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Singapore

The Biopolis of Asia



Biopolis

Conceived in 2001, the idea of a Biopolis in Singapore was to be make the country an international Biomedical Sciences Cluster advancing human health in research and development, manufacturing and healthcare delivery (See Fig.1). Singapore aims to be the focal point for scientific talent and biomedical research, as well as to attract and groom top talents to pursue world-class research here. Developed by JTC Corporation (JTC) at a cost of S\$500 million, Phase 1 of the Biopolis comprises a seven-building complex linked by skybridges and offers a built-up area of 185 000 sqm. It is situated in the south-western part of Singapore, near the National University of Singapore and the National University Hospital.

The Biopolis is part of a master plan for a much larger 200-hectare development known as **one-north** and there are provisions for expansion to cater to a growing demand from biomedical companies. The seven buildings are designed in such a way that they promote human interaction and the exchange of ideas in public spaces. The seven buildings are Chromos, Helios, Centros, Genome, Matrix, Nanos and Proteos. Two new research buildings (Neuros and Immunos) have just been completed under Phase 2 of the Biopolis, yielding an additional 37 000 sqm of built-up area.

Chromos and Helios are dedicated to biomedical players from the private sector while the other five (Centros, Genome, Matrix, Nanos and Proteos) house the biomedical research institutes of the Agency for Science, Technology and Research (A*STAR), Singapore's lead agency for scientific research and development.

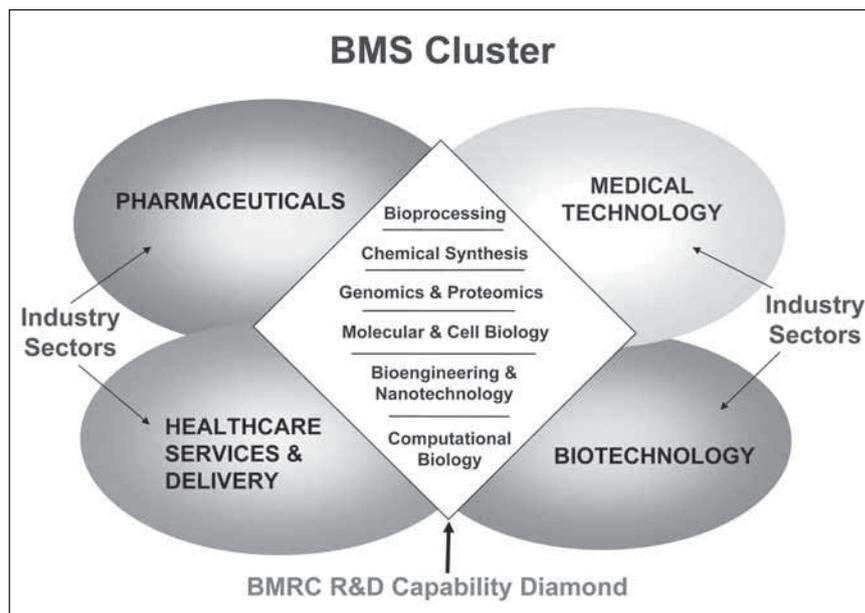


Fig.1. Singapore's strategy for its biomedical industry.

Currently, occupancy at Biopolis Phase 1 is 95%. It is home to 2 000 scientists, researchers, technicians and administrators. The research community is fully supported by state-of-the-art infrastructure including shared resources and services catering to the full spectrum of R&D activities.

A unique feature of the Biopolis is its shared facilities. The Biopolis Shared Facilities has resources to manage and provide scientific equipment, services and supplies to researchers. Core services, comprising glassware washing, media preparation and lab supplies are available. The media preparation service provides in-house production of a variety of the most commonly used tissue culture and bacterial culture media. The lab supplies service stocks a wide range of chemical, plastics and glassware that will enable users to reduce both purchasing delays and cost. Other services currently available include

DNA sequencing; proteomics and NMR (nuclear magnetic resonance); FACS (flow activated cell sorting) service; X-ray; histology facility; and confocal, microarray and high content screening services. All these services and facilities are readily accessible to all the scientists in the community.



Who's Who at the Biopolis

Research Institutes in Biopolis

A*STAR (Agency for Science, Technology and Research)
A*STAR Bioinformatics Institute (BII)
A*STAR Biomedical Research Council (BMRC)
A*STAR Bioprocessing Technology Institute (BTI)
A*STAR Centre for Molecular Medicine (CMM)
A*STAR Exploit Technologies Pte Ltd (ETPL)
A*STAR Genome Institute of Singapore (GIS)
A*STAR Institute of Bioengineering and Nanotechnology (IBN)
A*STAR Institute of Chemical and Engineering Sciences (ICES) Chemical Synthesis Lab
A*STAR Institute of Molecular and Cell Biology (IMCB)
A*STAR Science and Engineering Research Council (SERC)
Applied Biosystems Asia Pte Ltd
Bio*One Capital Pte Ltd
Bioethics Advisory Committee (BAC)
BioVenture Centre Pte Ltd
British High Commission Science and Technology Office
Health Sciences Authority (HSA)
Economic Development Board Biomedical Sciences Group (EDB BMSG)
Environmental Health Institute

Companies in Biopolis

Davos Life Science Pte Ltd ES Cell International Pte Ltd (ESI)
GlaxoSmithKline (GSK) Center for Research in Cognitive & Neurodegenerative Disorders
B Square Lab Pte Ltd
CombinatoRx Singapore Pte Ltd
Helix Life Science
Illumina (S) Pte Ltd
Inventa Technologies (S) Pte Ltd
Invitrogen (Singapore) Pte Ltd
Lloyd Wise
Molecular Acupuncture Pte Ltd
Novartis Institute for Tropical Diseases (NITD)
Oxygenix Singapore Pte Ltd
Prologo Singapore Pte Ltd
Regional Emerging Diseases Intervention Centre (REDI)
RIKEN Singapore Representative Office
Seiko Instruments Inc Singapore Representative Office
Singapore Bioimaging Consortium
Singapore Stem Cell Consortium
Singapore Tissue Network
SingVax Pte Ltd
Swiss House
Takeda Singapore Pte Ltd
Valeant Pharmaceuticals International
Vanda Pharmaceuticals Pte Ltd
Veeco Asia Pte Ltd
Waseda-Olympus Bioscience Research Pte Ltd



Tuas Biomedical Park

Tuas Biomedical Park is the manufacturing hub for the biomedical industry in Singapore. Located in Tuas View, the westernmost tip of Singapore, Tuas Biomedical Park currently occupies a land area of 183 ha. It is designed for bulk active pharmaceutical and biopharmaceutical manufacturers. Key infrastructural provisions of power, water, telecommunication, gas and sewer requirements are available in the park. Companies in Tuas Biomedical Park includes global pharmaceutical giants listed below. Prior to the Development of Tuas Biomedical Park, these multinational biomedical companies operated in Jurong Industrial Estate and other parts of Singapore.

Abbott Manufacturing Singapore Pte Ltd

When fully operational in 2008, the new S\$450 million facility will focus on the bulk production of nutritional products like Grow.

CIBA Vision Asian Manufacturing and Logistics Pte Ltd

Site will house a contact lens manufacturing facility and include a replenishment center for warehousing and distribution.

Genentech Singapore Pte Ltd

When fully operational in 2010, the facility will provide 1000 liters of capacity for the production of *E. coli* derived products. It will be Singapore's first microbial-based biopharmaceutical manufacturing facility.

GlaxoSmithKline Biologicals (S) Pte Ltd

When fully operational in 2009, the new S\$300 million facility will focus on the bulk production of vaccines like meningitis and pneumonia. This is the first bulk vaccine plant for GSK in Asia Pacific.

Lonza Biologics (S) Pte Ltd

A joint venture between Lonza Group and Singapore's Bio* One Capital. It is Lonza's second large scale mammalian manufacturing plant in Singapore. Expected to be operational in 2011, the plant will have up to four mammalian bioreactor trains, each with a flexible capacity of between 1000 to 20 000 litres and includes purification units.

Merck Sharp & Dohme (Singapore) Pte Ltd

Took up 12 ha of land for its first primary production plant in

Singapore, producing active pharma ingredients for the company's key products such as VIOXX and SINGULAR.

Novartis Singapore Pharmaceutical Manufacturing Pte Ltd

When fully operational in 2008, the new S\$310 million facility will focus on the bulk production of products such as anti-hypertension drug Diovan, abdominal discomfort treatment drug Zelnorm and new cancer drug Gleevec.

Pfizer Asia Pacific Pte Ltd

A primary production plant specialising in active pharma ingredients (API).

Wyeth Nutritionals (Singapore) Pte Ltd

Wyeth Nutritionals specializes in pediatric nutritionals.

