



Biopolis: The seven-building biomedical sciences hub in Buona Vista

The Next Wave

The bioscience industry is booming in Singapore since its launch in mid 2000. Here's who's investing, who looks promising and who's ahead of the crowd

TEXT ANITA YEE

Biomedical science is big business. Since the Singapore government identified it this sector as a potential area of growth six years ago, it has embarked on initiatives to establish core capabilities in biomedical research in areas such as cancer, infectious diseases and genomics, and lay down the infrastructure.

Six major pharmaceutical conglomerates have already set up manufacturing facilities in the 183 hectare Tuas Biomedical Park, and five biomedical public research institutions and laboratories from the Agency of Science Technology and Research (A*STAR) have set up office in the Biopolis, a dedicated research and development complex.

Launched in October 2003 as a focal point for biomedical research in Singapore, the Biopolis has continued to enjoy strong demand for research laboratories at its premises. Less than two years from the launch of Phase 1, which comprised 185,200 sqm of space, the development of Phase 2 was already underway – adding approximately 37,162 sqm to Biopolis. This phase will house the research and development operations of pharmaceutical and biotechnology companies.

Mr Chong Lit Cheong, CEO of JTC Corporation, the developer of Biopolis had said in 2003, that, “We expect more blue chip companies to follow the lead set by heavyweights like GlaxoSmithKline, Novartis and the 15 other companies that have

established R&D facilities at Biopolis.”

Since the biomedical sciences (BMS) initiative was launched in 2000, it has contributed S\$9.7 billion in manufacturing output and S\$6.5 billion in value-added, and employed 7,000 workers, in 2002; the target is for the sector to reach S\$25 billion in manufacturing output, S\$12.5 billion in value-added and 15,000 jobs by 2015.

To provide support to the scientific community at the Biopolis, which includes national research institutes, private companies and other research organisations, the A*STAR set up the Biopolis Shared Facility (BSF).

This facility allows researchers to access state-of-art scientific infrastructure and specialised services, which include DNA sequencing, proteomics, nuclear magnetic resonance, flow cytometry, x-ray crystallography, histology, confocal microscopy, microarrays and others. This allows companies to cut costs significantly and accelerate product development.

To encourage scientific interaction and teaching, there has conference and teaching facilities, as well as centralised laboratory support services. In short, the shared facilities provide economics of scale and operational efficiencies to the tenants at Biopolis.

And in the field of biomedical sciences, physical infrastructure is not the only thing that counts; so does community building and networking, which are aspects that facilitate knowledge building and exchange. The Biopolis provides all these and more, according to the following tenants we spoke to.



ACUPUNCTURE IN A PILL

If the word “acupuncture” conjures up frightful images of quivering needles sticking out of your body, a biopharmaceutical company in Singapore is looking towards making this form of treatment a more pleasant option.

Moleac Pte Ltd, headquartered in Singapore and located at Biopolis, is set to pioneer the world’s first “acupuncture-in-a-pill” technology. With this, the company hopes to overcome the cultural and psychological barriers of using needles for treatment. A pill will also be a boon to those who cannot make it to a clinic if long-term acupuncture treatment is required.

Mr David Picard, Chief Executive Officer, Moleac Pte Ltd, www.moleac.net

WHAT IS THE NATURE OF YOUR WORK?

Moleac is a biopharmaceutical company. And the aim of the company is to use western clinical approach and biotechnology to understand the underlying mechanisms of acupuncture and to offer it in a western delivery format – a pill – to patients. We identify promising medicine discovered in China and develop them into Western mainstream medicine. Conversely, we develop innovative technologies and medical products that we in-license from Europe and subsequently market these in Asia.

WHAT WERE YOUR FIRST INITIATIVES?

Our first drug is focused on brain stroke recovery and is derived from Traditional Chinese Medicine. It gained market approval in two countries in late 2005 and we plan to make it available to stroke sufferers around the world this year.

Our smoking cessation therapy will also reach main markets in 2006. We focus our research and development resources in areas where patients’ needs are greatest. We own a pipeline of drugs and devices that are in various stages of development.

WHY DID YOU CHOOSE TO BE AT THE BIOPOLIS?

We initially started with European scientists and doctors and Chinese scientists and doctors. And Singapore made a lot of sense in terms of transition from one country to the other. Other reasons being the quality of infrastructure, the talent pool, the legal (especially in the area of Intellectual Property) and financial structures, being in close contact with Singapore’s Economic Development Board where we hold informal meetings and receive assistance with introductions to other companies, as well as the quality of hospital infrastructure when we need to conduct clinical trials.

WHAT PROGRESS HAVE YOU MADE SO FAR?

We took in-licensed drugs, that is drugs which we had acquired the rights for development and/or to market in selected territories, from China to getting market authorisation in Singapore and several other countries. We are now preparing launches and developing several treatments from China, which we hope to bring to market in the near future.

“We identify promising medicine discovered in China and develop them into Western mainstream medicine”



David Picard
CEO, Moleac Pte Ltd



ALL IN THE MIND

GlaxoSmithKline (GSK) is one of the world's leading research-based pharmaceutical and healthcare companies. In 2004, GSK announced it would invest S\$62 million to establish its first pre-clinical research facility in Asia-Pacific for neurodegenerative diseases (such as Alzheimer's disease and Parkinson's disease) and schizophrenia in Singapore's Biopolis. This research facility will deepen Singapore's expertise in the field of neuroscience research and complement the work being done at our local universities and research institutes such as the Institute of Molecular and Cell Biology and the National Neuroscience Institute.

Jarrold Hunt, Head of Operations, GlaxoSmithKline, Cognition & Neurodegeneration Centre Singapore

WHAT IS THE NATURE OF YOUR WORK?

We form a part of the GSK drug discovery process. Our centre specifically focuses on the research for cognitive and neurodegenerative diseases. We currently operate a Biology unit with plans for a medicinal chemistry unit to be fully operational by end of the year. This will enable us to run programmes capable of discovering new drugs.

WHAT ARE GSK'S REASONS FOR LOCATING ITS RESEARCH IN SINGAPORE?

GSK wanted to increase its research presence in the Asia-Pacific region and Singapore was chosen for many reasons: reliable infrastructure in terms of transport and utilities; access to world class bioscience in research institutes and universities; long history of GSK investment in Singapore; rigorous protection of intellectual property rights; the main spoken language is English, which helps facilitate communication; and strong government support for biosciences, including sponsorship of training programmes

WHAT BENEFITS DOES BIOPOLIS PROVIDE GSK?

We chose Biopolis for the following reasons: easy accessibility and close proximity to supporting institutes; and comprehensive facilities ie lecture halls, video conferences, restaurants and meeting rooms.

WHAT ARE SOME OF THE PROGRESS GSK HAS MADE?

Our Biology unit has been fully built and most staff has been recruited. Our current staff capability encompasses cognition, drug metabolism and pharmaco-kinetics, molecular biochemistry and pharmaco-dynamics and disease models.



Jarrold Hunt, Head of Operations, GlaxoSmithKline

"Our centre focuses on research for cognitive and neurodegenerative diseases"



Lab work in GSK

TOP OF THEIR GAME

The Biopolis has attracted renowned scientific talents. With the completion of Phase 2 at the end of 2006, there will be approximately 2,500 scientists, researchers and workers working in Biopolis. Luminaries currently working at the Biopolis include:

Dr Edison Liu, Executive Director of the Genome Institute of Singapore, who was the former Director of Clinical Sciences at the US National Cancer Institute

Sir David Lane, Executive Director of the Institute for Molecular and Cell Biology and founder of Scottish biotech company, Cyclacel

Dr Alan Colman, CEO of ES Cell International, who was formerly from UK-based PPL Therapeutics

Dr Alex Matter, Director of the Novartis Institute for Tropical Diseases, who led the development of Novartis' cancer therapeutic, Gleevec

Dr Axel Ullrich, currently heading the Singapore Onco Genome Laboratory, is from Germany's Max Planck Institute and founder of numerous biotech companies including Sugem and U3

Dr Yoshiaki Ito, Professor & Principal Investigator, Institute of Molecular and Cell Biology formerly director of the Institute for Virus Research, Kyoto University (1995-2001)

Professor Jackie Ying, Executive Director, Institute of Bioengineering and Nanotechnology formerly Professor of Chemical Engineering at MIT



funding and are ready to go on their own. This could be a bridge from a research institute to independent facilities, or it could also be a bridge to help companies that already exist, but need a cost-effective way of accessing a real office and lab.

WHAT ARE YOUR REASONS FOR LOCATING YOUR BUSINESS IN SINGAPORE?

The reasons are many, including the geographically centralised location of Singapore within the Asia-Pacific; clusters of companies and research organisations in segments of interest, and the Singapore government's strong growth objectives for the biomedical sector. Becton, Dickinson and Company (BD), majority owner of BVC, also has two manufacturing plants and its Asia-Pacific headquarters in Singapore.

WHAT ARE SOME OF THE BENEFITS YOU'VE DERIVED FROM BEING AT BIOPOLIS?

Access to the Biopolis animal facility and shared capital equipment help early stage companies maximise their resources. The proximity to other local and visiting scientists and companies within Biopolis and the surrounding area facilitates opportunities for further collaboration.

WHAT HAVE YOU ACHIEVED SO FAR?

The BVC looks to incubate companies with good ideas and strong management in place. From setting up its operations a little over three years ago, BVC has attracted four incubator companies:

- **Singular ID Pte Ltd**, which is working on a unique nano-technology tagging system to authenticate and protect products, people and brands from counterfeit products and monitor grey market activity.
- **NewBiomed PIKA Pte Ltd**, which is developing a novel adjuvant technology that enhances certain properties of both preventive and therapeutic vaccines.
- **Remind Cap International Ltd**, which is creating innovative products that help patients take medications as prescribed.
- **Promatrix**, a spin-off from Johns Hopkins Singapore that deals with novel materials-based technology for cell therapy and tissue engineering.

We have also received inquiries from companies outside Singapore. We act as an accelerator to help foreign companies gain access to the Asia-Pacific region. These companies see Singapore as an ideal location to do research, forge collaborations and apply their technology platforms. BVC gives them the opportunity to set up quickly, easily and cost-effectively. **sbv**

“We act as a bridge to help companies reach the stage when they are ready to go on their own”



Dr Cathy Park, MD,
BioVenture Centre



HELP FOR START-UPS

Formed in 2002 as a joint venture between Becton Dickinson (BD) and Johns Hopkins Singapore, BioVenture Centre (BVC) Singapore is a full-service life science incubator dedicated to serving the emerging life science industry in Singapore and other Asia-Pacific regions. The initiative is an extension of the BioVenture Center RTP, a similar facility located in the vibrant Research Triangle Park, North Carolina, USA.

Dr Cathy Park, Managing Director, BioVenture Centre,
www.bvc.com.sg

WHAT DOES BIOVENTURE CENTRE PROVIDE?

BioVenture Centre (BVC) is an incubator that provides business advisory services and subleases fitted-out laboratory and office space to selected early-stage biomedical companies. We act as a bridge to help companies reach a certain stage, when they have sufficient