the region. The EDC will gather a group of experts in areas such as accounting, legal, corporate taxes, customs, technology or administrative services, and industrial or commercial developers to discuss the steps to land your project successfully.

Alfredo Angeles

Chief Commercial Officer
alfredo@tijuanaedc.org

David Moreno

Chief Executive Officer
david@tijuanaedc.org

01 US Life Science Market Size

Tijuana EDC (Economic Development Corporation) is taking steps to integrate Tijuana as a City's capabilities into the value chain industry and to support the expansion of the US Life Sciences industry. The USMCA (United States-Mexico-Canada Agreement) is an important trade agreement that replaced NAFTA (North American Free Trade Agreement) and aims to promote trade and investment between the three countries.

By connecting specialized sectors and enhancing capabilities, Baja California can significantly contribute to the growth and integration of the Life Sciences industry in the US. The Life Sciences sector encompasses various fields such as pharmaceuticals, biotechnology, medical devices, and research and development. This industry is crucial in improving healthcare, developing innovative treatments, and enhancing overall well-being worldwide.

According to Baja California's government data, the US has been the main trading partner of Tijuana & Baja California, with **80%** of FDI in the region. For these reasons, we focused on the US market size data for the Biotechnology industry and eight other markets to unlock nearshoring integration business opportunities.

The biotechnology market, by revenue market size in the US, was **\$190.0 billion in 2022**, according to a Market Research Report by IBISWorld (2023). When addressing the industry trends, *IBISWorld* also shared that Biotechnology revenue has increased at a Compound Annual Growth Rate (CAGR) of **2.6% to \$193.1 billion** over the past five years (2018-2023), including **1.6% growth in 2023**, when profit will total **7.8%**.

Industry sectors where
Biotech is applied

MEDICAL DEVICES

- Market Size (2022): USD 189 billion
- Projected Market Size (2030): USD 265 billion (Tijuana EDC, 2023)

Manufacturing of specialized medical devices, tissue engineering for producing artificial organs and tissue, prosthetics, implants, precise disease identification in diagnostics, regenerative medicine, cellular therapies, and the use of biomaterials.



PHARMACEUTICALS

- Market size (2021): USD 389.3 billion in revenue globally
- Projected market size (2030): USD 720.8 billion in revenue globally (P&S Intelligence, 2022)

Research and development of vaccines, drug and antibiotic development, molecular biology, and genomics to identify new therapeutic targets, to design candidate drug molecules, and to evaluate their efficacy and safety in biological models.



BIO-AGRICULTURES

- Market size (2020): USD 9.5 billion
- Projected market size (2026): USD 18.9 billion (Expert Market Research, 2022)

More efficient, higher quality and good crops for the entire population, genetically modified organisms resistant to pests or diseases, creation of varieties of plant species, genetic engineering of farm animals to obtain higher quality products, treatment of arid soils for agriculture to make them habitable, repopulation of ecosystems that are victims of desertification, and use of desert resources (biofertilizers and biostimulants).



FOOD AND BEVERAGE

- Market size (2021): USD 524.03 billion
- Projected market size (2026): USD 531.37 billion (Gitnux, 2023)

From marine microorganisms, there is the development of food supplements, cosmetics, new natural colorants, additives for the food industry, alcoholic and lactic fermentation, and obtaining special foods.





VETERINARY PHARMA

● Market size (2021):
USD 29.1 billion

● Projected Market Size (2030):
USD 44.89 billion
(Market Research Future, 2023)

Biotechnology is used for vaccines and animal therapies, molecular diagnostics, animal genetic improvement, food, and feed production, and regenerative veterinary medicine search and development.

● Market size (2022):
USD 9.34 billion
globally

● Projected Market Size (2030): USD
18.12 billion globally
(BioSpace, 2022)

**Check Graph 2 of the appendix for the global Life Sciences analytics market.*

Scientific research in Biotechnology is aiming for growth and development. Vaccines, creation of new technologies, wastewater remediation, removal of heavy metals and toxic gases, creation of biodegradable plastics, biofuels, new leather and skin alternatives, development of molecular diagnostic techniques are used to detect diseases and to evaluate response to treatments (PCR tests and DNA sequencing), and more.



SOFTWARE

● Market size (2022):
USD 10.1 billion

● Projected market size (2027):
USD 18.7 billion
(Markets and Markets Research Pvt. Ltd, 2023)

Development of computer programs to analyze living beings from a purely mathematical point of view (DNA sequencing, search for genetic alterations, phylogenetic analysis [evolutionary relationships between species], growth predictions of microorganisms).



HEALTH TOURISM

● Market size (2022):
USD 11.7 billion

● Projected Market Size (2032):
USD 35.9 billion (Market.Us, 2023)

It involves the application of scientific knowledge, technologies, and research in providing medical services to tourists who seek specialized treatments or procedures that may need to be more readily available or affordable in their home countries. It can encompass various medical specialties, such as advanced surgical procedures, organ transplantation, fertility treatments, cosmetic surgery, cardiovascular interventions, cancer treatments, and much more. It may also involve alternative medicine practices, traditional healing methods, or wellness retreats that promote overall health and well-being.

02

Thriving Medical Device Industry

Tijuana is renowned for its expertise in manufacturing high-quality medical devices. This section will explore the city's strength in producing surgical instruments which includes, orthopedic instruments, advanced imaging devices, and other medical equipment. Highlighting the advantages of Tijuana's manufacturing capabilities, cost-effectiveness, and quality standards.

Ossur, BD, Medtronic, Stryker are some examples of the companies established in Tijuana that have thrived in the city and have exceeded their expectations with the time.

Within **60+** years of manufacturing expertise and housing more than **100** medical devices and Life Sciences companies, Baja California has developed a remarkable proficiency in manufacturing high-quality medical products. In addition, the state has a diverse skillful workforce that enables the sharing of best practices among different sectors, providing better quality, on-time delivery, and cost reduction.

Only in Baja California, this sector provides over **100,000 jobs** to a youthful workforce with an average age of **30 years old**. Talent is co-prepared in a collaboration between companies and universities, intending to prepare students to secure a position in the industry. The state offers **90** public & private universities, of which nine of them, have Cross-Border Partnerships.

In 2018, San Diego had nearly **34,000** workers dedicated to scientific research and development services, over **23,000** employees in computer systems design and related services, and nearly **12,000** employees at colleges and universities.

Engineering is and will continue to be the STEM field with the highest number of degrees for the industry's future; in 2021, more than **3,700** degrees were conferred, followed by health sciences-related careers in Baja California, with a sum of **2,500** degrees.

The megaregion undertakes many capabilities and processes that, for some, are unimaginable until having the opportunity to delve into it. Three of the most prominent capacities available in Cali-Baja in the sterilization field are E-Beam, ETO Sterilization, and Gamma Irradiation.

Software Centers of Excellence to accelerate innovation in the Life Sciences Industry and subsectors.

03

Tijuana has a relatively recent history of establishing software centers of excellence. Over the past two decades, the city has experienced significant growth and development in the software and technology sector, including establishing software centers of excellence. Here is a brief overview of the history of software centers of excellence in Tijuana:

The Early 2000s: Tijuana's emergence as a hub for software development began in the early 2000s, the 1st IT and Software Cluster initiative in Mexico as a Nation this effort was called IT@Baja. During this time, a massive group of entrepreneurs and business owners well established in IT and Software industries, along with the Federal and State government, created a strategy to transform his vocation in this region of Mexico. Tijuana started attracting multinational companies partnering for Talent generation, as IBM, Microsoft, SONY and the IT Cluster started the curricula for present and future talent creation, economic development and social studies about the impact of this new generation of talent pioneering the economic and trending industries retention and attraction to the Baja California region. This is a consequence of the skilled labor pool, lower operational costs, and geographic proximity to US.

1

2

Growth of the technology sector: As the technology sector in Tijuana grew, national and international companies began realizing the benefits of establishing software centers of excellence in Tijuana. These centers aimed to centralize and to enhance software development capabilities, to promote collaboration, and to drive innovation. Multi-national companies such as Telmex, Grupo Carso, and ThermoFisher became key drivers of the region's technology ecosystem and contributed to the industry's growth. Nowadays, several companies in the Life Sciences industry found in ITJuana a key strategic partner to start up their stand-alone Software and Engineering Centers of Excellence, connecting the investment from R&D to real-time Lab operations for companies such as Insulet, Dexcom, Xilatrix, Luna DNA, Curemetrix, and Quidel Ortho just to mention a few.

3

Government support and infrastructure development: The local Tijuana government recognized the technology sector's potential and actively supported its development. The private sector implemented initiatives to attract foreign investment, foster entrepreneurship, and to foster a favorable business environment for software companies. This support included investments in infrastructure development, such as improving telecommunications networks and providing modern office spaces.

4

Collaborative efforts: Various collaborations and partnerships emerged between academic institutions, Three-level government bodies, and private companies to promote the growth of software centers of excellence in Tijuana. These collaborations aimed to bridge the gap between industry needs and academic curricula, enhance skills development, and to promote research and innovation in software development.

Rise of start-ups and innovation hubs: Tijuana witnessed the rise of technology innovation hubs such as internal R&D centers in companies like SMK, Bose, HP, Samsung, Thermofisher, Ossur Mexico, Insulet, and ITJuana, further focusing on fueling the development of software Centers of excellence specialized in the Life Sciences Industry. These innovation hubs often focused on trending emerging technologies and disruptive solutions, contributing to the vibrancy and dynamism of the local technology ecosystem. They attracted talent worldwide to our ecosystem and investment from foreign corporations that required support for expanding their software processes, creating a fertile ground for innovation in our city.

5

In recent years, the innovation hubs and software centers of excellence serving the Med Dev and Life Sciences Industries have continued to grow and mature. More and more companies have recognized the benefits of setting up operations in the city, and the industry has expanded beyond multinational corporations to include a thriving ecosystem of local companies.

This growth has further solidified Tijuana's position as a destination for software, IT, and engineering centers of excellence.

The city has evolved into a hub for software development, attracting companies seeking to leverage its nearshore advantages in talent, cost, proximity, and infrastructure.

Tijuana offers several competitive reasons as to it is a great option for Nearshore Software Centers of Excellence:



Proximity to the US

This proximity allows for easy same-day travel and communication, facilitating regular in-person meetings, collaboration, and cultural understanding, vital for successful software development partnerships.



Time zone compatibility: Tijuana operates on Pacific Time (PT) or Mountain Time (MT), depending on daylight saving time. This time zone alignment with many U.S. regions allows for real-time collaboration and agile development practices. Overlapping working hours enable prompt communication, quick decision-making, and faster turnaround and times, ensuring efficient project progress.



Highly skilled talent pool: Tijuana boasts many highly skilled IT, technical, and engineering professionals, including software engineers, developers, QA testers, and IT specialists. The city is home to reputable universities and technical institutions that produce graduates with strong technical backgrounds. This abundance of talent provides a solid foundation with access to diverse skills and expertise.



Cost advantages: Tijuana also provides cost advantages compared to many U.S. cities. Operating expenses, including labor costs, office spaces, and infrastructure, are more affordable in Tijuana. Nearshoring to Tijuana can result in substantial cost savings for companies compared to maintaining an entirely on-shore software development team.



Cultural and linguistic affinity: Tijuana shares a border with the United States, resulting in a high degree of cultural and linguistic affinity with its North American neighbors. Bilingualism is prevalent among professionals in Tijuana, with many fluent in English and Spanish. This linguistic and cultural compatibility fosters effective communication, understanding of client requirements, and seamless collaboration with U.S.-based teams.



Stable business environment: Tijuana offers a stable and business-friendly environment for companies looking to establish Nearshore Software Centers of Excellence.



Mature IT ecosystem: Tijuana has a mature and thriving IT ecosystem, with a strong presence of software development companies, start-ups, and tech communities. This ecosystem fosters collaboration, knowledge sharing, and innovation. Companies setting up Nearshore Software and Engineering Centers of Excellence in Tijuana can benefit from this ecosystem by engaging in partnerships, attending industry events, and leveraging local expertise.



Ease of travel and logistics: Tijuana connects to major U.S. cities through its international airport. The unique CBX- Airport Binational Bridge and land transportation links simplify site visits, team coordination, and client interactions. The streamlined logistics enable efficient project management, fostering a closer working relationship between the Nearshore Software center of Excellence and its counterparts neither from the US and other countries.

04 Biotechnology Advancements

Tijuana has witnessed remarkable growth in the Biotechnology sector, focusing on cutting-edge areas such as genomics, cancer, regenerative medicine, and, Bioinformatics. This section will highlight notable examples of BioMed and Biotech companies connecting with research institutions and the innovative breakthroughs driving the industry forward. In its growth, Tijuana has developed solutions in the veterinary field, such as a cure for canine distemper through silver nanoparticles and treatment for chronic diseases through mesenchymal stem cells.

Research and development companies in human medicine have used bio photonics to create non-invasive treatments with frequencies unique to each patient and their needs. Other companies in the biotech field develop and manufacture diagnostic kits and lateral flow tests, as well as development of monoclonal antibodies and HBR blockers.

Tijuana's proximity to renowned research institutions and universities has fostered a welcoming environment for pharmaceutical companies. This topic will explore the pharmaceutical landscape in Tijuana, including drug development, clinical trials, and collaborations with academic partners. The companies that are part of this pharmaceutical landscape are SBL Pharmaceuticals, Genética Laboratorios, Victory Enterprises, and Laboratorios Baja Med are part of this pharmaceutical landscape.

SBL Pharmaceuticals is a leading player known for its research and development of innovative drugs. With state-of-the-art facilities and a team of highly skilled scientists. SBL Pharmaceuticals has established itself as a key player in the pharmaceutical landscape of Tijuana.

Genética Laboratorios specializes in the manufacturing of generic drugs. As one of the largest pharmaceutical manufacturers in Tijuana. Genética Laboratorios plays a crucial role in providing affordable medications to the local population and beyond. Their commitment to quality and accessibility has earned them a strong local and national reputation.

5 Pharmaceutical Excellence

05

Pharmaceutical Excellence

Victory Enterprises

Is known for its diverse portfolio of products. They have made significant strides in biotechnology, oncology, and immunology. With a focus on cutting-edge research and development, Victory Enterprises continues contributing to pharmaceutical advancements, addressing unmet medical needs, and improving patient outcomes.

Laboratorios Baja Med

Focuses on producing high-quality medications. They have gained recognition for its commitment to excellence and adherence to rigorous manufacturing standards. Laboratorios Baja Med products span various therapeutic areas, catering to the healthcare needs of both local and international markets.

In addition to these major pharmaceutical companies, Tijuana is home to a thriving ecosystem of research institutions and smaller-scale enterprises which include;

NanoScience Labs

is one example, specializing in nanotechnology and its applications in drug delivery systems for supplements and other products like food and beverages. Their cutting-edge research holds great promise for enhancing drug efficacy and minimizing side effects.

Bomuca

A Biotechnology company, is making significant strides in developing novel therapeutics. Their focus lies in leveraging the potential of biological systems to create innovative treatments for a wide range of diseases. Through their research and collaboration with academic partners, Bomuca aims to transform the pharmaceutical landscape and improve patient care.

PetCell

Is leading the way in innovative stem cell pharmaceuticals. This company specializes on developing medications and therapies specifically tailored to the needs of animals, ensuring their well-being, and enhancing veterinary care.

These examples highlight the diversity and strength of the pharmaceutical industry in Tijuana. With companies like SBL Pharmaceuticals, Genética Laboratorios, Victory Enterprises, and Laboratorios Baja Med are leading the way, supported by innovative and smaller-scale enterprises such as NanoScience Labs, Bomuca, Bionag, and Petcell. Tijuana continues to be a thriving hub for pharmaceutical research, development and manufacturing.

06

Collaborative Research Ecosystem

Baja California's dynamic research institutions and academic innovation centers collaborate closely with industry partners. This topic will emphasize the strong ties between academia and private businesses, showcasing successful collaborations, joint ventures, and knowledge-sharing initiatives that drive innovation in the Life Sciences sector.

Continuous work in collaboration with the Baja California State Government to update the innovation capabilities profile of over 30 innovation centers established in the Baja California region. The latest Directory lists public and private innovation centers focused on Life Sciences, Innovation Technology, Manufacturing, and Creative industries, among others. Furthermore, Baja California has three research centers fully dedicated to scientific research.

The market's natural course demands further investment into R&D, strengthening bilateral cooperation in the binational region even more and solidifying an integrated business ecosystem.

Baja California also has private and public technology transfer offices and Binational Education facilitators, who offer courses linked with ecosystem key players for DevOps and software development and best practices, among others.

Other Technology Transfer Programs and initiatives aim to facilitate the transfer of knowledge and technologies from research institutions to the industry, bridge the gap between academia and industry, to encourage the commercialization of scientific advancements, and to foster innovation.

Some examples are:

- 1.- **BAJAINNOVA**
- 2.- **CICESE**
- 3.- **UABC**

Among others as:
CETYS, Xochicalco, UTT, ITT, CESUN.
Please visit this link for more information:
www.bajacalifornia.gob.mx/sei/

07 Cali-Baja Life Sciences Topics

In the vibrant region of San Diego-Tijuana, where innovation and collaboration thrive, the Life Sciences industry is at the forefront of groundbreaking advancements shaping the future.

This dynamic cross-border area is fully immersed in a wide range of trending topics that are revolutionizing the field and paving the way for transformative breakthroughs.

From precision and personalized medicine to cutting-edge technologies like robotics and artificial intelligence, this region is a dream place for innovation in biotechnology, regenerative medicine, genomics, and much more.

- Health Precision and
- Personalized medicine
- Biotechnology
- Synthetic biology
- Cellular reprogramming
- Regenerative medicine
- Predictive medicine
- Genomics
- Genetic engineering
- Preventative healthcare
- Gene therapy

- Stem cell therapy
- Nanotechnology
- 3D-4D-5D printing
- Smart dust
- Smart thread
- Materials science
- Biometric monitoring
- Advanced prosthetics
- Virtual reality
- AI-enabled drug discovery

Exciting trending topics are driving the Life Sciences industry forward in San Diego-Tijuana, and explore how these advancements are poised to reshape the landscape of healthcare, biotechnology, and beyond as the Artificial Intelligence (AI) - Machine Learning (ML).

AI has the potential to revolutionize the Life Sciences industry by providing new insights and accelerating the development of new treatments. By analyzing large amounts of data, AI can identify patterns and relationships that might not be apparent to human researchers.

This can lead to the discovery of new drug targets and the development of more personalized treatments. In addition to drug discovery and development, AI can be applied to other areas of the life science industry, such as medical imaging and disease diagnostics, by identifying early warning signs. This can lead to earlier treatment and to better outcomes for patients.

Overall, the opportunity for AI in the Life Sciences industry is vast and promising. By leveraging the power of AI, researchers and companies can accelerate the development of new treatments and improve patient outcomes.

Biocom: 2023 Economic Impact Report

According to Biocom California's 2023 Life Science Economic Impact Report generated by Biocom California, the Trade Association for the State of California.

The California Life Sciences industry was an engine of growth for the California economy in 2022. Overall, in 2022, the State's Life Sciences industry, composed of the six major sub-sectors defined below, expanded direct employment by 26,672 jobs, attracted \$6.1 billion in National Institute of Health (NIH) and National Science Foundation (NSF) funding, generated and overall business output of \$413.7 billion, and contributed a meaningful cadence of M&A and partnership activity particularly in drug discovery and biotech sectors. Although the year also presented macro environment challenges and regulatory shifts, the California Life Sciences industry continues to adjust to market changes actively.

THE SIX MAJOR SUB-SECTORS COMPRISING THE LIFE SCIENCES INDUSTRY SCOPE:

Biotechnology: Research and development in biotechnology: research and development in nano-biotechnology, artificial and synthetic fiber manufacturing, research and development in physical engineering, and Life Sciences.

Biopharmaceuticals: Medicinal and botanical manufacturing, pharmaceutical preparation manufacturing, intro-vitro diagnostic substance manufacturing and biological product manufacturing.

Medical Devices and Equipment: Ophthalmic goods manufacturing, irradiation equipment manufacturing, surgical and medical instrument manufacturing, surgical appliances and supplies manufacturing, optical instrument and lens manufacturing, dental laboratories, medical, dental, and hospital equipment, and supplies merchant wholesalers.

Research and Testing: Colleges, universities, professional schools, medical laboratories and testing laboratories.

Scientific / Research Tools: Laboratory instruments manufacturing, laboratory chemicals (basic organic) manufacturing and electromedical and electrotherapeutic apparatus manufacturing.

Food and agriculture Biotechnology: Ethyl alcohol manufacturing, nitrogenous fertilizer manufacturing, phosphatic fertilizer manufacturing, pesticide, and other agriculture chemical manufacturing.

California Cluster Outlook

Despite the challenging financing environment, California regional clusters were able to attract a significant number of Foreign Direct Investment (FDI) projects during the year. The largest projects include a 70 million investment from Japan-based Astellas to open a new 14,000 ft² integrated Biotechnology campus in South San Francisco and Fujifilm's 60 million investment to expand its Armstrong Center of Excellence at its headquarters in Santa Ana, CA, US. Canadian-based Entos Pharmaceuticals is a pharmaceutical company focusing on developing nucleic acid-based therapies and plans to invest \$62 million to build a new 9,500 ft² R&D facility located at the MUSE Life Sciences campus in San Diego.

Global Pharmaceutical companies are increasingly sourcing innovation externally through alliances and partnerships. California-based Amgen's partnership with Generate Biomedicines- which leverages machine learning and artificial intelligence to program novel protein therapeutics. Also if we add the successful use of Artificial Intelligence in drug development is driving greater adoption of the partnership-based innovation model in the Pharmaceutical industry.

California is increasing diversity in clinical trials. Amgen's adoption of Pharmaceutical Research and Manufacturers of America's Principles on clinical trials diversity. The following trials focus on four main areas: building trust and acknowledging the historic mistrust within Black and Brown communities, reducing barriers to clinical trial access, using real-world data to enhance information on diverse populations beyond product approval, and enhancing information about diversity and inclusion in clinical trial participation, highlights California key roles in advancing the representation of diverse patient populations. Amgen also established a dedicated team to address the systemic issues that deter people from participating in research, especially those historically excluded due to race, ethnicity, sex, age, and other factors.

Experience with Digital Technologies will be a key growth skill set for life science organizations. Most medical device companies are either currently investing or plan to invest in digital manufacturing technologies, the Internet of Things (IoT), Artificial Intelligence (AI) over the next few years. Biopharmaceutical companies are also increasingly adopting digital platforms; California's deep talent pool in technology occupations is well-positioned to capture growth opportunities from the Life Sciences sector.

"California continues to be the leading innovation hub for the life science industry. When we create a business environment that encourages innovation, we unleash scientific creativity, leading to medical breakthroughs that will forever improve human health. The life sciences are a robust economic engine in California, with companies of all sizes dedicated to addressing significant unmet medical needs. It's clear the work the industry does every day has a significant impact on California, providing high-paying jobs directly and indirectly across the state".

*Joe Panetta
President and CEO, Biocom California
(Biocom, 2023)*

08

CrossBorder Business Opportunities / From R&D to Marketplace.

Tijuana's proximity to San Diego, a renowned hub for Life Sciences in the US, presents unique cross-border business opportunities. The benefits of the San Diego - Tijuana ecosystem include cross-border collaborations, access to a diverse talent pool, and leveraging the resources and expertise of both regions. Some Life Sciences companies open business opportunities to new investors.

- Specialized talent search and generation / Training and Certification programs.
- Collaborative Lab Infrastructure and Lab Space.
- Logistics and 3PL services are meeting the industry regulations and requirements.
- Broader supply chain and industry professionals for specialized services and components.
- Design new products and services. Tijuana and San Diego are recognized as the World Design Capital. These ecosystem capabilities enable access to products and services from world-class designers on both sides of the border.
- Prototyping and manufacturing.
- Clinical trials.
- Binational healthcare services integration; some examples are: San Diego Rady Children Hospital and Instituto Internacional de Medicina Metabólica; The UC San Diego Department of Surgery recently announced a new academic collaboration with a leading bariatric (weight-loss) surgery center based in Tijuana, Mexico. This partnership acknowledges the growing role that medical tourism plays in the border region and the need for enhanced educational training of practitioners in these locations.

Sterilization services in Baja California

In the medical device manufacturing field, the essential sterilization services are crucial to prevent potential risks associated with contaminated devices. For a medical device industry it is crucial the need to sterilize product, each one of the companies use or select a different method for sterilization, from Gamma Rays, ETO and Electron Beam are in the options from LA to Baja California.

This process represents an opportunity strength the supply chain in this region. Since the continuous growth of medical device companies in CaliBaja, the need for this services and the are highly favorable for installing new corporations. The Med Dev companies in Baja California (actually 102 companies) will require Sterilization for their products, either ETO (Ethylene oxide), E Beam (Electrons beam cannon), or Gamma Rays, and maintaining the process close to the operations will be critical for delivering the end product to the U.S. As a result of Tijuana's excellent location or nearshore solution, lowering costs, reducing time and delivering ahead of schedule will be able to smoothly occur on a frequent basis.

Molecule MFG

With the complete environment of the medical devices, and the expertise already existent in the industry, an emerging and opportunity market relies on the Molecule MFG industry, which some companies already work directly on. Different from regular manufacturing, this is an office space converted into a lab, in which, from having a big manufacturing operation, millions of molecules are manufactured in a reduced space, in a controlled environment, and with the right talent to develop specialized tasks in the life sciences industry.

Living the Baja Manufacturing way

[Mr. White is a medical device Senior Designer Engineer that lives in Del Mar, 65 Kilometers from the border with Tijuana. He travels southbound to Tecate, Baja California, to discuss with his local department established in the region about an NPD (New product development) and a possible expansion of operations.

After the meeting, he drives west to Tijuana at lunchtime and has lunch at a BajaMed cuisine restaurant with potential suppliers and Tijuana EDC folks for the new project. After a successful talk, he drives back home with little to no delays to watch Thursday Night Football with his family.



**SAN DIEGO
COUNTRY**

**IMPERIAL
COUNTRY**

**UNITED STATES
OF AMERICA**

CALIFORNIA

ESCONDIDO

BRAWLEY

EL CAJÓN

EL CENTRO

SAN DIEGO

CALEXICO

CHULA VISTA

MEXICALI

TIJUANA

TECATE

MEXICO

BAJA CALIFORNIA

ROSARITO

ENSENADA

Health Tourism

- Pioneer in Bariatric Surgery.
- First learning academy in the Bariatric Surgery specialty.
- Recognized for plastic surgery techniques.
- Promoter of medical care in oncology and regenerative medicine.
- First integral model in health and mixed and integral investments in health.
- Promoter of robotic surgery, telehealth, medical devices, technologies, and innovation.

Highest demand specialties:

- Bariatric surgery,
- Plastic surgery,
- Oncology,
- Ophthalmology,
- Dentistry,
- Traumatology,
- Cardiology,
- Fertility and regenerative medicine.

Wellness tourism services:

Yoga, meditation, and nutrition.

New trends:

Robotic surgery, telehealth, telemedicine, medical devices and biotechnology, etc.

According to the Medical Tourism cluster and the State Government of Baja California, Tijuana has integrated eight Health Tourism districts across the city to support the sector growth.

For more focused information about business opportunities in the industry, please approach Tijuana EDC, the ecosystem directory of Life Sciences, executives, and industry representatives.

09

Baja California - Life Sciences

Ecosystem Capabilities

Baja California's capacity for research and development has made it a major biotechnology destination. The region excels in multiple fields of science, including the natural sciences, chemistry, engineering, and business.

Baja California has a large talent pool with over 4,000 researchers specializing in biotech and agricultural sciences. Numerous organizations, including CICESE, Bioeconomic Cluster, Algas Pacific, and UNAM Nanoscience and Nanotechnology Center (Tijuana EDC, 2023), have made significant contributions to cutting-edge studies on antibody development, biodegradable fertilizers, nanoparticle therapies, and stem cell applications.

Mexico, as a country, offers over 150 R&D sophisticated centers and tech hubs specialized in pharma or biotechnology; they provide a collaborative atmosphere encouraging knowledge sharing and innovation.

Businesses looking to expand or to open operations have been drawn to the area by its affordable labor costs, talented workforce, and legal frame affinity to the US.

The connectivity, great quality of life, and burgeoning biotech industry in the Cali-Baja region make it an attractive location for nearshoring and investment. The region is positioned as a hotspot for innovation and economic growth thanks to the collaborative ecosystem between Tijuana and San Diego and the research institutions and skilled workers in the area.

Baja California is desirable for enterprises looking to take advantage of nearshoring because of its competitive advantages and concentration of supply chain and Life Sciences value chain integration.

HIGHLIGHT INDUSTRY PROCESSES AND EXPERTISE AVAILABLE IN BAJA CALIFORNIA:

- Medical Devices MFG
- In Vitro Diagnostics (IVD) MFG
- Pharmaceutical Manufacturing
- Health Care
- Research & Development
- Software Development - MedTech
- Health Tourism

Existing capabilities in Baja California

TYPE OF PROCESS	# OF EMPLOYEES	CAPABILITIES	KEY PLAYERS
Medical Devices MFG	+85,000	<ul style="list-style-type: none"> +100 Orthopedics Surgical Instruments disposables, and more. 	*List of 102 companies
In Vitro Diagnostics (IVD) MFG	+1,000	<ul style="list-style-type: none"> Development of monoclonal antibodies In vitro tests Diagnostic Kits Lyophilization HBR Blockers Reagents Genomas Mice vivarium Omnipod Diabetes care products Infusion therapy products IV solutions 	<ul style="list-style-type: none"> Scantibodies ACON Laboratories Biomerica
Pharma Manufacturing	390	<ul style="list-style-type: none"> Pharmaceutical Formulation Active Pharmaceutical Ingredient (API) MFG 	<ul style="list-style-type: none"> Genética Laboratorios SBL Pharmaceutical Victory Enterprises Laboratorios Baja Med
Health Care	+70	<ul style="list-style-type: none"> Therapeutics Genomics Nutrition Pharmacovigilance Veterinary regenerative therapy 	<ul style="list-style-type: none"> Novastem SBL Pharmaceuticals Instituto Vida Petcell
Research & Development	+250	<ul style="list-style-type: none"> Photobiomodulation Laser medicine Optics Drug Discovery CRO Services Veterinary Drug Development 	<ul style="list-style-type: none"> Grupo Molecular Insulet Grupo Exocel Biotech Research Science Clinic Vidar Biotech Chemdiv Bionag
Software Development	6,000	<ul style="list-style-type: none"> Agile Software Development Data Scientist & Bioinformatics Reliability DevOps Engineering UI/UX Specialist Analytics, A/I & Machine Learning 	<ul style="list-style-type: none"> Biosoft Integrators Brainup Systems Laboratorio digital Katank
Centers of Excellence	2,000	<ul style="list-style-type: none"> Test Automation Technical Writers Software Quality Business Analysts 	<ul style="list-style-type: none"> ITJ Insulet Dexcom Thermo Fisher Scientific

Why is Tijuana for Tech and Life Sciences a strong ally to innovate?



For several reasons, Tijuana is a great and vibrant place to work and live for several reasons. Here are some key factors contributing to its appeal:

ECONOMIC OPPORTUNITIES:

Tijuana has a thriving economy with diverse industries. It is known for its manufacturing sector, particularly electronics, medical devices, and automotive parts. The city's proximity to the US also offers employment opportunities for cross-border trade and services employment opportunities. Numerous multinational companies and a growing start-up ecosystem further to enhance the job market.

CULTURAL FUSION:

Tijuana is a melting pot of cultures, combining influences from Mexico and the US. This unique blend creates a vibrant and diverse community where people from various backgrounds come together. The city offers a rich cultural scene with art galleries, music venues, theaters, and culinary experiences showcasing the fusion of Mexican and international cuisines.

RECREATION & ENTERTAINMENT:

Tijuana offers various recreational activities and entertainment options. The city has beautiful beaches where residents can enjoy water sports, sunbathe, or relax. It has numerous parks, hiking trails, and recreational Centers for outdoor enthusiasts. Additionally, Tijuana hosts various cultural events, festivals, and concerts annually. <https://discovertijuana.com/>

VIBRANT CULINARY SCENE:

Our city has gained recognition for its high-quality culinary offerings, ranging from street food to high-end restaurants. The city is a well-known foodie destination, and its Baja Med cuisine blends Mexican, Mediterranean, and Asian flavors. Food lovers from all over the world can explore a variety of eateries, food trucks, and markets, experiencing a vibrant and evolving food culture.

AFFORDABLE COST OF LIVING:

Tijuana offers a relatively lower cost of living than many cities in the US. Housing, transportation, and daily expenses tend to be more affordable, allowing residents to maintain a comfortable lifestyle. This affordability makes Tijuana an attractive option for individuals and families seeking a higher standard of living at a lower cost.

PROXIMITY TO THE US:

Tijuana's location along the US-Mexico border has many advantages. It allows for convenient cross-border travel, making it feasible for residents to work in the US while enjoying living in Tijuana. The city is also a popular destination for cross-border shoppers and attracting visitors from both sides.

MEDICAL & EDUCATIONAL FACILITIES:

Tijuana has a robust healthcare system with modern medical facilities and internationally trained doctors. Many people from the US visit Tijuana for affordable medical, surgery, and dental care. The city is also home to reputable universities and educational institutions and providing access to quality education for residents.

While Tijuana has many advantages, it is worth mentioning that, like any other big city, it also faces challenges such as traffic congestion and occasional security concerns. It has been considered one of the busiest borders in the world, with over **70,000** people daily crossings by land, **+20,000** pedestrians, and **+10,000** by CBX - Binational Bridge connecting the Tijuana Airport to the US.

TIJUANA

has been considered by some as part of the “new American dream” due to several factors. Here are a few reasons why Tijuana has gained this reputation:

Tijuana’s proximity to the US border has created opportunities for cross-border trade and employment. Many people see Tijuana as a gateway to the US job market, as they can live in Tijuana while working in the US. The city’s manufacturing sector has attracted multinational companies and provided employment opportunities for Mexican and American workers.

Tijuana has a growing entrepreneurial ecosystem with a focus on innovation and start-ups. The city has seen a rise in tech start-ups, creative industries, and small businesses. This entrepreneurial spirit provides opportunities for individuals to pursue their business ventures and to contribute to the city’s economic growth.

Job creation around the manufacturing world, health, logistics, hospitality, and tech services, provides a handful of options to all of those looking to establish themselves in the city and as part of dynamic growth in specialized industry sectors such as **R&D, Aero and Defense, Automotive, and Med Dev**, a high number of professionals arrived to our city thanks to a prominent job offer, top talent relocation to Tijuana is also an immigrant choice for individuals and families seeking a better quality of life.

All previous factors have created a unique blend of cultures. This cultural fusion offers a diverse and vibrant community that can provide a sense of belonging and a chance to experience Mexican and American influences.



Migration is a daily bread and butter topic, as **+2000** new migrants arrive in Tijuana every month worldwide.

SNAPSHOT

160,000

San Diegans live in Tijuana, Sandag 2021.

The city growth rate is three acres daily.

Third busiest border crossings in the world.

Population

1.9
MILLION

FDI averages **1 BILLION** USD annually.

Fortune **500** companies operating in Tijuana

By investing in Tijuana's dynamic Life Sciences sector, entrepreneurs and investors can contribute to advancing healthcare, improving patient outcomes, and capitalizing on the growing global demand for innovative solutions in the veterinary niche sector. *We invite you to explore the wealth of possibilities that await in Tijuana's vibrant and rapidly expanding Life Sciences industry.*

The **Tijuana EDC** is always thrilled to showcase our ecosystem capabilities by organizing a free of charge agenda to spend a day in Tijuana exploring business opportunities, suppliers, or services to serve your company's needs. Link to www.tijuanaedc.org

11

USMCA benefits for Nearshoring BioMedTech in Tijuana

The United States-Mexico-Canada Agreement (USMCA) has several benefits for Life Sciences companies considering nearshoring in Tijuana, Mexico. Here are some key advantages:

1 Market Access:

The USMCA provides enhanced market access for Life Sciences companies by reducing trade barriers between the US, Mexico, and Canada. This allows for seamless cross-border movement of goods, services, and investments, making it easier for companies to expand their operations into Mexico.

3 Regulatory Alignment:

The USMCA encourages regulatory coherence and transparency, promoting harmonization of standards and regulations across the three member countries. This alignment simplifies compliance processes for Life Sciences companies operating in Mexico and facilitates the movement of products between borders.

5 Skilled Workforce:

Tijuana, Mexico, has a well-established manufacturing and engineering workforce with expertise in medical device manufacturing, pharmaceuticals, biotechnology, and other Life Sciences sectors. Nearshoring in Tijuana allows companies to tap into this skilled labor pool while benefiting from lower labor costs than in the US.

7 Collaborative Research and Development:

The USMCA promotes cooperation in scientific research and development (R&D) among member countries. Life Sciences companies nearshoring to Mexico can use collaborative R&D initiatives with academic institutions, research centers, and other companies in Mexico, fostering innovation and technological advancements.

2 Intellectual Property (IP) Protection:

The USMCA includes provisions to protect intellectual property rights, which is particularly crucial for Life Sciences companies that heavily rely on patents, copyrights, and trade secrets. The agreement strengthens IP protections, safeguarding companies' innovations and proprietary knowledge in Mexico.

4 Reduced Tariffs:

Under the USMCA, most tariffs on goods traded between the member countries have been eliminated or significantly reduced. Leading to cost savings for Life Sciences companies by reducing import/export duties and facilitating the movement of raw materials, equipment, and finished products.

6 Supply Chain Integration:

Nearshoring in Tijuana allows Life Sciences companies to create more integrated supply chains within North America. With its proximity to the US, Tijuana offers easy access to US markets while benefiting from Mexico's cost advantages. This can lead to improved efficiency, reduced transportation costs, and quicker response times to market demands.

It is important to note that while the USMCA offers various benefits, companies should also consider factors such as infrastructure, local and state regulations, logistics, and cultural affinity when nearshoring. Conducting a comprehensive analysis and working with local experts like Tijuana EDC can help businesses make informed choices.

12

Success business cases & testimonials

Varian is a Siemens Healthineers company, and is a world leader in the field of cancer care, with innovative solutions, especially in high-precision radiation oncology, Artificial Intelligence, radiosurgery, and related software.

“ For us, Tijuana is a key place that allows us to offer service to the North, Central, and South American markets, since being located near the factory in Palo Alto, California, and our distribution center in the United States, these facilities become a strategic point that will allow us to create value chains in health equipment in Mexico. ”

Humberto Izidoro, president of Varian for Latin America

Össur is a pioneer of advanced technology where our brand recognition is based on innovative and scientifically proven solutions that deliver effective clinical outcomes. The company's continued success owes much to its accumulated expertise in five core competencies: Bionic Technology, Carbon Composites, Silicon, Mechanics, and Injection Molding, a knowledge that is increasingly being transferred and applied across all areas of product development to great effect.

“ For over a decade, Ossur has been applying engineering systems, especially electronics, to the study of biological principles. Its goal is to restore the anatomical functions displaced by amputation using intelligent structures in products that can respond in a human-like way. The result is Bionic Technology by Össur, a precise fusion of artificial intelligence and human physiology. The actions of walking, running and even ascending stairs are now closer than ever to natural motion. ”

Eduardo Salcedo, Site Director Ossur Americas

Scantibodies is a human-centered contract manufacturing company founded in 1976, considered the oldest privately held biotech company in San Diego, highest level of FDA and European registrations for blood products Monoclonal and Polyclonal Antibody, production, lyophilization services, and In-Vitro Diagnostic.

“ Scantibodies produced over 200 million over-the-counter pregnancy tests moving product from second place to first place in US market; and over 1.25 million COVID-19 tests per day; it is considered the largest contract lyophilization space with 2,756 sq. ft. of shelf capacity. ”

Tom Cantor, CEO of Scantibodies

12

Success business cases & testimonials

A Software Center of Excellence, is a hub of productivity and innovation staffed with world-class talent purpose-built as an extension of existing resources in the Company.

“We have helped Thermo Fisher Scientific, a Fortune 500 company, to locate their CoE in Tijuana back in 2015, unlocking a new trending capability to source not only manufacturing but software and R&D solutions in the Life Sciences industry. Now ITJ have to quintuplicate the 1st experience serving over a dozen of top industry leaders such as: Insulet, Dexcom, Outset Medical, Quidel Ortho, Biosero, Luna DNA, Xiltrix, Curemetrix, among other amazing companies, to accelerate innovation by operating their stand-alone Engineering Center of Excellence in Tijuana, creating +1000 software engineering jobs in the region. ”

Maritza Diaz, former Director of Information Technology, Thermo Fisher Scientific and ITJuana CEO

Grupo Molecular, is a leader in laser medicine dedicated to scientific research and technological innovation, whose purpose is to provide innovation and world-class products, committed to the welfare of society and economic development. The company focuses on optics, biomedicine, and entomology R&D, using processes like biophotonics.

“We seek solutions to global problems in the scientific and technological fields; partnering with CICESE Research Center, we combine lasers to find the optimal dose required by the different ailments. ”

Ortomolecular de Baja California

13

Directory of Key Players in the Binational Life Sciences Ecosystem.

Supportive Institutions and Organizations are represented by various institutions that offer support and resources to Life Sciences projects in the binational sphere. These include incubators, accelerators, and business development centers that provide guidance, mentorship, and access to funding opportunities. They assist entrepreneurs and start-ups in navigating the challenges of launching and growing their Life Sciences ventures.

Tijuana

Tijuana EDC

Cluster de Dispositivos Médicos

Cluster de Bioeconomía

Pro Baja - Baja California State Government, Ministry of Economy.

Tijuana Economic Development Ministry

CDT

CICESE

UABC - Biotechnology Labs

CETYS

San Diego

San Diego EDC

Biocom

California Life Sciences

Downtown Partnership

Homelab UCSD/ Accelerator

Connect SD

ZIP Launchpad (SDSU) Accelerator

Salk Institute

Institute of the Americas

*Ask the Tijuana EDC for a comprehensive directory of suppliers, academia, talent and educational services, real estate, and specialized consultants in this field. The city hosts international and national conferences, seminars, and events that bring together researchers, entrepreneurs, and industry experts. These platforms facilitate knowledge exchange, idea sharing, and potential partnerships, creating a supportive ecosystem for industry projects and entrepreneurs.

TALENT POOL

Education opportunities in LifeSciences in Baja California

Bachelor's Degree

Medicine

	Universities	City / Campus
Medicine	UABC, Universidad Xochicalco	Tijuana / Mexicali / Ensenada / Valle de las Palmas
Zootechnical Veterinary	UABC	Mexicali
Biomedical Engineering	ITT	Tijuana

Chemical - Pharmaceutical

	Universities	City / Campus
Pharmaco Biological Chemistry	UABC	Tijuana
Industrial Chemistry	UABC	Tijuana
Chemical Engineering	UABC, ITT	Tijuana
Biochemical Engineering	ITT	Tijuana
Physics	UABC	Ensenada

Agronomy and Agriculture

	Universities	City / Campus
Agronomy Engineering	UABC	Mexicali / Ensenada
Agronomy and Zootechnical Engineering	UABC	Mexicali
Engineering in Sustainable Agricultural Innovation	ITT	Ensenada

Environmental

	Universities	City / Campus
Oceanology	UABC	Ensenada
Renewable Energy Engineering	UABC	Mexicali / Valle de las Palmas
Environmental Sciences	UABC	Ensenada
Environmental Technology Engineering *	UTT	Tijuana
Environmental Engineering	ITT	Tijuana
Biology	UABC	Ensenada

Biotechnology

	Universities	City / Campus
Agropecuario Biotechnology Engineering	UABC	Mexicali
Biotechnology in Aquaculture	UABC	Ensenada
Biotechnology Engineering *	UTT	Ensenada
Bioengineering	UABC	Mexicali / Ensenada / Valle de las Palmas
Nanotechnology Engineering	UABC, ITT, UNAM	Tijuana / Ensenada
Bio Alimentary Process Engineering*	UTT	Ensenada
Bioengineering of manufacturing processes	Universidad Xochicalco	Tijuana / Mexicali / Ensenada

Technology and Software

	Universities	City / Campus
Graphic Design	UNIDEP, CETYS, UDCI, Xochicalco, CUT, UNID	Tijuana / Mexicali / Ensenada / Online
Computer Systems Engineering	UNIDEP, UABC, ITT, UNID	Tijuana / Mexicali / Ensenada / Online
Industrial and Systems Engineering	UNIDEP	Tijuana / Mexicali / Ensenada / Online
Manufacturing and Robotics Engineering*	UNIDEP	Online
Computer Science Engineering	CETYS, UABC	Tijuana / Mexicali / Ensenada
Software Development Engineering	CETYS, UNID, CESUN, Tecnológico de Baja California	Tijuana / Ensenada
Information Systems and Technologies *Specialization in IOT Systems (Industry 4.0)	CETYS	Tijuana / Mexicali / Ensenada
Software Engineering and Emerging Technologies	UABC	Tijuana / Ensenada / Valle de las Palmas
Computer Engineering	UABC	Tijuana / Mexicali / Ensenada
Data Science	UABC	Ensenada
Software Development and Management Engineering	UTT	Tijuana
Intelligent Systems Technology	UDCI	Tijuana
Information and Communication Technologies Engineering	CUT	Tijuana

Specialties

Tech School

	Universities	City / Campus
Specialty in environmental management	UABC	Ensenada
Environmental Diagnosis and Improvement Technician	IPN	Tijuana
Pharmaceutical Chemistry Technician	IPN	Tijuana

Master's Degree

Engineering, Science and Innovation

	Universities	City / Campus
Industrial Systems and Processes *Specialization in Medical Manufacturing		
Industrial Sustainability *Specialization in Renewable Energies	CETYS	Tijuana / Mexicali / Ensenada
Engineering Sciences	UABC, ITT	Tijuana / Mexicali / Ensenada / Tecate
Engineering Management	UABC	Tecate
Computer Science	ITT, CICESE	Tijuana / Ensenada
Information Technologies Advanced and Integrated Technologies	ITT	Tijuana
Materials Science and Engineering	CICESE	Tijuana
Physical Sciences	UNAM	Ensenada

Medical Devices

	Universities	City / Campus
Veterinary Sciences	UABC	Mexicali
Health Sciences	UABC	Tijuana / Mexicali
Biomedical Sciences	UABC	Mexicali
Medical Sciences	UABC	Tijuana
Science in Chemistry	ITT	Tijuana
Life Sciences	CICESE	Ensenada
Nanoscience	CICESE, UNAM	Ensenada

Biotechnology

	Universities	City / Campus
Molecular Ecology and Biotechnology Sciences	UABC	Ensenada

Environmental

	Universities	City / Campus
Arid Zone Ecosystem Management Science	UABC	Ensenada
Science in Coastal Oceanography	UABC	Ensenada
Environmental and Sustainable Development	CUT	Tijuana
Aquaculture Sciences	CICESE	Ensenada
Earth Sciences	CICESE	Ensenada
Marine Ecological Sciences	CICESE	Ensenada
Physical Oceanography	CICESE	Ensenada
Integrated Environmental Management	CICESE	Tijuana

PhDs

Medical Sciences

	Universities	City / Campus
Biomedical Sciences	UABC	Mexicali
Nanosciences	CICESE, UNAM	Ensenada
Sciences in Chemistry	ITT	Tijuana
Life Sciences	CICESE	Ensenada

Environmental

	Universities	City / Campus
Sciences in Coastal Oceanography	UABC	Ensenada
Agro-livestock sciences	UABC	Mexicali
Environment and Development	UABC	Ensenada
Aquaculture Sciences	CICESE	Ensenada
Earth Sciences	CICESE	Ensenada
Marine Ecological Sciences	CICESE	Ensenada
Physical Oceanography	CICESE	Ensenada

Science and Technology

	Universities	City / Campus
Engineering Management	UABC	Tecate
Engineering Sciences	UABC, ITT	Tijuana / Mexicali / Ensenada
Computer Science	ITT, CICESE	Tijuana, Ensenada
Advanced and Integrated Technologies	CICESE	Tijuana
Materials Science and Engineering	UNAM	Ensenada
Physical Sciences	UNAM	Ensenada

14

Life Sciences Educational offerings available per city

37 Tijuana

7 Tecate

22 Mexicali

50 Ensenada

3,700
STEM

Students graduate annually in Baja California

15

Infrastructure

Tijuana has been actively developing its lab and commercial infrastructure to support and to attract Life Sciences projects.

Here are some notable aspects of Tijuana's infrastructure:

BIOMEDICAL CLUSTER:

Tijuana has a well-established biomedical cluster focusing on medical device manufacturing, biotechnology, and pharmaceuticals. The city has attracted several companies in these sectors, developing specialized infrastructure, and facilities. This cluster provides an ecosystem that supports Life Sciences projects and fosters collaboration among industry stakeholders.

RESEARCH AND DEVELOPMENT FACILITIES:

Tijuana is home to research and development (R&D) facilities that cater to the Life Sciences sector. These facilities offer state-of-the-art laboratories, equipment, and expertise to support research and innovation. They provide a platform for scientists, researchers, and entrepreneurs to carry out their projects and to develop new technologies.

INDUSTRIAL PARKS:

Tijuana has designated 120 industrial parks and zones that are specifically designed to accommodate life sciences companies in the manufacturing field. These parks offer a range of amenities, including specialized infrastructure, utilities, and services tailored to the needs of the industry. They provide a favorable environment for companies to establish their operations and to collaborate with other organizations in the sector.

- 1 Able Industrial Products
- 2 AG Industries
- 3 Ana De Mexico
- 4 Aspen Medical Products
- 5 Asteelflash Tijuana
- 6 Autosplíce México
- 7 AVENT, S. DE R.L. DE C.V. PLANTA 2
- 8 Laboratorios Baja Med S.A. DE C.V
- 9 Baxter Healthcare Tijuana
- 10 Baxter (hillrom | welch allyn)
- 11 BD
- 12 BD EMI
- 13 Biotix International
- 14 Brentwood Industries, Inc.
- 15 Bryant Rubber
- 16 Cardinal Health
- 17 Carl Zeiss Vision Manufactura de Mexico S.DE R.L de C.V.
- 18 CE MANUFACTURING, S. DE R.L. DE C.V.
- 19 CODAN US Corporation - Planta México
- 20 Corza Medical
- 21 CST Custom Sensors and Technologies
- 22 Demant Operations, S.A. de C.V.
- 23 DIME-PACK
- 24 Ensamblés De Calidad Mexico, SA de CV
- 25 ENOVIS
- 26 Laboratorios Essilor
- 27 Fisher & Paykel Healthcare, S.A. de C.V.
- 28 Flex LTD
- 29 Foxconn
- 30 Fresenius Medical Care
- 31 Gilero
- 32 Glidewell Tijuana
- 33 Haemonetics
- 34 HARMAC Medical Products
- 35 Hitech Products
- 36 Smiths Medical - México
- 37 Integer
- 38 Jabil Healthcare
- 39 Mammotome Devicor Medical Products De Mexico
- 40 Manufactura Integrada del Pacífico
- 41 MEDTRONIC MEXICO S DE RL DE CV
- 42 NELLCOR PURITAN BENNETT MEXICO SA DE CV
- 43 Merit Medical
- 44 OnCore de México - Planta 1 (NEOTech)
- 45 NextPhase Medical
- 46 Brady Mexico S. de R.L. de C.V.



UNITED STATES OF AMERICA CALIFORNIA

GO

AN YSIDRO

MESA DE OTAY

43 38 39

GARITA DE OTAY

36 44 37 34

16 3 10

ZONA URBANA
RIO TIJUANA

JARDIN DORADO

TIJUANA

1

35 RIO TIJUANA
3RA ETAPA

VILLA FONTANA

41 21

29

MARIANO
MATAMOROS

20
22

31

7 28

17

42

EL FLORIDO

8 32 30

27 9
46

19 24 23 6

11 25 33 4 26

2 12

15 13
14 45

ARITO

INDUSTRIAL MAP MEDICAL DEVICES

Some of the +65
companies in Tijuana

Conclusion

Overall, Tijuana's efforts to develop its lab and commercial infrastructure demonstrate its commitment to fostering the Life Sciences sector's growth. The city's biomedical cluster, research facilities, industrial parks, technology transfer programs, collaboration platforms, and supportive institutions collectively create a conducive environment for soft landing Life Sciences projects.

Investing in Tijuana's dynamic Life Sciences sector of Tijuana and capitalizing on the cross-border opportunities with San Diego can yield significant benefits for entrepreneurs and investors. By contributing to advancing healthcare, improving patient outcomes, and addressing global demands for innovative solutions, stakeholders can shape the future of the Life Sciences industry in this thriving region.

Join us as we explore the diverse and promising possibilities that await in Tijuana's vibrant and rapidly expanding Life Sciences industry while highlighting the synergistic relationship with San Diego.

Bibliography

[Biocom](#). (2023a). Biocom California's 2023 Life Science Economic Impact Report of California. Life science association of california - Biocom california.

[Biocom](#). (2023b). Biocom California's 2023 Life Science Economic Impact Report of the City of San Diego. Life science association of california - Biocom california.

[BioSpace](#). (2022). Life science analytics market size to hold USD 18.12 bn by 2030. BioSpace.

[EDC Research Bureau](#). (2022a). Study: San Diego's life sciences cluster in the early stages of AI-ml Boom. San Diego Regional EDC.

[EDC Research Bureau](#). (2022b). Life Sciences. San Diego Regional EDC.

[Expert Market Research](#). (2022). Global Bio-Agriculture Market Report and Forecast 2023-2028. Expert Market Research.

[Gitnux](#). (2023). US Food and Beverage Industry 2023: Statistics and trends. GITNUX.

[Grand View Research](#). (2021). U.S. Medical Device Manufacturers Market Report, 2021-2028. Grand View Research.

[IBISWorld](#). (2023a). Scientific Research & Development in the US. IBISWorld - Industry market research, reports, and Statistics.

[IBISWorld](#). (2023b). Biotechnology Industry in the US, Market Research Report. IBISWorld - Industry market research, reports, and Statistics.

[Market Research Future](#). (2023). Veterinary medicine market size worth USD 44.89 billion by 2030 at 5.57% CAGR. GlobeNewswire News Room.

[Market.us](#). (2023). Medical tourism market size (USD 35.9 Bn by 2032 at 12.2% CAGR) globally, analysis by Market.us. GlobeNewswire News Room.

[MarketsandMarkets Research Pvt. Ltd.](#) (2023). Bioinformatics market is expected to reach \$18.7 billion: MarketsandMarkets. GlobeNewswire News Room.

[P&S Intelligence](#). (2022). Biopharmaceutical market size and Growth Forecast Report, 2030. Prescient & Strategic Intelligence.

[Precedence Research](#). (2022). Biotechnology market (by application: Bio-pharmacy, bio-industries, bio-services, bio-agriculture, and bio-informatics; by technology: Fermentation, tissue engineering and regeneration, polymerase chain reaction (PCR) technology, nanobiotechnology, chromatography, deoxyribonucleic acid (DNA) sequencing, and cell based assay) - global industry analysis, size, share, growth, trends, regional outlook, and forecast 2023 - 2030. Precedence Research - Biotechnology Market Size, Share, Growth, Forecast 2023-2030.

[San Diego Regional EDC](#). (2022). Diagnosing the future. ArcGIS StoryMaps. Tijuana EDC. (2023a). 2022 Medical Device Industry Baja California. Resources and Data.

[Tijuana EDC](#). (2023b). How many biotech companies are in California? Data and facts. Maquiladoras | Contract Manufacturing in Mexico.



TIJUANAEDC.ORG