INVEST IN MALAYSIA

Supportive Government Policies and Incentives

Market Access, Intellectual Property and Regulatory System

Developed & Integrated Infrastructure

Human Capital: Highly motivated, educated and multi-lingual

Quality of Life
ACCESS TO 4 BILLION POPULATION IN NEIGHBOURING REGIONS

Centrally located in one of the most economically vibrant regions in the world, Malaysia is perfectly positioned for investments with a rapidly developing ecosystem ready for innovation, biotech and business.
COMPELLING IN SO MANY WAYS

14th most competitive economy (of 59 countries)
*IMD World Competitiveness Scoreboard*

5th in World Competitive Ranking in East Asia
*IMD World Competitive Rankings*

Ranked 8th worldwide for Ease of Doing Business in East Asia and 4th for Protection of Investors
*Doing Business Report 2011, World Bank*
Ranked 4th worldwide for Enterprise Support of its biotech industry
*Worldview Scorecard 2011, Scientific American*

2nd in ASEAN for richness and promotion of innovation
*Global Innovation Index 2011, INSEAD*

9th friendliest country in the world
*Forbes Ranking 2011*
BIOTECHCORP: ACCELERATING GROWTH OF MALAYSIA’S BIOECONOMY

BiotechCorp is the lead development agency for the biotech industry in Malaysia. Acts as a central contact point providing support, facilitation and advisory services for biotech and life science companies in Malaysia.
ORGANISATION STRUCTURE: BIOTECHCORP

International Advisory Panel

Honorable Prime Minister of Malaysia
YAB Dato’ Seri Najib Tun Razak

Implementation Council

Ministry of Science Technology & Innovation

Chairman Board of Directors

Dato’ Dr Mohd Nazlee Kamal
CEO

Ministry of Finance

Federal Lands Commissioner (JKPTG)

Board of Directors
BiotechCorp works with Government Ministries, entities and agencies to package attractive deals for global companies to invest in Malaysian biotech industries.
NATIONAL BIOTECHNOLOGY POLICY
FOCUS AREAS

AGRICULTURE

HEALTHCARE

INDUSTRIAL
NATIONAL BIOTECHNOLOGY POLICY

Phase I Capacity Building
2006-2010
- Investment: RM 6 billion
- Employment: 40,000
- Contribution to GDP: 2.5%

Phase II Science to Business
2011-2015
- Investment: RM 9 billion
- Employment: 80,000
- Contribution to GDP: 4.0%

Phase III Global Business
2016-2020
- Investment: RM 15 billion
- Employment: 160,000
- Contribution to GDP: 5.0%
The BIOTECH sector now represents RM5.4 billion* in total investments, RM13.5 billion* in revenues, 54,776 jobs and 2.2% contribution to overall GDP of Malaysia.

* USD1=RM3.16
ESTABLISHED ECOSYSTEM OF BIOPARKS AND ECONOMIC CORRIDORS
ESTABLISHING ASIA’S NEW BIOTECH ECOSYSTEM IN MALAYSIA
FDI AS KEY COMPONENT OF MALAYSIAN BIOTECH INDUSTRIAL GROWTH
Major Biotechnology Investments in Industrial Biotechnology

To develop Asia’s largest biorefinery complex in Kerteh Biopolymer Park, Terengganu

First commercial bio-isobutanol plant in Asia

To build a commercial bio-based facility in Bio-Xcell
## Major Biotechnology Investments in Industrial Biotechnology

<table>
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<tr>
<th>Company 1</th>
<th>Company 2</th>
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<tbody>
<tr>
<td>CJ</td>
<td>Arkema</td>
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<tr>
<td>Metabolic Explorer</td>
<td>Sime Darby</td>
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</table>

World’s first bio-methionine plant

The first plant in the world that produces PDO (1,3 Propanediol) from crude glycerin

Collaboration to build a bioethanol demonstration plant by converting empty fruit bunches
Major Biotechnology Investment in Agriculture Biotechnology

To establish a Regional Management Centre and an Aquaculture Hub in Malaysia
Major Biotechnology Investment in Healthcare Biotechnology

India’s first billion-dollar biotechnology company and one of the biggest biotechnology companies in Asia
Packaged with a set of competitive fiscal incentives for both foreign as well as domestic investors.

Supported by BiotechCorp's other initiatives in building conducive enabling environment, the BioNexus Program is now a credible representation of Malaysia's emerging biotechnology sector.
Join a vibrant community of 217 other BioNexus companies representing investments from Malaysia as well as from around the world including the US, Europe, India, Taiwan, South Korea and Australia.

BioNexus companies together generate more than RM2 billion in investments, RM721 million in revenue, 2,824 jobs, 21 patents granted and another 145 filed.
BioNexus Companies Listed on Stock Exchange

Total Market capitalisation
RM 821.6 million

Market capitalisation:
PureCircle: RM 645.6 million
StemLife: RM 39.6 million
MGRC: RM 34.4 million
Sunzen: RM 37.1 million

Note: Market capitalisation value as at 17 October 2011
BioNexus Status companies enjoy a set of incentives and privileges contained within the BioNexus Bill of Guarantees.
The 8th Bill of Guarantee ensures commitment to provide access and availability of Physical Infrastructure, Shared Facilities & Services.
BIONEXUS PARTNERS (BNP) PROGRAMME
Enhancing Public Private Partnership (PPP)

3 BNP Centre of Excellence
Natural Product Development (FRIM)
Industrial Product Development (UTM)
Pharmacogenomics Research (UiTM)

<table>
<thead>
<tr>
<th>Region</th>
<th>Northern</th>
<th>Eastern</th>
<th>Central</th>
<th>Southern</th>
<th>Sabah &amp; Sarawak</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of BNP Labs / Units</td>
<td>10</td>
<td>8</td>
<td>28</td>
<td>6</td>
<td>4</td>
<td>56</td>
</tr>
</tbody>
</table>

56 BNP labs / units from 13 IHLs, 3 RIs & 2 GCs

> 200 services offered in agricultural, healthcare & industrial biotechnology

> 100 well maintained high-end research facilities and equipment handled by experienced personnel

93% utilisation by industry players including BioNexus companies in 2011

> 200 services / projects collaboration / commercialisation since 2009 till 2011

0.6 million revenue generated in 2011

4.55 over 5 average rating of the customer satisfaction in 2011
Technology Platforms

Licensor: Nanobiotix S.A.

Nanotechnology: High level nanotechnology applications for non-cancer areas, including medicine, agriculture, nanomaterial and energy production

Exclusive global license

Custodian:

NanoBiotechnology Research & Innovation Centre (NanoBRI) in INFORMM, which is also capable of manufacturing custom-made nanoparticles

Opportunities: Collaborative R&D&C projects and contract manufacturing

Licensor: MedSaic Pty Ltd

DotScan antibody microarray diagnostic: Development of diagnostic applications for various diseases e.g. solid tumors, haematological diseases, infectious disease and autoimmune diseases

Exclusive Malaysia & Singapore license

Custodian:

Institute of Medical Research (IMR) and Universiti Putra Malaysia (UPM) to develop new applications from research projects

Opportunities: Collaborative R&D projects
Technology Platforms

**Licensor:** FeyeCon Development & Implementation B.V

**Supercritical Fluid Extraction (SFE) & Particle Formation:**
Extraction and fractionation of nutraceutical and bioactive compounds from natural sources using CO2 technology

**Exclusive ASEAN license**

**Custodian:**

A commercial scale Supercritical Fluid Extraction Centre (SFC) is being established

**Opportunities:**
Collaborative R&D&C projects, contract research and contract manufacturing

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**Licensor:** DNA LandMarks Inc

**Marker Assisted Selection (MAS):**
Applications in plant and livestock breeding; Speed and efficacy of breeding programmes is enhanced through utilisation of genetic markers

**Unrestricted and perpetual right to use**

**Custodian:**

Centre for Marker Discovery and Validation (CMDV) established to provide commercial services

**Opportunities:**
Collaborative and contract research
Potential Market Access

PIC/S Member Countries
- Malaysia is one of the only countries in the region with PIC Scheme membership
- Members of PIC/S includes USA, EU countries Canada and Australia

Middle Eastern Countries
- Trade Preferential System- Organisation of Islamic Countries (TPS-OIC) under negotiation
- Malaysia as a Halal Hub
- Malaysia’s standing as a moderate, Islamic country

Emerging Markets
- Comprehensive Economic Cooperation Agreement (CECA) with INDIA
- ASEAN Countries Regulatory Harmonization and future Mutual Recognition
Regulatory Framework

Principal Regulatory Authority
- Drug Control Authority under MOH
- All drugs regulated by the National Pharmaceutical Control Bureau

GMP & GLP Standards
- All commercial life sciences related activities requires compliance to GMP & GLP Standards
- Membership to PIC/S since 2002

Biosimilars
- Guidelines for Registration of Biosimilars, regulated by MOH 2008

Stem Cells
- Stem Cell Guidelines, regulated by MOH.
Intellectual Property (IP) and Legal Infrastructure

- Patents Act 1983
- Patents Regulations 1986
- Paris Convention for the Protection of Industrial Property 1883
- Trade Related aspects of Intellectual Property Rights (TRIPS) Agreement 1994
- Patent Cooperation Treaty (PCT) 1970
- Berne Convention, Nice & Vienna Agreement
- Intellectual Property (IP) Courts

Malaysian IP Regulatory Framework
Specialised IP Courts

Malaysia is one of the first few countries in the region to introduce specialised IP Courts.

The IP Courts have successfully reduced the time taken to resolve an IP dispute matter from 4-6 years to 12-14 months.
MALAYSIA – TOWARDS BUILDING A WORLD CLASS IP INFRASTRUCTURE

IP Pendency
Patent pendency timeframe down from 43 months in 2007 to 26 months in 2011.

IP Protection
Ranked #31 out of 142 countries in IP Protection (IMD Global Competitiveness Report 2011-2012)
IP Valuation

Initiatives are currently being co-ordinated by the Malaysian Government & MyIPO to create a framework to enable financial institutions to recognise IP as part of the company assets & also to enable IP to be used as collateral.
STRATEGIC INITIATIVES WITH INTERNATIONAL PARTNERS
CLIB2021 is an association of >70 companies, academic institutes and investors based in Europe, fostering research and joint collaborations in industrial biotechnology.
POSITIONING MALAYSIA TO BECOME A STRONG RESEARCH FORCE IN THE REGION

BiotechCorp’s strategic collaboration with Singapore’s Quintiles East Asia Pte Ltd in the areas of Shared Services Central Laboratory and Biobank, Clinical Research Training Program, Stem Cell Research and National Vaccine Hub.
Providing specialised technical training in bioprocess to Malaysian graduates.

3 of the 8 program graduates are currently furthering their studies in Korea.
STELLAR COLLABORATION WITH STRONG GOVERNMENT COMMITMENT

- To enhance scientific talent of Malaysian researchers.
- Next in pipeline: Creating QB3 satellite program in Malaysia within a hub of bioclusters.

Neopeutics - The first commercial enterprise to emerge from QB3-Malaysia Program.
<table>
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<th>1 Malaysia</th>
<th>Government Transformation Programme</th>
<th>Economic Transformation Programme</th>
<th>10th Malaysia Plan</th>
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<td>People First, Performance Now</td>
<td>6 National Key Result Areas</td>
<td>8 Strategic Reform Initiatives</td>
<td>Macroeconomic Growth Target &amp; Expenditure Allocation</td>
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**VISION 2020**

**HIGH IMPACT INITIATIVES**
TOWARDS ACHIEVING HIGH PER CAPITA INCOME IN 2020

Current GNI per capita (2009\(^1\))
RM23,700 or USD6,700

Real growth rate of 6% p.a. over next 10 years

Projected GNI per capita (2020\(^2\))
RM48,000 or USD15,000

\(^1\)2009 population 27.9 million, 2020 projected population 31.6 million (EPU projection)
\(^2\)At 2020 prices, consistent with EPU assumptions for inflation~2.8% and population growth~1%

Source: World Bank, EPU
NATIONAL BIOMASS STRATEGY

- Additional ~20M tonnes of biomass mobilised at competitive cost for higher value purposes
- Additional RM 30 billion Gross National Income (GNI)
- Additional ~66,000 jobs
- Additional ~12% abatement of emissions by biogas to energy conversion of all mills

Corporate champions for regional and global biomass
"I would like to announce here in Copenhagen that Malaysia is adopting an indicator of a voluntary reduction of up to 40% in terms of GDP emissions intensity by the year 2020 compared to 2005 levels."

Prime Minister of Malaysia
Copenhagen, COP-15
Leveraging on strengths in existing industries.

petrochemical

oil palm
Current Petrochemical Feedstock

- **C1**: Kemaman
- **C2, C3, C4**: Kertih
- **C2, C3**: Gebeng
- **C2, C3, C4, C5**: RAPID

Map showing regions and locations of feedstock production.
Malaysia is located on the tropical belt and has biomass 5x higher.
Malaysia Has A Strong Positioning to LEAD the Industry

1. Close to major markets
2. Stable economic position
3. High productivity of biomass
4. Existing plantation infrastructure
5. Innovation-driven transition to high income economies
Biomass is our new wellhead
Microbes & Enzymes are our new cracker
Carbohydrates production plant is our new refinery
Biochemicals are our new petrochemicals
All these initiatives became an ecosystem for BIOECONOMY INITIATIVE MALAYSIA
A GROWING STRATEGIC INTEREST IN BIOECONOMY ACROSS THE GLOBE

Bioeconomy to contribute a global average of 2.7% to GDP by 2030 *OECD* estimates

- **US$86.5 bn (2010)*** announced: 2009
- **US$46.5bn (2007)*** announced: April 2007
- **US$2.6 trillion (2009)*** announced: Sept 2010
- **US$18.8bn (2012)**^ announced: June 2012
- **US$126.6bn (2010)*** announced: June 2007
- **US$ 4.3bn (2010)*** announced: June 2012

*Recorded figure
^Forecast figure
“To make bioeconomy work for Malaysia, we need to relook at how best to deploy our resources, enhance private-public partnerships, build strengths in focus areas, specialize and enhance service levels.”

YAB DATO’ SRI MOHD NAJIB TUN HAJI ABDUL RAZAK
PRIME MINISTER OF MALAYSIA
SUPPORTING GOVERNMENT COMMITMENT TO DELIVER ECONOMIC AND SOCIAL BENEFITS

GNI
Human Capital
Investment

BIOECONOMY MALAYSIA
10 EPPS / 20 TRIGGER PROJECTS OF THE BIOECONOMY INITIATIVE MALAYSIA

1. Industrial bio Inputs
   - 3 trigger projects

2. Biochemicals
   - 3 trigger projects

3. Biomaterials
   - 4 trigger projects

4. Bio-based farm inputs
   - 2 trigger projects

5. High value bioingredients
   - 2 trigger projects

6. High value food varieties
   - 2 trigger projects

7. Biosimilars
   - 1 trigger project

8. Drug discovery
   - 1 trigger project

9. Molecular screening
   - 1 trigger project

10. Stem cells and regenerative medicine
    - 1 trigger project

Industrial biotech
Agriculture biotech
Healthcare biotech
COMMITTED INVESTMENTS FOR TRIGGER PROJECTS WILL BE CARRIED OUT ACROSS PENINSULAR MALAYSIA, SABAH AND SARAWAK

GNI RM3.6bn  Investment RM10bn  Employment 16,300
DISCOVER MALAYSIA
YOUR UNIQUE BIOTECHNOLOGY INVESTMENT DESTINATION
See you at
BIOMALAYSIA 2012
CONFERENCE & EXHIBITION
5-7 NOVEMBER 2012
KUALA LUMPUR
Thank You

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