Biotech and Life Science R&D Shining Strongly in the Land of the Rising Sun

Unlike the Silicon Valley in the USA and the Genome Valley in India, Japan does not boast of a centralized clinical research hub. However, it does have many industrial clusters sprawled all over the country. These clusters cover the range of information and communication technology, automotive and transport equipment, semi-conductors to biotechnology, pharmaceuticals and healthcare. This article focuses on Japan’s biotechnology, life sciences, pharmaceuticals and healthcare industries, highlighting the salient points of biotechnology in each prefecture.

Saitama Prefecture
There is a high accumulation of major pharmaceutical company research centers and plants, with the nation’s second highest shipment value for pharmaceutical preparations. Efforts are underway for the Saitama industry cluster to be recognized as a Special International R&D and Industry Creation Zone, which will strengthen industry–university partnerships and R&D functions with the focus on RIKEN Japan. Cooperation is also underway between regional industries, governments and universities to advance the Saitama Bio Project, a regional cluster joint research project that specializes in the generation of high-function biomolecules through high-speed molecular evolution.

Major companies:
• Taisho Pharmaceutical Co Ltd
• Banyu Pharmaceutical Co Ltd
• LifeTech Co Ltd
• Institute of Circulation System Technology Corporation

Osaka Prefecture
Osaka Prefecture, especially the Doshomachi district, contains a cluster of many leading Japanese pharmaceutical companies. The entire expanse of Saito Life Science Park, along with parts of Ibaraki City, Suita City and Toyonaka City districts, have been designated as the Bio Medical Cluster Development Special Zone. This move is especially to attract overseas biotechnology companies.

Aiming for benchmark results in three specific areas — pharmaceutical creation, immune and anti-infection strategies, and medical engineering — special “clusters” have been formed to facilitate cooperation within and without each cluster.

Major companies:
• Takeda Pharmaceutical Co Ltd
• Shionogi & Co Ltd
• AstraZeneca K K
• Bayer Yakuhin Ltd

Shizuoka Prefecture
Each region within this prefecture has its own specialty — medical services and health in the east, functional foods in the central district, and optical industries in the west. Shizuoka Prefecture is promoting R&D with three industrial clusters under the Triangle Research...
This map is obtained from JETRO website – www.jetro.jp.
Cluster initiative. The Pharma Valley project aims at world-class R&D in industries from medicine to wellness. The Foods Science Hills project aims at R&D in the stress evaluation system and antistress substances contained in local agricultural and marine products. The third cluster (opto-electronics) aims to apply optical technology in the medical science arena.

Major companies:
• Zimmer K K
• Janssen Pharmaceutical K K
• CanBas Co Ltd
• Tauns Co Ltd

Hiroshima Prefecture
The Hiroshima Biocluster is engaged in creating new industries, including those involving development of state-of-the-art medical treatment and pharmaceuticals. The Hiroshima Institute of Technology is engaged in research on nanotechnology and machinery systems, and provides training for researchers and engineers responsible for developing technology for the medical care and medical equipment industries.

Major companies:
• Maruzen Pharmaceuticals Co Ltd
• Schiller Japan Ltd
• JMS Co Ltd

Kobe City
Many companies in the regenerative medicine industry are expanding into Kobe City, including Olympus Corporation (researching bone regeneration) and Terumo Corporation (researching heart muscle regeneration), both of which are said to be the dream approach to medical care in the 21st century. More than 85 medical-related companies are operating in the region. Translational research through industrial–academic collaborations is being pursued.

Major companies:
• Olympus Corporation
• Terumo Corporation
• Arblast Co Ltd
• Stem Cell Sciences K K

Kawasaki City
There is a considerable concentration of R&D based biotech ventures and leading manufacturers that are working to incorporate biotechnology into their production techniques. Kawasaki also boasts a rich variety of companies active in the life sciences sector, from major corporations such as Fujitsu Laboratories and Ajinomoto to small biotech ventures. With the designation of an international base for genomic research in the Tokyo area, research institutions, industry bodies and eight city and prefectural governments are cooperating across this broad geographic area to further the research and development of life sciences.

Major companies:
• Ajinomoto Co Inc
• Hitachi Ltd
• Fujitsu Laboratories Ltd
• Tecan Japan Co Ltd

Chiba Prefecture
More than 100 companies involved in biotechnology, medical care, and health services have located their operations in Chiba Prefecture’s Kazusa Academia Park. Kikkoman, a Japanese company that is now developing its business worldwide, is developing biotechnology products based on the use of brewing technology. The Chiba Prefecture contains several noteworthy districts instrumental in the development of the life sciences industry. The Kazusa district is noted for its advances in world-leading genome analysis research into flora and fauna, microorganisms and other areas. The Tokatsu district has a high concentration of biotech companies and institutions of higher learning, and the Chiba district has a cluster of medical service functions and is setting its sights on order-made medical care, preventive basic research and applied clinical research.

Major companies:
• Kikkoman Corporation
• Kazusa DNA Research Institute

Besides these seven prefectures outlined above, there is also Nagahama City located in Shiga Prefecture, and the Kanagawa Prefecture, where biotech venture companies are housed. ■

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