

nature
SPOTLIGHT ON
HONG KONG

HIGH
HOPES



The content in this reprint was originally published in *Nature* Vol. 557, No. 7706, 24 May 2018
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natureresearch

BIOTECH WHY HK ?

18 Sept 2018



Outline

- 1. CFDA accredited clinical trial centers in HK**
2. HK has high quality and internationally recognized biomedical and clinical research team
3. HK biotech has strong support from both government and private sector
4. A biotech ecosystem in HK Science Park
5. Opportunities in Greater Bay Area

CFDA accredited specialties in [Queen Mary Hospital](#) for Mainland China clinical trials :

1	Anesthesiology	8	HKU Phase 1 Clinical Trials Centre
2	Cardiology	9	Nephrology
3	Clinical Immunology	10	Neurology
4	Endocrinology & Metabolism	11	Obstetrics & Gynecology
5	Gastroenterology & Hepatology	12	Oncology
6	Hematology & Bone Marrow Transplantation	13	Orthopedics & Traumatology
7	Hepatobiliary & Pancreatic Surgery and Liver Transplantation	14	Pediatrics & Adolescent Medicine
		15	Respiratory Medicine

2014/9/4 <http://samr.cfda.gov.cn/WS01/CL0087/106059.html>

2016/7/20 <http://samr.cfda.gov.cn/WS01/CL0087/161320.html>



CFDA accredited specialties in [Prince of Wales Hospital](#) for Mainland China clinical trials

1	Anesthesia and intensive care	9	Oncology
2	BABE (Bioavailability & Bioequivalence)	10	Otolaryngology - Head and Neck Surgery
3	Cardiology	11	Pediatric hematology
4	Endocrinology	12	Pediatric Respiratory
5	Gastroenterology	13	Pediatric immunology
6	Hematology	14	Pediatric infectious Disease
7	Neurology	15	CUHK Phase 1 Clinical Trial Centre
8	Obstetrics and Gynecology	16	Urology

2014/9/4 <http://samr.cfda.gov.cn/WS01/CL0087/106059.html>

2016/7/20 <http://samr.cfda.gov.cn/WS01/CL0087/161320.html>

CFDA accredited specialties in Eye Hospital for Mainland China clinical trials

1	Ophthalmology		

2014/9/4 <http://samr.cfda.gov.cn/WS01/CL0087/106059.html>

2016/7/20 <http://samr.cfda.gov.cn/WS01/CL0087/161320.html>

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Hong Kong has high quality biomedical and clinical research.

Moving up

	Ranking	
	2018	2017
University of Hong Kong	26	27
University of Science and Technology	30	36
Chinese University	46	44
City University	49	55
Polytechnic University	95	111
Baptist University	299	278
Lingnan University	551-600	601-650
Source: QS Quacquarelli Symonds		SCMP

Five Universities in 2018 QS Top 100



香港大學

THE UNIVERSITY OF HONG KONG



香港科技大學

THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY



香港中文大學

The Chinese University of Hong Kong



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THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Warren Alpert Foundation Prize Recipients

2018

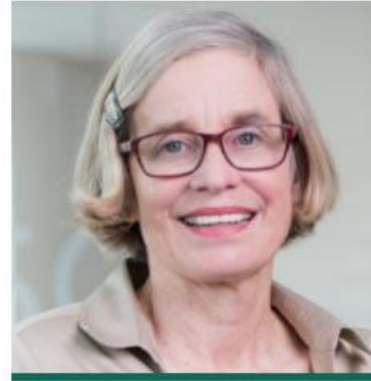
For pioneering contributions to the discovery of the cystic fibrosis transmembrane conductance regulator (CFTR) gene and to the subsequent research that led to the development of transformational precision medicines to treat the underlying cause of cystic fibrosis.



Francis Collins



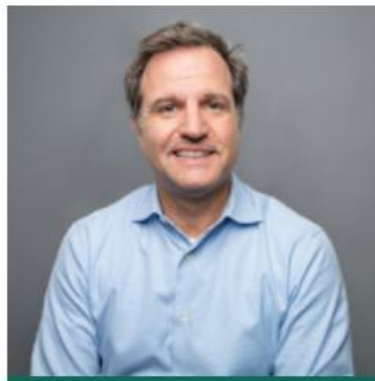
Lap-chee Tsui



Bonnie Ramsey



Michael Welsh



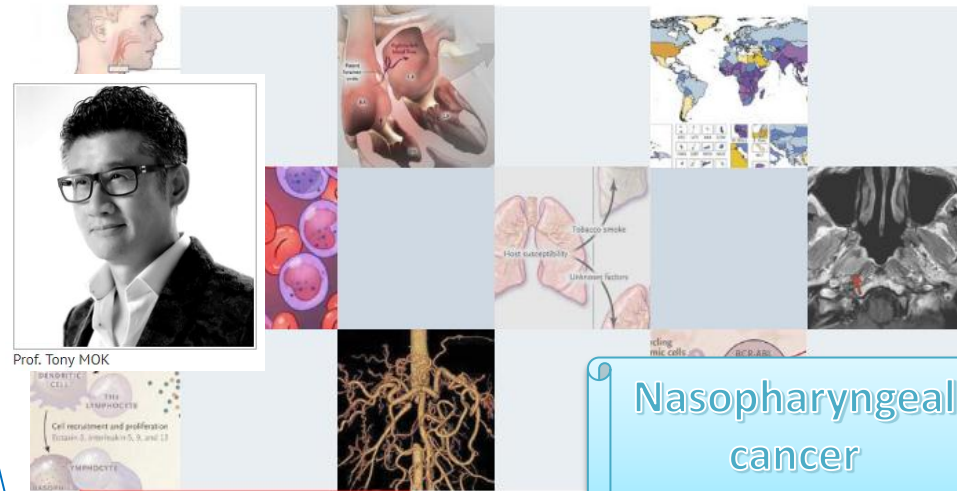
Paul Negulescu

In 1989 Prof. Tsui identified the defective gene that causes cystic fibrosis, which is a major breakthrough in human genetics. He was Geneticist-in-Chief and Head of the Genetics and Genomic Biology Program of the Research Institute, at The Hospital for Sick Children in Toronto before he became the 14th Vice-Chancellor of the University of Hong Kong (HKU). He is now the [President of The Academy of Sciences of Hong Kong](#).

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Prof. Tony MOK

Nasopharyngeal
cancer

Notable Articles of 2017

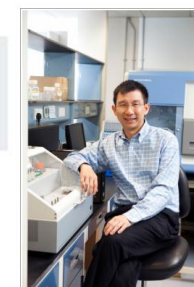
2 out of 10 are from CUHK

A collection of articles
selected by NEJM editors



Prof. Dennis LO

NEJM
GROUP



Prof. Allen CHAN

[About the Journal](#)[Aims & Scope](#)[About the Partner](#)[About the Editors](#)[Editorial Board](#)[Scientific Awards](#)[Journal Credits](#)

Scientific Awards

npj Genomic Medicine Editor-in-Chief, Professor Stephen Scherer and Associate Editor, Charles Lee named 2017 highly cited researchers

npj Genomic Medicine Editors, Professor Stephen Scherer and Charles Lee have been named amongst the [2017 Highly Cited Researchers](#), by Clarivate, formerly the Intellectual Property & Science business of Thomson Reuters. This is the second year in a row that Professor Scherer and Professor Lee have received this award, after receiving the same title in 2016. The list is a citation analysis identifying more than 3,400 researchers across 21 fields of the sciences and social sciences, on the basis of their highly cited papers authored between January 2005 and December 2015. This distinction recognizes Prof. Scherer and Prof. Lee as two of the most impactful scientists in the category of Molecular Biology and Genetics.

npj Genomic Medicine Associate Editor, Professor Dennis Lo, is honored by two awards for his work in life sciences.

Professor Dennis Lo has been awarded the [Chinese Future Science Prize](#) for his discovery of fetal DNA in the plasma of pregnant women, which has led to a new approach for non-invasive prenatal testing. This research has revolutionized the way Down Syndrome is now detected in over 90 countries.

Professor Dennis Lo is also honored as one of the [2016 Thomson Reuters Web of Science Citation Laureates](#) for his work detecting cell-free fetal DNA in material plasma, a revolution in noninvasive prenatal testing. This study identifies the most influential researchers who are likely Nobel Prize candidates and has accurately predicted Nobel Prize winners for over a decade.



Prof. Dennis LO

Breakthrough Discoveries at HKUST Offer New Hope for Treatment of Alzheimer's Disease

21-04-2016

A research team led by scientists from the Hong Kong University of Science and Technology (HKUST) has discovered that a protein found in the human body could be potentially developed as an effective treatment for Alzheimer's disease (AD).

The team, led by Prof Nancy Ip, Dean of Science, Director of the State Key Laboratory of Molecular Neuroscience and The Morningside Professor of Life Science at HKUST, in collaboration with Prof Eddy Liew from the University of Glasgow and Prof Baorong Zhang from Zhejiang University, has found that the protein interleukin-33 (IL-33) ameliorates cognitive decline and Alzheimer's disease-like pathology. The groundbreaking study was conducted at HKUST and the results have just been published in the prestigious scientific journal, *Proceedings of the National Academy of Sciences USA* (PNAS).

AD is a progressive and highly debilitating brain disease, which is currently irreversible and incurable. Patients suffer from cognitive deficits such as impaired memory, reasoning, judgement and movement. Pathological hallmarks include the accumulation of beta-amyloid (A β) plaques and neurofibrillary tangles in the brain.

IL-33 is a protein made by the human body that modulates immune functions. The team at HKUST focused their attention on IL-33 due to its compromised function in individuals with mild cognitive impairment who are at high risk of developing AD. They found that injection of IL-33 in APP/PS1 mice (transgenic mice with AD-like pathologies) resulted in remarkable and rapid recovery of cognitive functions. Within a week, the neuronal communication defects and memory loss in APP/PS1 mice were reversed. Also significantly, the team found that IL-33 injection for 2 consecutive days was sufficient to reduce the levels of A β protein and, in turn, decrease the deposits of amyloid plaque in the brains of these mice.

Alzheimer's Disease



Prof Nancy Ip (front row, middle), Prof Amy Fu (front row, second right), Prof Tom Cheung (front row, second left) and other research team members



Prof Nancy Ip



The Consul general, Dr Roberto Bruzzone, the Grand Chancellor, and Prof Malik Peiris

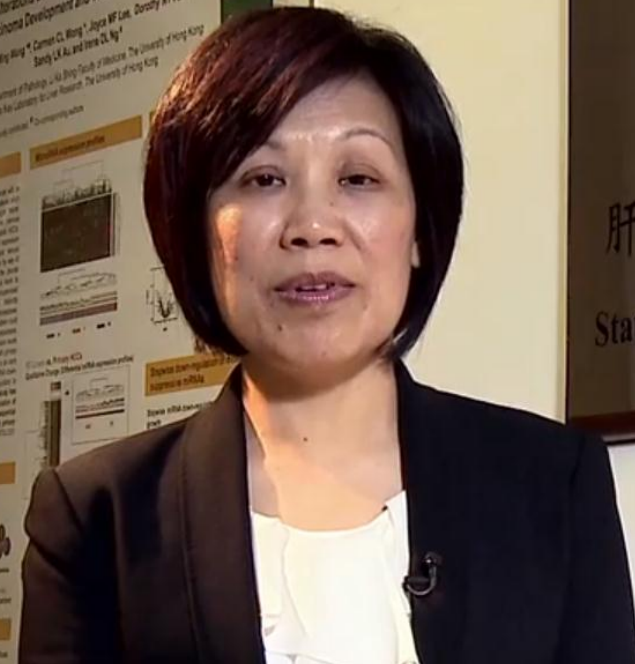




Sequential Alterations of MicroRNA Expression in Hepatocellular Carcinoma Development and Viscous Metastasis
Chiu-Wing Wong*, Carmen C. Wong*, Joyce W.F. Lau, Dorothy W.Y. Fan, Bony C.K. Au, and Irene C.K. Ng†

Department of Pathology, 11th Floor, South of Midland, The University of Hong Kong
State Key Laboratory for Liver Research, The University of Hong Kong

*Invited presentation, †Co-corresponding authors



Liver diseases

Prof Irene Ng

Loke Yew Professor in Pathology and Director, State Key Laboratory for Liver Research

I'm the director of the State Key laboratory for Liver

Features

Walking with Diabetic Patients for a Decade: Juliana Chan and Hong Kong Institute of Diabetes and Obesity

Diabetes



CUHK diabetes research team

Front row: Prof. Juliana Chan (*centre*), Prof. Ronald Ma (*left*)

HKU leads the Asia's first genetically modified hematopoietic stem cell transplantation for late juvenile metachromatic leukodystrophy patient (MLD)

20 May 2015

Gene Therapy



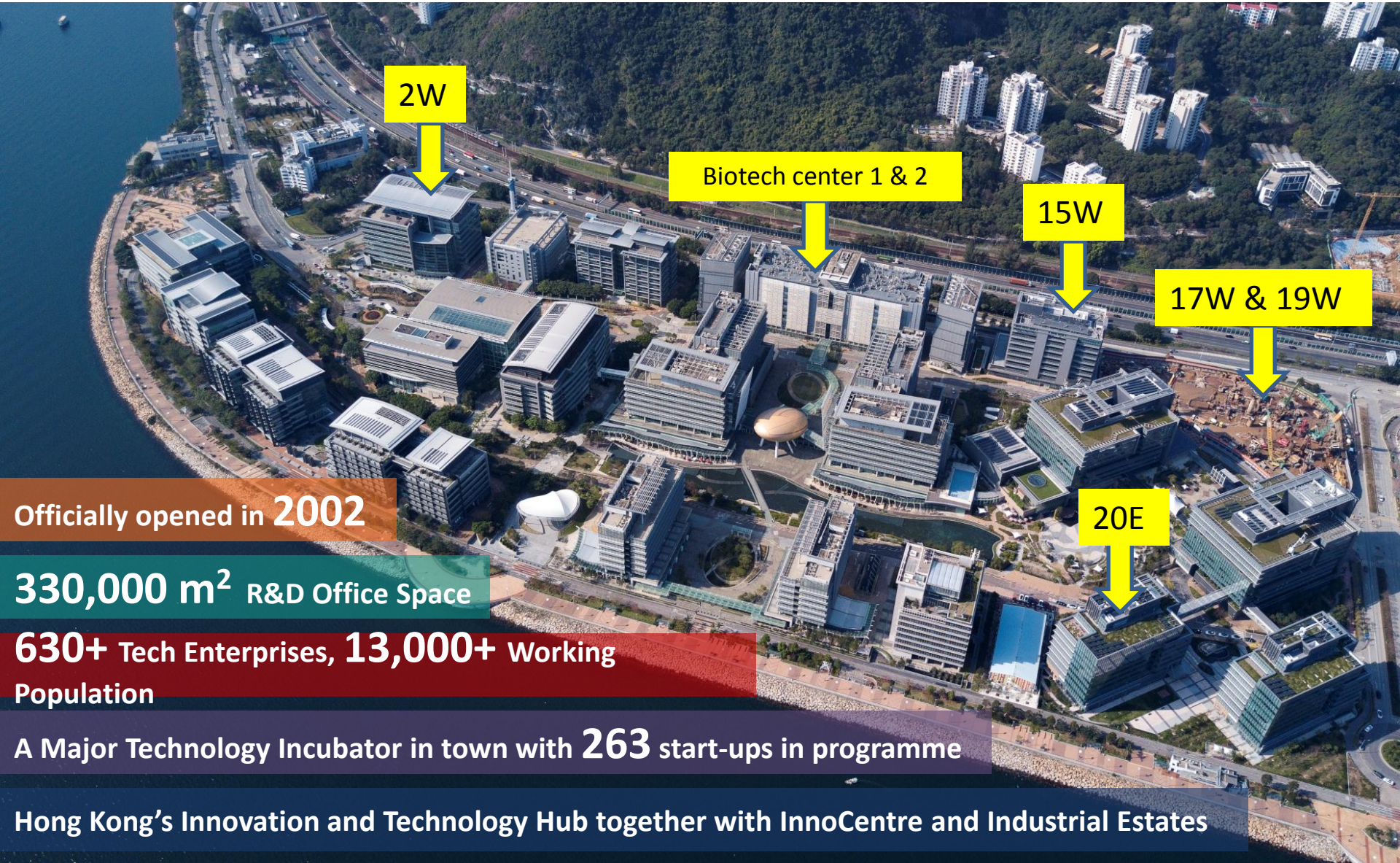
Media Interview of the MLD patient on 9 Apr 2018

Dr Lian Qizhou (Third from the right), Assistant Professor of the Department of Ophthalmology and Department of Medicine of Li Ka Shing Faculty of Medicine, HKU and his team, Professor Zhuo Jiakai (First left), Clinical Professor and Head of the Division of Haematology at the Second People's Hospital of Shenzhen (The First Affiliated Hospital of Shenzhen University) and patient Miss Liao Yu-an (Second left) and her mother Ariel Lee Pi-ju (Third from the left) took a group photo together.

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5. Opportunities in Greater Bay Area

Fertile Ground for HK's Innovation-driven Future



2W

Biotech center 1 & 2

15W

17W & 19W

20E

Officially opened in **2002**

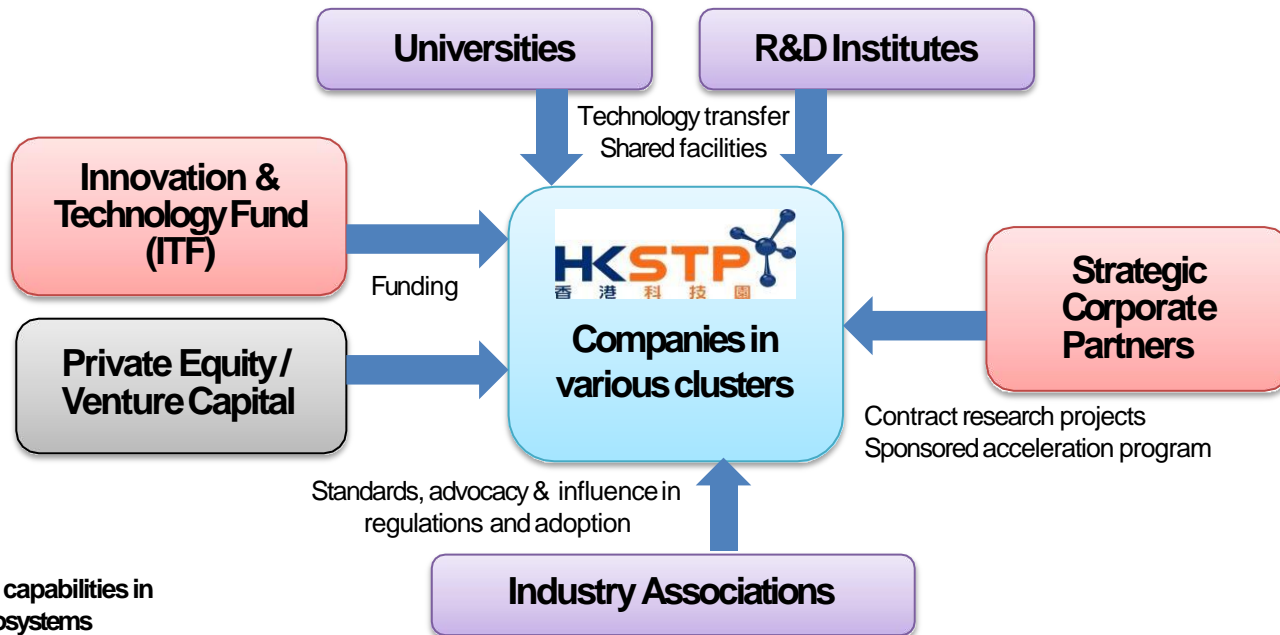
330,000 m² R&D Office Space

630+ Tech Enterprises, **13,000+** Working Population

A Major Technology Incubator in town with **263** start-ups in programme

Hong Kong's Innovation and Technology Hub together with InnoCentre and Industrial Estates

HKSTP: Connect, Collaborate, Catalyze



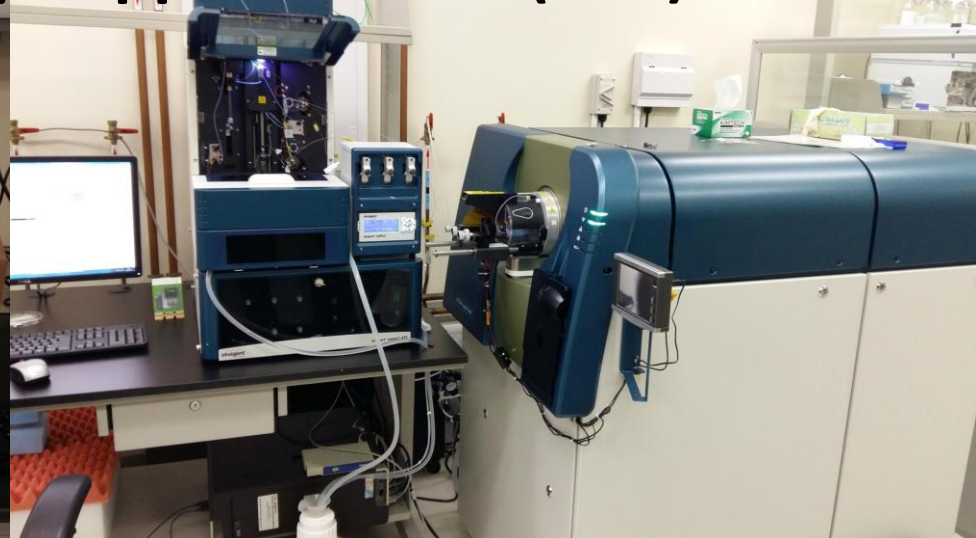
Strengthening I&T capabilities in 5 Cluster Ecosystems

Space Options

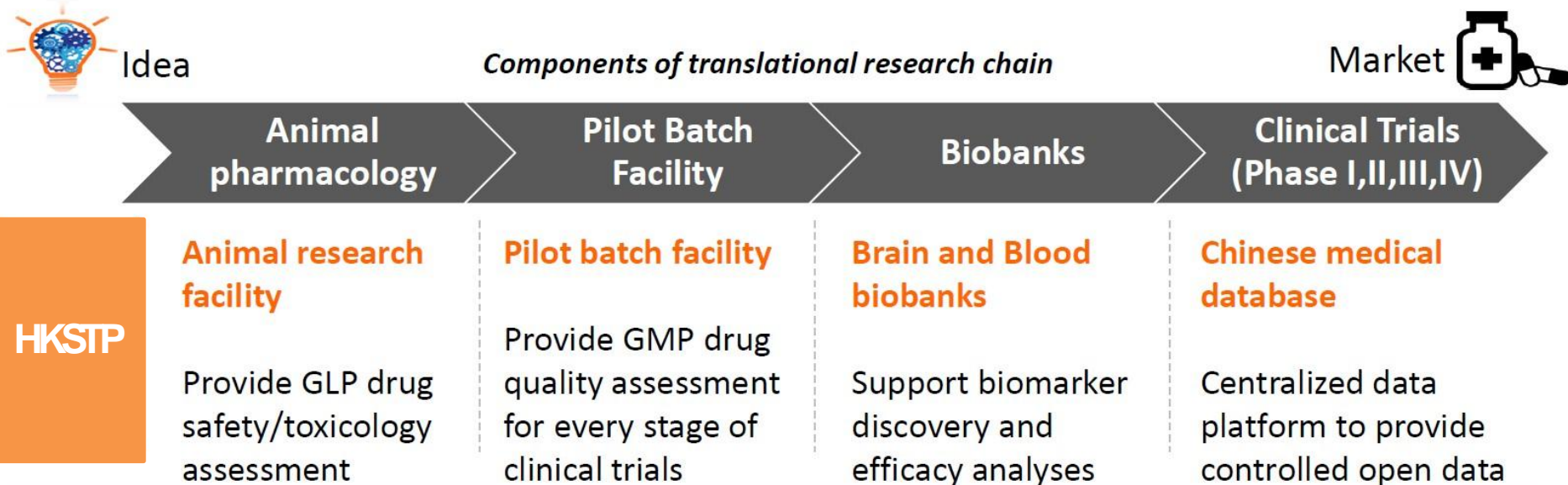
- Bare-shell laboratory
- Office
- SME laboratory
- SME office
- Healthcare device hub



General & Advanced Equipment Support Biomedical Technology Support Centre (BSC) [Find us on](#)



Translational research to Commercialization



Complete biomedical product commercialization chain in HK

Attract and retain high-profile anchor R&D companies

Strengthen international relationships/collaborations

Develop talent pool and ready for re-industrialization

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Hong Kong Science Park

An ecosystem > 100 biomedical companies



GRAIL

GRAIL's mission is to detect cancer early, when it can be cured



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A simple Blood draw helps to personalize your treatment

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Laboratory

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Hong Kong Science Park

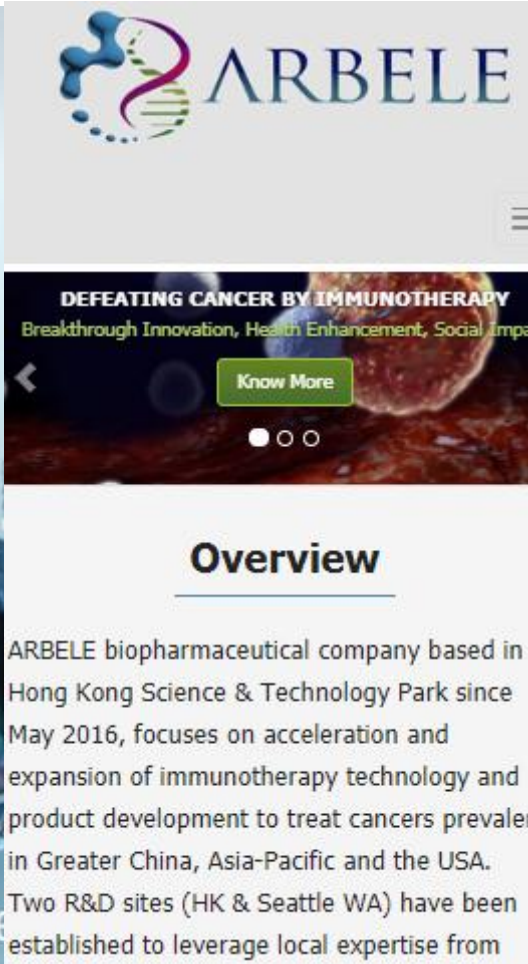
An ecosystem > 100 biomedical companies



CRMI
中國再生醫學

HONG KONG STOCK
EXCHANGE STOCK
CODE: 8158

Regenerate Re



ARBELE

DEFEATING CANCER BY IMMUNOTHERAPY
Breakthrough Innovation, Health Enhancement, Social Impact

Know More

Overview

ARBELE biopharmaceutical company based in Hong Kong Science & Technology Park since May 2016, focuses on acceleration and expansion of immunotherapy technology and product development to treat cancers prevalent in Greater China, Asia-Pacific and the USA. Two R&D sites (HK & Seattle WA) have been established to leverage local expertise from



OPER TECHNOLOGY
蓄新科技

Welcome to the New Era of Therapeutics

Focusing on Precision Medicine and Regenerative Medicine!



Living Tissues

We grow your

Cartilage is our focus

Chondral or osteochondral damages, which pathologically, will eventually result in osteoarthritis (OA). OA, which affects 50% of the population older than 60 years, is the focus of Living Tissues.

The cartilage is a complex

Although the cartilage looks simple, an articular surface is repaired like a "pothole". The cartilage is a complex structure with differences through the entire thickness. The repair is the OATS (Osteochondral Autologous Transplantation) taken from a donor site of the patient. The OATS is a piece of cartilage and the bone underneath. The OATS is implanted into the damaged area of the articular joint, which is larger than 3 cm square in size. The OATS procedure is a minimally-invasive donor site, which is usually a non-load bearing area. The area of the donor site is repaired.

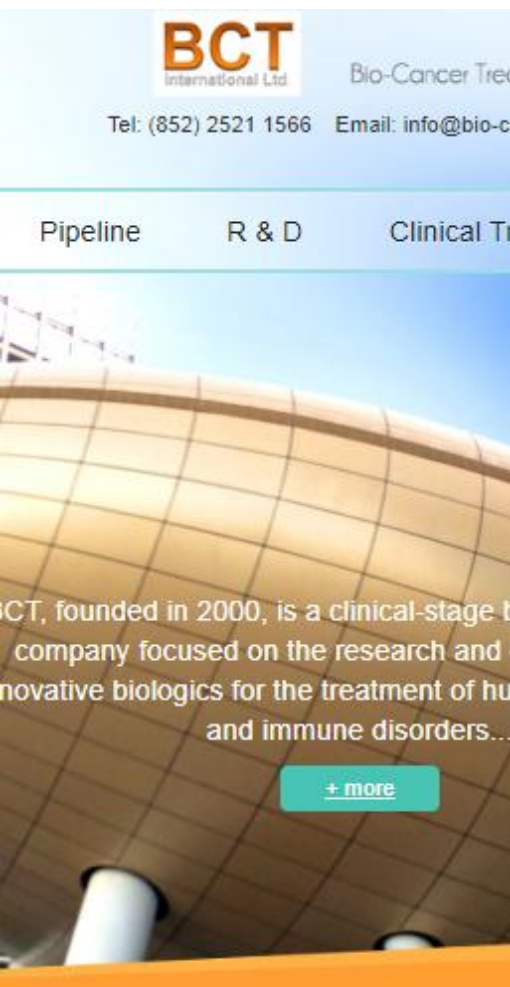
Our Approach

We at Living Tissues use the donor site like the plug used in OATS. The tissue is cultured in a bioreactor. The plug is implanted into the damaged area. Our approach does not require harvesting the patient's own cartilage. Therefore the area of the repair can be larger than the donor site.

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Hong Kong Science Park

An ecosystem > 100 biomedical companies



BCT
International Ltd

Bio-Cancer Treatment

Tel: (852) 2521 1566 Email: info@bio-cancer.com

Pipeline R & D Clinical Trials

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简体中文

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BCT, founded in 2000, is a clinical-stage biotechnology company focused on the research and development of innovative biologics for the treatment of human cancer and immune disorders.

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Lee's Pharm is China's pharmaceutical manufacturing leader, with several different manufacturing sites across more than 30 provinces and distributed throughout China (Rank: 1st Company (turnover) in innovative pharmaceuticals).

Sigma Tau G Pharm. Sigma Tau G and will result in a new product.



SinoMab
BioScience Limited

中國抗體製藥有限公司
深圳赛乐敏生物科技有限公司
海南赛乐敏生物科技有限公司

Company Background
Product Pipelines
Facilities
Management
Partnership
Recognitions
Financial Highlights
Monoclonal Technology
AFR Technology

SinoMab Bioscience Limited develops therapeutic antibodies based on its proprietary technology with initial development pursuing a two-stage approach:

- an in-licensing strategy
- an out-licensing strategy

SinoMab has a fine pipeline of development lead candidates, proprietary, cutting-edge development platform, manufacturing facilities by a team of an



Veridian Biotechnology

We are working for your health

[Learn more](#)

Veridian Biotech

Biotechnology is the use of living systems or organisms to develop or make products.

[Learn More](#)

Hong Kong Science Park

An ecosystem > 100 biomedical companies



FDA Cleared Wearable device allows you to comfortably check sleep health at home



belun

shed light on your sleep

Ophthalmic Tech

Plunging a needle into an eyeball sounds like a common way to administer drugs for treatment currently. However, an innovative technology HKSTP has invented a safer and more reliable which patients will hopefully be less resistant and more confident of recovery.



Intravitreal injection has ma

There are more than 250 million eye diseases. Many of them are diagnosed with Diabetes Retinopathy, retinal vein occlusion and The traditional therapy of intravitreal injection is effective, involves inserting a needle in the eye to deliver medicine to the infected area. This takes more than half an hour, and requires a multiple nurses. The whole course of treatment takes months to finish. The treatment could cause a wound or even cause retinal haemorrhage, intraocular pressure, eye infections and



Early Detection Technology

The iTBra™ consists of two wearable, comfortable intelligent breast patches which detect circadian temperature changes within breast tissue.

Hand of Hope Experience Program



Stroke rehabilitation

Rehab-Robotics is committed to develop the most innovative and has developed the "Hand of Hope" rehabilitation system. Combining this system with patients to regain hand mobility.

The goal of stroke rehabilitation is to help patients relearn the skills they lost. Researches shown that stroke patients actively involved in function

About OSA



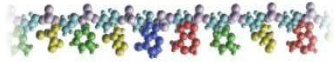
Hong Kong Science Park

An ecosystem with top research institutes



**Karolinska
Institutet**

Ming Wai Lau Centre
for Reparative Medicine
劉鳴煒復修醫學中心



GIBH
Stem cell research center
commercializing projects
on treating blood, liver,
CNS and eyes diseases

**Karolinska
Institutet** R&D on
biomedical
engineering, gene-
editing and RNA
technology



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News & Updates

The Institut Pasteur to Collaborate with HKU and HKSTP on Biomedical Innovation

21.06.2018

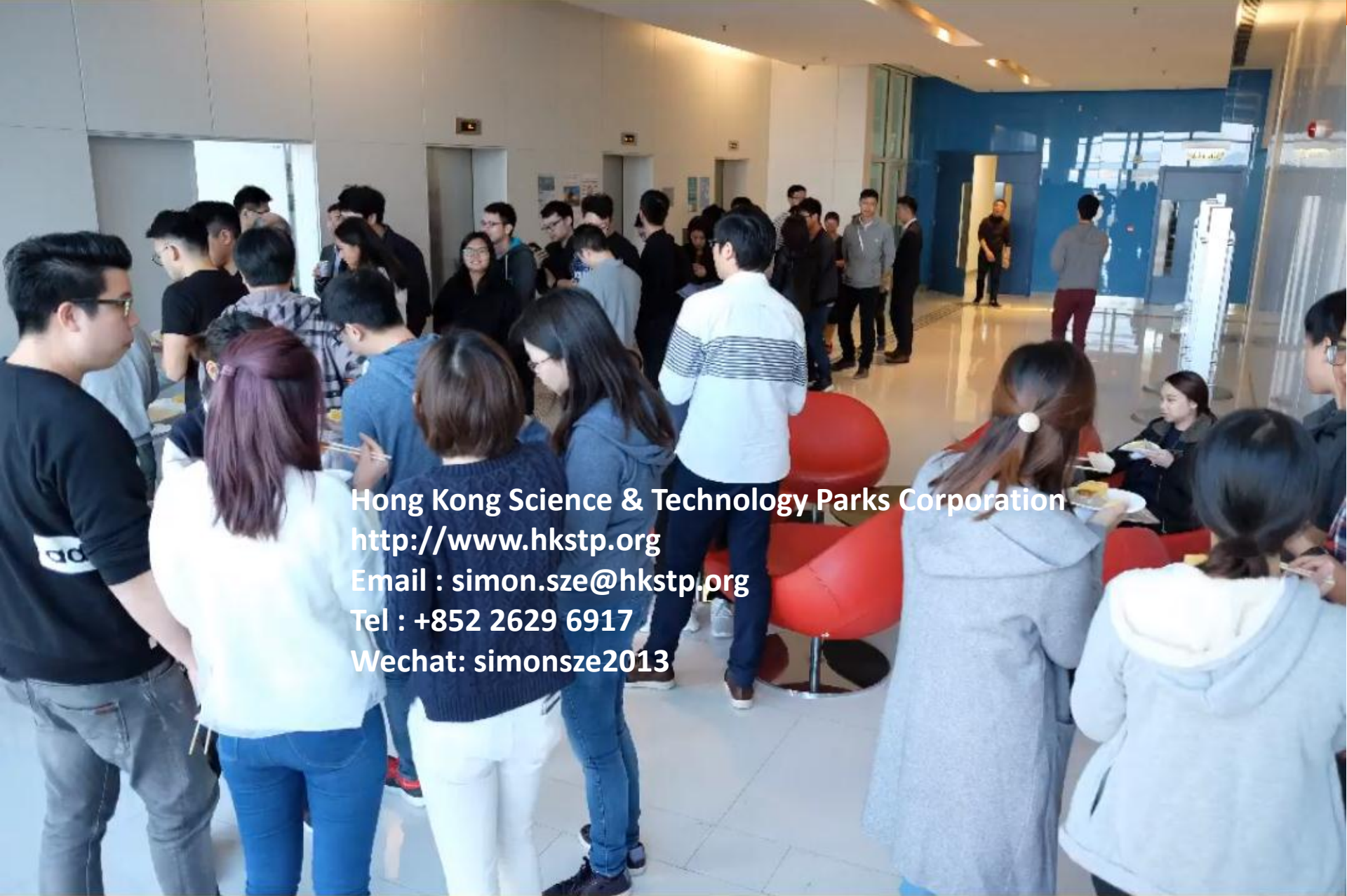
The Institut Pasteur, the University of Hong Kong (HKU) and the Hong Kong Science and Technology Parks Corporation (HKSTP) signed a Memorandum of Understanding (MoU) at the Institut Pasteur in Paris today to set up a joint biomedical research centre.



21 June 2018, Hong Kong

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