

Comprehensive centers providing one-stop services to Japanese and foreign companies wishing to start businesses in Hyogo-Kobe

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Supercomputer "K" will Meet Research and Development Needs for the Next Generation in Medical, Energy and Various Other Fields

Twelve years have passed since the "Kobe Medical Industry Development Project" was launched with the aim of developing a medical technology research and development cluster on Kobe Port Island, in collaboration with related industries participating in the project. Thus far, more than 200 medical-related companies have already established their business institutions on the island (as of February 2011).

The RIKEN Advanced Institute for Computational Science, located on Kobe Port Island, is scheduled to put its supercomputer - nicknamed "The K" - into full operation in 2012. This computer is expected to expedite high-tech research and development activities of various research institutions and companies. Typical areas of possible application of this supercomputer include accelerating and streamlining a variety of simulations, upgrading medical treatment techniques and new medicine development processes, expediting new energy source development, and predicting climate change.



What is a Supercomputer Used for?

A supercomputer, built to perform a vast number of calculations at high speeds, is used for structural analysis, weather prediction and various simulations, based on results of large-scale numerical analysis in the fields of molecular dynamics and financial engineering.

The K has the World's Highest Level of Throughput

The K is currently under construction at a research institution on Kobe Port Island. Its nickname "K" stands for the Japanese word "Kei" for 10⁶; this supercomputer has a performance of 10 petaflops, about four times faster than the world's currently fastest computer (Tianhe-1A, constructed in China), as of November 2010. The K will go into full-scale operation in 2012 as a facility for common use among companies, universities and other organizations, and is expected to expedite research and development activities in life science, manufacturing and many other sectors.

Many Companies Aiming for Technical Breakthroughs are Participating in the Project

Many companies have begun to enter Kobe, Hyogo prefecture, with use of the K in mind. Nonresident

and foreign-capitalized companies are also interested in getting involved in the project. Umicore Japan KK, a Japanese subsidiary of Umicore, a Belgium-based global corporation specialized in material technology, announced in April 2010 that it will invest about four billion Japanese yen (nearly 48 million US dollars) to build a battery material manufacturing base in Kobe. This company intends to effectively use the K for various purposes, including the research and development of positive-electrode materials for the lithium-ion batteries that are essential to electric vehicles.

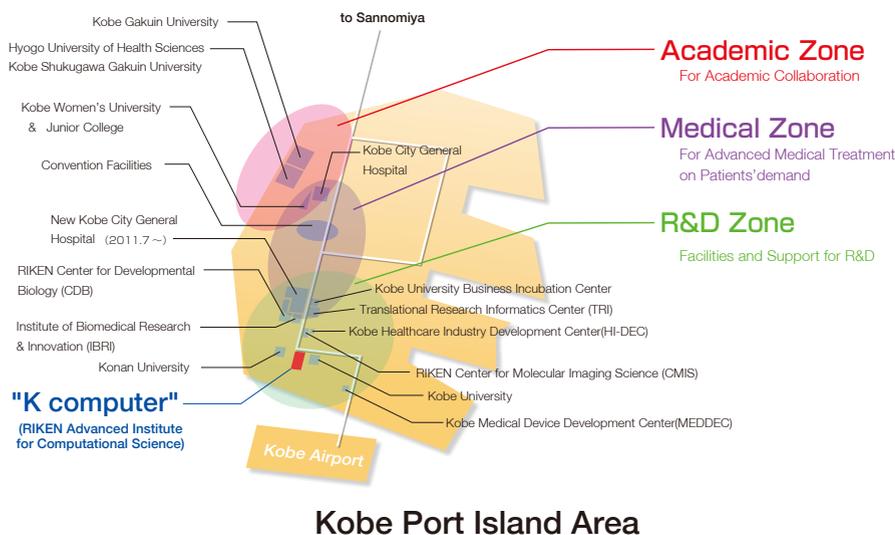
Promoting Wide Use of the K through Cooperation among Industry Academia and Government

Technical support is also important for making full use of the world's highest level of supercomputer. From this standpoint, in April 2011 the Foundation for Computational Science (FOCUS) will open an institution named "Support Center for Advanced Computational Science and Research" on the first and second floors of the Computational Science Center Building, located near the supercomputer building. This support center is equipped with high-security research laboratories and seminar rooms for rent, as well as an industrial entry supercomputer (FOCUS supercomputer)

whose performance is restricted to a certain level for ease of use. Computer specialists will be in the center at all times, to support computer use. The University of Hyogo will open a graduate school (in April 2011) on the center's third to seventh floors. The graduate school will establish a full-fledged simulation technology research course, the first in Japan, to develop and foster specialists who can coordinate business-academia collaboration.

Expected Contribution of the K to Businesses

Supercomputer's high analytical performance has been applied to many products familiar to the public. Typical examples of such application include analyzing the dependence of air flow on the surface configuration of a golf ball, so as to increase drive distance, or analyzing the behavior of a weight in the water to enhance the speed and stability of its sinking performance under the water. These computer analyses help companies enhance the competitive edge of their products, in terms of both quality and cost. The Hyogo prefectural government, Kobe municipal government and the FOCUS have jointly been preparing for expanded use of the K supercomputer by companies.



Areas of Possible Application with "K computer"

- Life sciences** Drug development, new technologies for medical treatment and diagnosis
- Nanotechnology** Designing new materials, studying enzyme and catalytic reactions
- Manufacturing** Designing safe cars, Faster development of products
- Disaster prevention** Predicting seismic waves, Predicting tsunami damage
- The environment** Predicting climate change, predicting effects of the El Niño phenomenon
- Aerospace** Designing rocket engines, Aircraft development
- Nuclear power** Analyzing whole nuclear power plants, Developing nuclear fusion reactors
- Astronomy and astrophysics** Research on the origin of the universe, Studying the formation of planets and galaxies

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Making Use of Worldwide Networks for the Pharmaceuticals Business

Leading the edge of healthcare science with Hyogo-Kobe

Since its 1923 success in making the world's first commercially available insulin preparation for diabetes cure, Eli Lilly and Company has developed a host of epoch-making pharmaceuticals. Based in Sannomiya, Kobe, Eli Lilly Japan is the second largest operation after the company's U.S. head office, and plays an important role in the company's global network of operations in over 140 countries. Eli Lilly Japan delivers pharmaceutical products in such areas as neuroscience, diabetes, growth hormones, musculoskeletal disorders and cancer. The company's sales in FY 2010 are projected to reach 130 billion yen. The following are excerpts from the lecture given by Mr. Alfonso G. Zulueta, President and General Manager of Eli Lilly Japan, at JETRO Headquarters Tokyo in September 2010.



Mr. Alfonso G. Zulueta, President and General Manager, Eli Lilly Japan K.K.

"Research is at the very heart of the enterprise"

This is the ideal handed down since the founding of Eli Lilly and Company. For its 130-plus years of history, true to its mission of "making medicines that help people live longer, healthier and more active lives," Eli Lilly has devoted itself to developing epoch-making medicines through in-house innovation and has continued to grow through ceaseless pursuit of its founding corporate values, i.e., integrity, excellence, and respect for people. As solutions to various difficult diseases, we have developed and provided numerous pharmaceuticals that are the "first of their kind in the world." At present, we operate research and development facilities in eight countries in the world, including Japan.

Doing business from Kobe City, Hyogo Prefecture

The first advantage Kobe offers is its efficient, cost-effective location for business activities. We actually made numerous comparisons to Tokyo and consistently found distinct cost advantages for locating in Kobe, in light of overall operating expenses. We have an office in Tokyo, as well. Thanks to the airports, the *Shinkansen* and other transportation infrastructures, however, we have never felt that traveling between the two cities was a burden.

Secondly, Kobe, not being as big a city as Tokyo, gives us a bigger presence in the community, allowing us to attract excellent talents. My family and I live on Rokko Island, a pretty community surrounded by sea and mountains, whose residents enjoy quality living. There are also plentiful educational institutions such as Canadian Academy, making it a comfortable place to raise children and an attractive source of global talents. At the Boston Career Forum I attend every year, it is amazing how many Japanese talents working in the U.S. and Europe want to work from the Kansai area.

Our U.S. head office is building a global partnership in drug discovery, using a virtual development process called "Chorus" and an assay system called "PD Square." In the same way, we at Eli Lilly Japan believe it is possible to expand our value chain to the full, so that it will encompass various activities, from research & development to manufacturing to sales.

CSR activities such as community and patient support programs

For people living with disease, revolutionary medicines are not enough. Information relating to diseases and cures, courage to face illnesses, and support and encouragement from people around are also part of the solution to illnesses.

Our programs, such as "Lilly Oncology on Canvas" and "Support for Independent Lives of Persons with Mental Disabilities (Lilly Award)," emerged as a result of listening to the voices of patients and families living with illnesses. Also, we strongly support the Walk-A-Thon in Kansai, a charity walk event started in 2006 and sponsored jointly by the Kansai Chapter of the American Chamber of Commerce, Japan (ACCJ), which I serve as governor, and local governments. Many Lilly staff participate in the event as members of ACCJ. This kind of support from Hyogo Prefecture and Kobe City is another great advantage of being based here.

Contribution to Japan's medical and health care

We believe that diabetes and other endocrine and metabolic disorders, as well as osteoporosis, cancer and central nervous system disorders are the important areas where Eli Lilly can establish itself even more firmly in Japanese society and contribute further to Japan's medical and health care.

In FY 2009, despite the difficult environment surrounding the pharmaceutical industry, we were fortunate to make good progress in introducing new

drugs and obtaining approval for additional indications for our existing products. As a result, our annual sales exceeded 100 billion yen for the first time. In the years to come, we are determined to continue doing our utmost to deliver first-in-class, best-in-class, breakthrough medicines in such focus areas as depression and diabetes.



Eli Lilly Japan K.K.

Location: Sannomiya Plaza Bldg., 7-1-5 Isogami-dori, Chuo-ku, Kobe

Founded: November 1975

Capital: 12,772,500,000 yen

Business: Manufacture and sales of pharmaceutical products

No. of employees: 2,300 (as of October 2010)

No. of offices in Japan: 8 (plus 15 sales centers)

Manufacturing site: Seishin Laboratories, 4-3-3 Takatsukadai, Nishi-ku, Kobe