

# AFCR THINK-TANK FORUM AT BIOHK2022:

## *UNLOCKING THE POTENTIAL OF HONG KONG AS A BIOMEDICAL INNOVATION HUB*



Global Finance Center  
Technology hub  
Engine of economic growth

University of Hongkong

The Chinese University of Hongkong

The Hong Kong University of Science and Technology

Great universities

Supportive policies for innovation

Greater Bay area  
Guangdong & HK & Macau

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# I. Introduction

The closed-door Think-Tank Dialogue, *A Path Forward in Hong Kong for Cancer Eradication*, was organized by the **Asian Fund for Cancer Research Limited (AFCR)** on 15 December 2022 as part of the BIOHK2022 conference.

Dr. Sujuan Ba, Founder & CEO of AFCR, welcomed over a dozen leaders and experts in the academic research, clinical research, biotech industry, and investment communities from both Hong Kong and the US to the Think-Tank Dialogue. Please see the bios of all the panel members in the Appendix at the end of the report.

A tax-exempt legal charity registered with the Hong Kong Inland Revenue Department, AFCR (website: [www.AFCR.org](http://www.AFCR.org)) is committed to funding cancer research, especially those cancers prevalent in Asian populations, and promoting global collaborations for high impact to save the lives of cancer patients. Together with our partner organizations, the **Hong Kong Biotechnology Organization (HKBIO)**, (website: [www.HKBIO.org.hk](http://www.HKBIO.org.hk)), the **National Foundation for Cancer Research Foundation (NFCR)**, (website: [www.NFCR.org](http://www.NFCR.org)), and the **AIM-HI Accelerator Fund (AIM-HI)**, (website: [www.AIM-HIaccelerator.org](http://www.AIM-HIaccelerator.org)), the latter two both located in the United States, we have built a global network to bring together leaders in oncology to progress happens.

New treatments for cancer represent some of the most challenging scientific and business problems today, and we need a diversity of minds and a variety of life experiences to collaborate and overcome them. Knowledge learned from battling cancer can be and has been applied to treat other diseases. The rapid development of multiple safe and effective COVID-19 vaccines, for example, is thanks to years of investment in basic cancer research.

Dr. Ba opened the forum and introduced the topics that the discussions would focus on:

- Highlight the strengths and value propositions unique to Hong Kong to become a global oncology biotech hub;
- Identify current gaps and challenges in cancer research, patient care, and innovation;
- Describe and develop a strategy to create an ecosystem for Biopharma Innovation in Hong Kong;
- Propose an action plan to make Hong Kong a vibrant biotech hub for local and global cancer drug development.

Each participant brought valuable insights and perspective to the future biotech development of Hong Kong as a global hub. The goal was to brainstorm viable strategic road map and provide actionable recommendations to present to key stakeholder in Hong Kong, so as to elevate Hong Kong as one of the top global hubs for biotech innovation.

The forum reached an agreement that Hong Kong has great potential to become a world-level biotech innovation hub as a unique bridge to connect China and the outer world (especially the Western countries), plus its strong academic research community, plentiful investment, and goodwill to create and incubate new technologies.

However, to fulfill this vision, Hong Kong needs to improve inter-institution communications and international collaborations, overcome the weakness in translational research and entrepreneurship training, and produce incentives and multi-source funding to guarantee the continuous growth of early-stage biotech companies. In a word, an ecosystem is yet to be established that allows the healthy development of biotech innovations.



# II. Overview of the Current Status of Hong Kong Bio Innovation

## A. The Potential of Hong Kong as a Global Biomedical Innovation Hub

Ms. Fangning Zhang presented data that indicates where Hong Kong stands today in terms of building a biomedical innovation hub, and how to elevate Hong Kong to the next level. To look into the biomedical innovation of Hong Kong, she evaluated the ecosystem from the following elements.

### 1. Basic Research

Basic Research was where original ideas were generated, starting from identifying a new discovery/IP at universities. Data shows that the increasing capability of Hong Kong's basic research was fueled by the continuous input of funding and talent. We saw a consistently positive trend during a 5-year period since 2017 in the amount of public funding towards innovation from three major sources, STEM student enrollment in public universities, and the number of life science and biomedical publications affiliated to the institutions in Hong Kong (Figure 1).

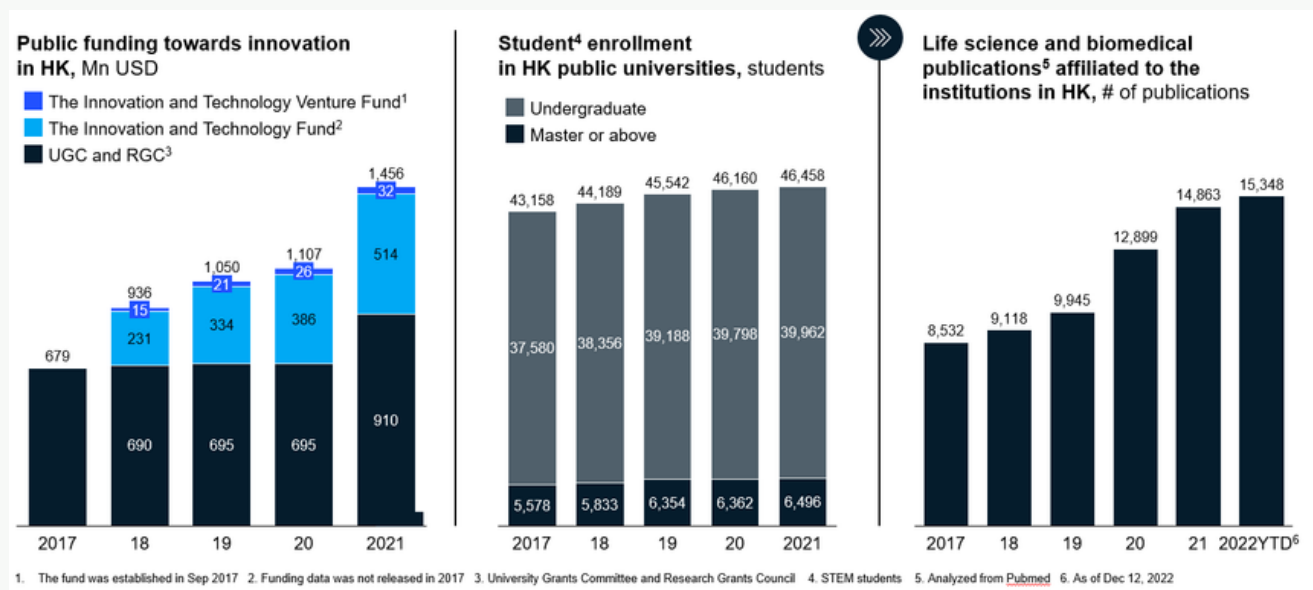
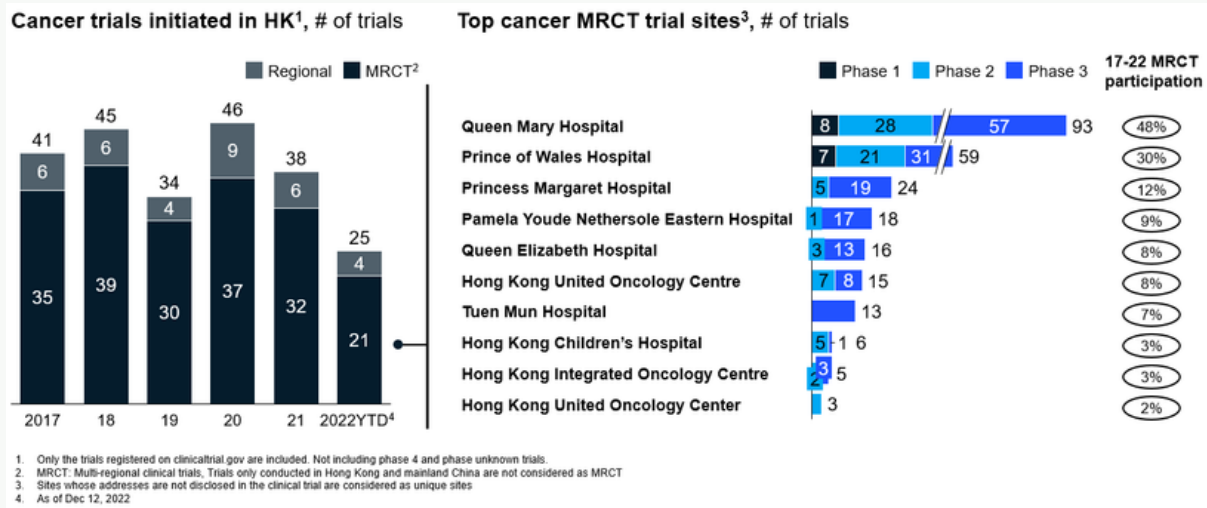


Figure 1: Hong Kong basic research capability is fueled by continuous input of funding and talents (Source: Public release, Pubmed)

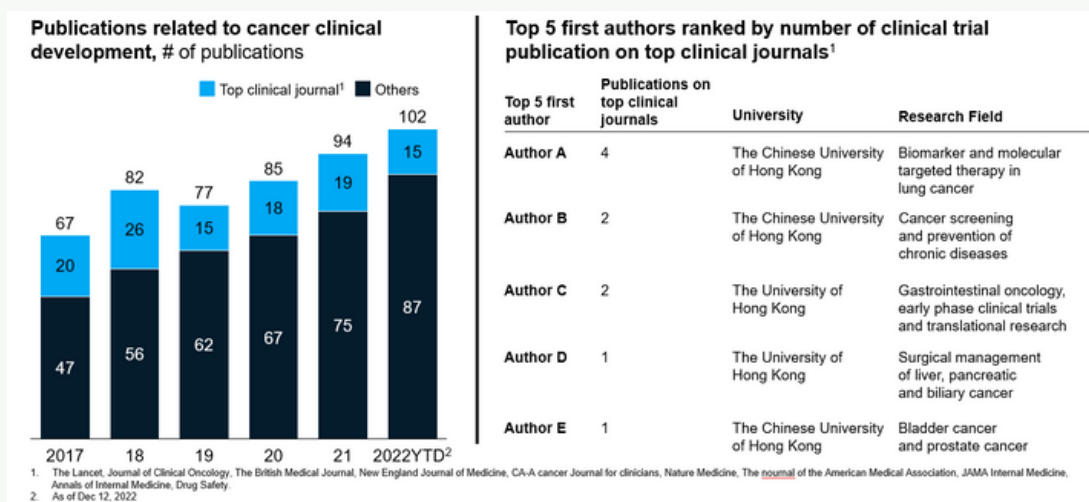
## 2. Clinical Development

The number of cancer clinical trials initiated in Hong Kong has been stabilized in a range between 30 and 40 per annum over the past 5 years with strong bias toward MRCT at top three hospitals. Over 80% of these trials are multi-regional clinical trials (MRCT), conducted in and beyond Hong Kong and mainland of China (the Mainland), which is a good sign that Hong Kong is still well recognized by the decision-makers when it comes to international research and development. Also, MRCT resources are heavily concentrated to the top three hospitals. There is a significant gap on Phase I studies which is the critical bridge between basic research and late-stage medicine development.



**Figure 2: Hong Kong clinical development for cancer is well connected to the international collaboration network (Source: Clinicaltrials.gov)**

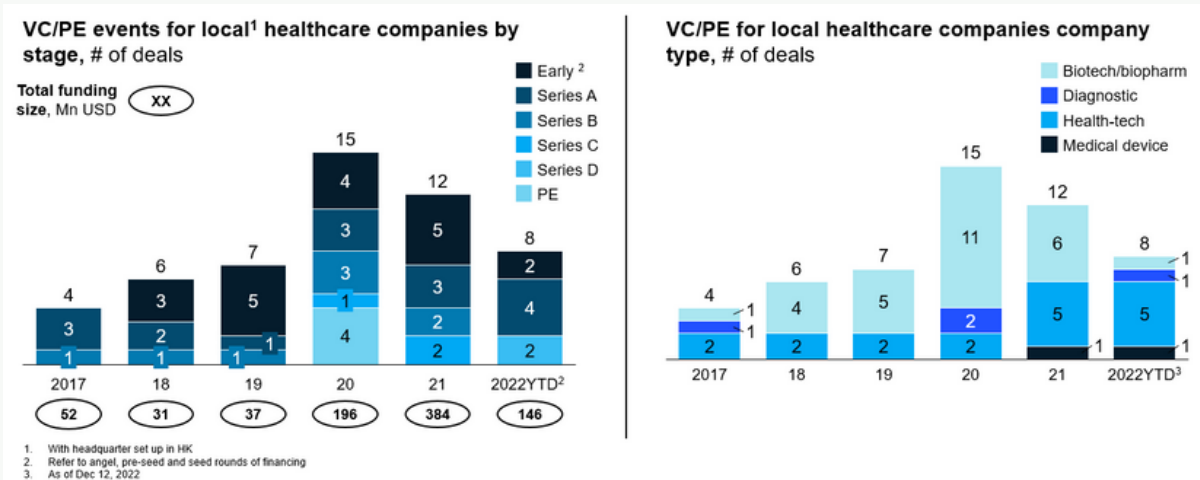
As for the results produced by the cancer clinical trials, the number of clinical publications continues to increase over the years but the presence in top journals has yet to be expanded. Top researchers could be identified by ranking first authors with publications on top clinical journals (Figure 3).



**Figure 3: The number of clinical publications continues to increase, but top journals presence has yet to be expanded. (Source: Pubmed, Press search)**

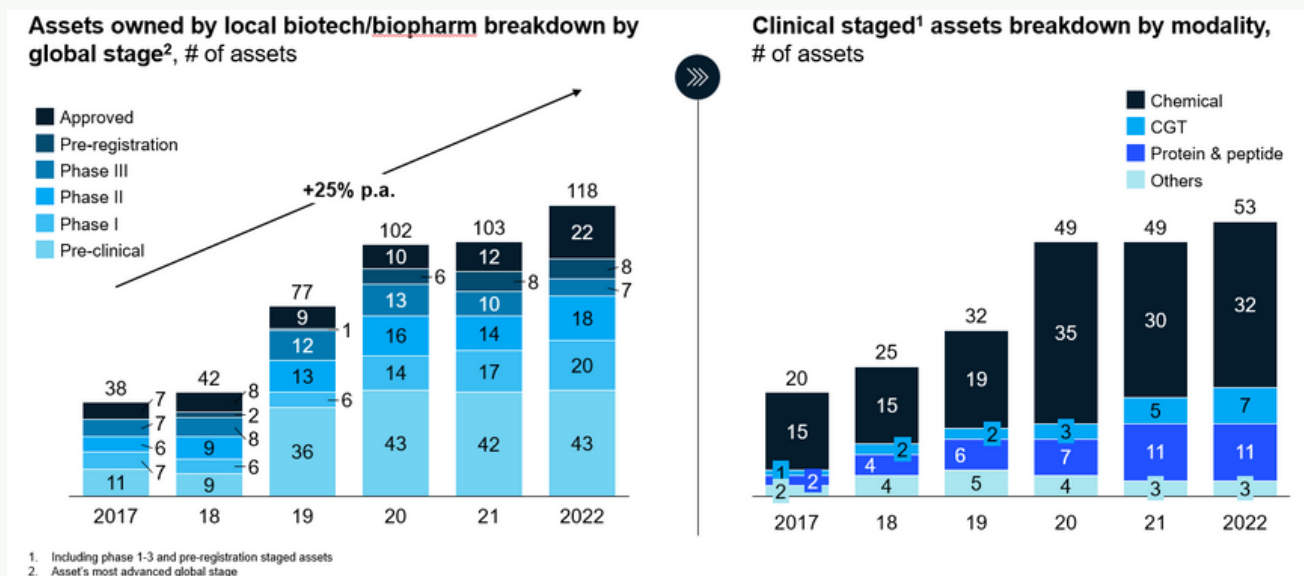
### 3. Biotech or Biopharma Innovation Industry

VC/PE activities toward local healthcare companies had been dropping since 2021, probably due to macroeconomic shift as the capital market downturn globally. While the overall industry appears to be resilient back, it's noteworthy that the overall investment activities were not as active as one would expect for an international finance center like Hong Kong, judging by deal volume and funding amount. We could go into in-depth analysis with comparable data for another time, but it clearly shows a significant gap when it comes to investments in early-stage biotech companies.



**Figure 4: VC/PE activities toward local healthcare companies are dropping since 2021**  
(Source: Crunchbase, Press search)

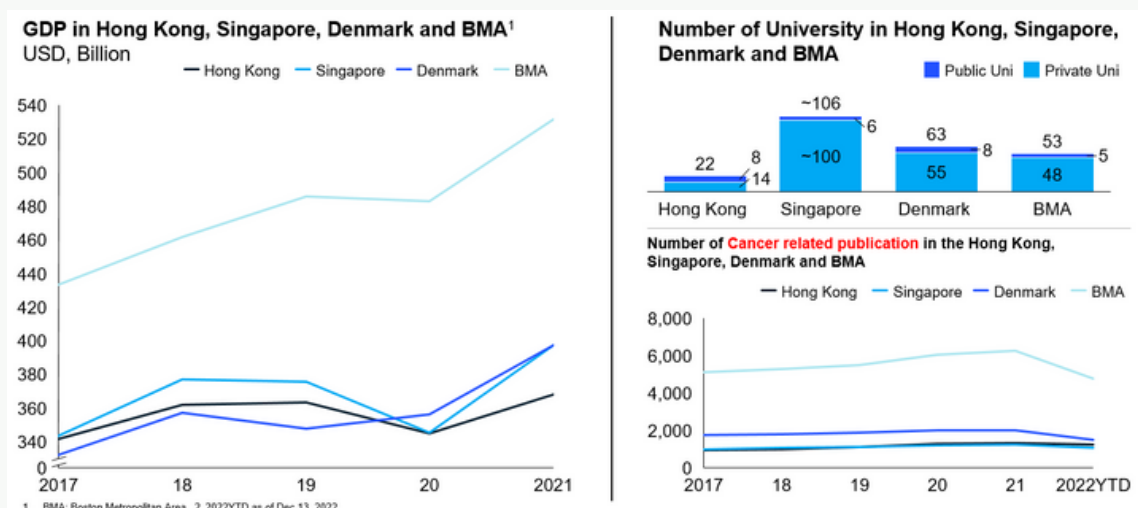
Encouragingly, innovative assets owned by local biotech or biopharma have grown rapidly over the past 5 years, despite the global pandemic. It's a clear sign that Hong Kong has a promising biotech industry and a great potential to become the next innovation hub, not only of Asia, but also on a global level.



**Figure 5: Innovative assets owned by local biotech or biopharma have grown rapidly over the past 5 years.** (Source: Pharmaproject)

## B. The aspiration of Hong Kong in the next 5-10 years

The Boston Metropolitan Area (Boston) is a leading biotech innovation hub and a benchmark for emerging regions such as Hong Kong, Singapore, and the North Europe. Rome wasn't built in a day, and the success of Boston was a result of endeavor over three to four decades, with lots of lesson to learn.



**Figure 6: Boston as a successful leading bio innovation hub** (Source: Pubmed, press release)

Factors that contributed to Boston's success includes: a mature healthcare-biopharma ecosystem and strong anchor institutions (50% of top 18 NIH-funded research hospitals), thriving innovative corporations (9 of top 10 major drug companies in the U.S.), plentiful support from incubators and VC (21% of all US biotech VC funding in 2012), and substantial government support (Massachusetts Life Sciences Initiative).

By comparison, Hong Kong has 5 among 8 public universities in Hong Kong that made into the list of top 100 institutions worldwide. As the center of the China Greater Bay Area, Hong Kong was Asia's largest biotech fundraising hub. There are nurturing incubators such as HKSTP and InnoHK. Over the past four years, the Hong Kong government has invested over \$150 billion in IT development. Most importantly, Hong Kong serves as China's doorway to the world, a crucial bridge that connects the mainland with Western countries.

However, for Hong Kong to become the next Boston, or at least an Asian adaption of Boston, three components really needed to combine together: scientific innovation, people & environment, and access to sufficient capital (Figure 7). Ms. Zhang noted that we need to explore how to leverage the advantages Hong Kong currently has, overcome potential challenges, make the most of the support it can get from the Mainland (especially the Greater Bay Area), and, most importantly, identify the key stakeholders to mobilize and make the changes happen at a speed to establish a comprehensive biotech ecosystem.



<b>While there is no “blueprint” to growth, strong innovation regions typically contain...</b>	
<b>Ideas</b>	<p><b>Network of research institutions</b> – typically anchored by one or more nationally ranked universities – that are leaders in regionally-relevant fields (e.g., AI, aerospace)</p> <p><b>Strong university-business linkages</b> to ensure effective allocation of basic and applied research spend, and easy to navigate tech transfer facilities to guide faculty, students, and companies maturing through the commercialization funnel</p> <p><b>Large anchor companies</b> actively pursuing innovation and regularly tapping into local start-ups for new capabilities and paid pilots</p>
<b>People and environment</b>	<p>Strategic prioritization among anchor companies, VC/PE, research institutions and local governments to build ‘clusters’ around 2-3 sector and/or technology-specific investment priorities (e.g., becoming the IoT hub of advanced manufacturing)</p> <p><b>Critical mass of start-ups and entrepreneurs</b> that are well connected to the ecosystem (often through physical hubs that facilitate organic collision)</p> <p><b>Coordinated regional workforce strategy</b> that makes sure universities and companies research both attracting, retaining and developing talent to close the skills gap and prepares the city to compete for the “jobs of the future”</p> <p>A <b>distinctive brand/message</b> that attracts businesses, talent and investors (including attention to intangibles like perceptions of livability and regulatory volatility)</p>
<b>Capital</b>	<p>Critical mass of risk capital across each stage of maturity, from seed to exit</p> <p>Effectively deployed, <b>direct and indirect government incentives</b> that catalyze – not crowd out – private investment in high-priority clusters</p>

**Figure 7: Three components essential to a strong innovation region**

Dr. Zhen Su shared an example of how Switzerland transformed its biotech environment with an additional jump-start from the government on simplifying the drug registration process. By adopting the same drug registration mechanism as countries such as US FDA, Canada and Australia, Switzerland managed to get drugs approved ahead of other European countries. Dr. Su commented that although Hong Kong might not be the perfect combination of all elements discussed above, it’s possible to find some critical elements to create an asymmetric competitive advantage and catalyst. It takes a variety of talents and expertise, from different sectors of the biotech industry and across the world, to identify these critical elements and turn the potential into a reality.

### III. Gap in the Cancer Research and Innovation in Hong Kong

The panel first discussed academic research in Hong Kong. Dr. KW Lo shared that there were a total of 5 State Key Laboratories and 4 Health@ InnoHK centers in Hong Kong that conducted cancer research. However, most basic cancer research was conducted at two universities: The University of Hong Kong, and The Chinese University of Hong Kong (Figure 8). One key challenge, therefore, resulted from the fact that researchers had packed schedules with teaching or clinical duties and didn’t have much time to focus on the research and innovation side.

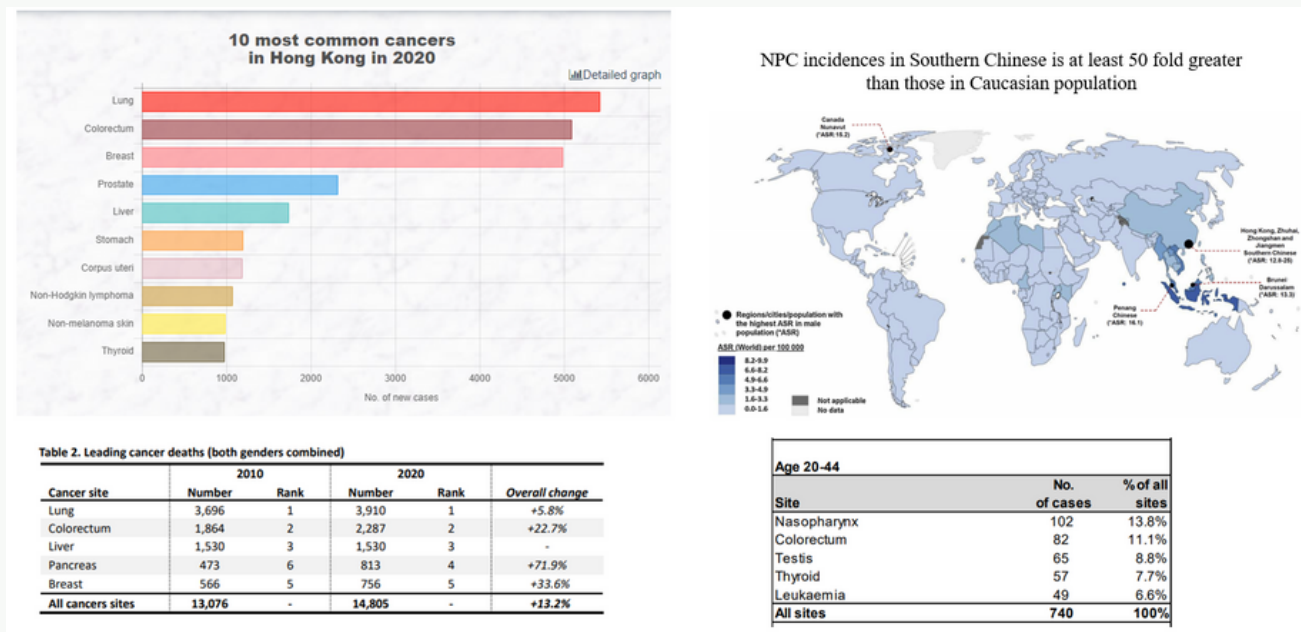
- The University of Hong Kong \*
- The Chinese University of Hong Kong \*
- The Hong Kong University of Science and Technology
- The Hong Kong Polytechnic University
- Hong Kong Baptist University
- City University of Hong Kong

\* with Faculty of Medicine



**Figure 8: University Grant Council (UGC)-funded universities in Hong Kong**

Among the cancer types deemed as “Asian prevalent”, some are universally important on a global level, and others are unique to Asian populations. (Figure 9), were the major research focuses and important health problems in Hong Kong. Nevertheless, the funding opportunities for basic and translational research of cancer are limited when compared with Singapore and the Mainland.



**Figure 9: Common Cancers in Hong Kong**

Meanwhile, current university curricula tended to be single-tracked, and students could be narrow-minded. This might be partly due to societal pressures such as job security and housing issues. We would do well to provide students with both national and international exposure in terms of career guidance to inspire confidence and diverse talents.

The panel then discussed why translational research, the main driver for biotech innovations, was not as strong as the academic research in Hong Kong. One observation was that Hong Kong researchers were not very active in attending international academic conferences or symposiums. There was even isolation among Hong Kong institutions.

However, science has no border, and innovation is becoming more and more a product of team science in modern days. Lacking international communication and collaboration would drag down Hong Kong’s pace of innovation.

Another key point was raised that peer-reviewed publications remained one of the major promotion criteria for professors in the local universities. Unlike in Japan, where scientists would be well rewarded once their new drugs got approved by the local authority to go to the market, the motivation for Hong Kong scientists to commercialize their IP is still not very high.

Also, angel investment in long-term biotech startup projects was not yet enough. While the government expenditure on research is high, grant funding tends to be awarded to well-known professors affiliated with top institutions. Therefore, young investors early in their careers have difficulty growing to be leaders of the next generation without appropriate funding or opportunities.

Dr. Lei Zheng shared data that showed that Phase I clinical trials per capita were less in Hong Kong than in other Asian regions, let alone the US (Figure 10). One possible reason might be associated with Hong Kong’s population and market size, which prevents it from being a hot spot for big pharma companies. A multinational pharmaceutical usually conducted a lot of observational studies and Phase III clinical trials in Hong Kong, but not Phase I or Phase II clinical trials there.

Country	Number of Open Phase 1 Studies	Population	Ratio of Population / Phase I Study	Number of open phase 1 trials now
South Korea	1102	51.5 million	48,000	954
Taiwan	630	23.4 million	37,000	562
Hong Kong	213	7.4 million	35,000	175
Singapore	235	5.6 million	24,000	235
China	1,833	1.4 Billion	764,000	3020
USA	21,285*	321 Million	15,000	9567

**Figure 10: Number of Open Phase 1 Studies in certain Asian countries and the US**

After the COVID pandemic, publications from cancer trials originated in Hong Kong remained minimum when compared with the Mainland (Figure 11). This was something we must change for Hong Kong to become a global innovation hub.

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Hopefully, this provides a gateway opportunity for Hong Kong to attract entrepreneurs to start their new companies there, instead of neighboring markets such as Japan or Singapore. It takes a carefully-devised strategic plan to make this happen, which covers not only government funding and preferential policies, but also entrepreneurship training and workshops, private investments, and other supporting facilities.

Country/Region	Number of Trials with anticancer Biological	ASCO oral abstract presentation	Clinical Trial Publication in 2022
South Korea		2	
Taiwan		1	
Hong Kong	25	0	1
Singapore	35	0	6
Guangzhou		8	

**Figure 11: Publications from cancer trials**

As a result, we saw primarily “low-hanging fruit” innovations, me-too/me-better technologies, and gadgets that had low industry impact and target the local market only. Disruptive innovations would require global visions and greater scientific output.

## IV. Gap in the Patient Care

Dr. Feng-Ming (Spring) Kong then led the discussion of the gap in patient care in Hong Kong, and compared Hong Kong with the rest of the world, as a physician who had practiced in the United States, the Mainland, and Hong Kong. Based on the data from WHO, the overall cancer 5-year survival rate in the whole world was about 55% in 2013. In the US, the metric had been stable at around 67%-70%. The Mainland improved from 30% to 40%, but Hong Kong stayed around 50%, below the world average, and remarkably below the level of its economic stands.

Patient outcome was determined by three major components: the patient/the society, the healthcare/hospital system, and the research physicians/treatment technology. Hong Kong patients were more than understanding and cooperative. They were able to endure long waiting period to see a doctor without any complaint, which could easily go up to 5 or 6 hours per visit. Hong Kong residents have access to free public care system staffed with talented physicians.

However, one big gap in the public health care system was the limited availability of advanced radiation technology. The waiting time is often months for a CAT scan and years for MRI in the public healthcare system. For radiotherapy, Hong Kong patients had to wait for several months to get treated by stereotactic body radiation therapy (SBRT), a technology widely adopted in the US some 15-20 years ago. To get timely care, patients in Hong Kong had to pay a high premium from their own pocket, which was often quite expensive at a minimum of HK\$100,000. Technologies like Imaging Guided Radiation Oncology (IGRT) and 4DRT which have been readily available for all patients receiving conventional radiotherapy in the United States for over 10 years, cannot be offered to most patients treated in public hospitals. All in all, the public healthcare system in Hong Kong needs to integrate the advanced technology for both cancer diagnosis and treatment.

Last but not the least, even though Hong Kong physicians are well trained, there is not enough infrastructure to help them advance their research, on top of the fact that there were a very limited number of academic oncologists. Indeed, as previously stated, there were very limited investigator-initiated clinical trials, and hence very limited publications from such initiative studies. Due to the limited number of the locally trained physicians, internationally trained physicians are needed.

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## V. Gap in the Biotech and Investment

As a global financial center and one major capital market, Hong Kong had been working hard to try to replicate the NASDAQ model to boost biotech and life sciences industry locally. The Chapter 18 policy provided a public equity financing venue for biotech companies, some innovative medical devices, and diagnostics. However, Dr. Su commented, for Hong Kong to become a global innovation hub, it was important to retain some of that investment in Hong Kong rather than being a simple gateway for accessing the capital market at HKSE. In other words, Hong Kong Stock Exchange had to create some spillover effect or “halo effect” as the NASDAQ did.

One issue was the lacking of investors with the expertise to invest in biotech, especially early-stage companies. Historically, a lot of Asian investors were generalists and not equipped with the expertise to invest in early-stage, high-risk biotech and life science companies. Needless to say, a steady flow of capital was crucial to keeping the momentum and the sustainability of a growing biotech industry. The Hong Kong market was evolving and correcting, with many funds parachuting or hiring specialists to complete analytical work in-house.

Obviously, a healthy biotech investment ecosystem would have capital flow from different types of investors across a diverse range of company types and at different stages of development. It would be essential to foster an environment with different investment platforms and educational seminars to increase general awareness of biotech investment and attract "general investors" to participate in the biotech sector.

On the other hand, the asset quality and market valuation for private companies out of Asia remains an issue. Companies out of the US and Europe were more attractive from an investor’s perspective. Even if the current geopolitical environment was not very conducive, the desire for Asian funding as well as development partners in Asia was still high among western companies. Hong Kong capital should not be limited to physical border, especially with its limited market capacity.

Dr. Ding shared an example of a med-tech CEO who abandoned his attempt to open a lab in Hong Kong. After looking into the space, the CEO concluded it was too expensive with high rent and other operating costs. High operation costs increasingly became a bottleneck for Hong Kong to provide a nurturing ecosystem, a large body of talent, and a supporting infrastructure; for the sake of continuous growth, Hong Kong needs to take the advantage of its close ties with the Greater Bay Area to the maximum. Instead of building an ecosystem within itself, Hong Kong will serve as a beacon of innovation that lights the whole area. (Figure 12)



**Figure 12: Hong Kong as a global biomed innovation hub**

The biggest issue was the transition from academia to commercialization. Hong Kong may have great scientists and a reputable academic community, but it was difficult to find entrepreneurs or business leaders who understood science and medicine, and who knew how to translate science into drugs on the market. Also, Hong Kong scientists were not accustomed to making the decision whether to remain in academia or become the scientific founder of a company commercializing their research discoveries.

To solve this issue, the HKSTP provided holistic services to the company in the park, not only the physical office facility but intangible assets, soft skills or programs to help the entrepreneurs grow their technologies. For example, Arbele Bio, an AFCR-funded oncology company after winning the 2020 BRACE Award Venture Competition organized by AFCR. It was the government funding from HKSTP that enabled Arbele to support its current team of 35 people. HKSTP was also open to overseas companies to enjoy the services. A precision robotics spin-off from the Imperial College London had developed an advanced surgical robot in the park and established a R&D team of close to 40 people there. However, the Hong Kong government funding utilized a reimbursement model with strict limitations. In order to get reimbursed or get extra funding, companies had to spend certain money under tight regulations.

However, while HKSTP and university KTOs provided some limited guidance in early entrepreneurship, HKSTP could not support an explosion of early-stage startups. It would be great to see resources being put into focused incubators that have different strengths and expertise, and universities working together to foster more advanced translational output. Ultimately, we hope to see a growing number of innovations transition into the clinical phase, with additional support from the government and medical communities to increase local clinical trial output and interaction with international regulatory authorities, which would help put Hong Kong on the international map for advancement in medicine.

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## VI. Recommendations and Summary

### **A. Summary of the challenges & Hong Kong's potential as the next global biotech innovation hub**

In summary, the panel members identified several major challenges and bottlenecks (not limited to the below areas) for Hong Kong to become the next global biotech innovation hub.



- Although Hong Kong has some major universities with world reputations, the scientists and the technology transfer offices of various universities in Hong Kong are not very collaborative within Hong Kong academic system, creating significant unnecessary inefficiencies of intellectual and financial resources.
- Although the Hong Kong government's funding agencies provide a tremendous amount of incentive and funding to academic programs, very few Hong Kong scientists/physicians participate in global conferences. Hong Kong scientists are not very visible at academic conferences and lack collaborations.
- The Hong Kong public healthcare system is not providing timely cancer care to the population in general.
- Despite some investments in the cancer research and biotech areas, it has not formed a viable and sustainable critical mass to promote innovation & entrepreneurship.
- Hong Kong is seriously lacking behind other major world financial centers on early-stage funding which is willing to take risks and help incubate and accelerate the commercialization of innovations.
- The current Science and Technology Park has not become the core driving force for the commercialization of the innovation – it is mainly a land/facility play.
- Hong Kong is lacking a viable training platform to conduct innovative investigator-initiated trials and a system to help train the new generation of labor forces to engage in the entrepreneurial translation of innovations.

Despite all the challenges mentioned above, all panelists believe that Hong Kong has the potential to become the next global biotech innovation hub, especially as the gateway of communication and resource exchange between China and the rest of the world. Hong Kong's unique history and resources give it global advantages:

- Hong Kong has the advantage of being the Connector between the Mainland and overseas, and the geographic center of Asia, with four hours of flights to all the major capitals of Asian countries.
- Hong Kong has a bilingual environment of Chinese and English.
- Hong Kong's field of life science and technology is organized in a socially responsible manner that is consistent with the national development strategy.
- Hong Kong is internationally recognized as having a legal environment recognized.
- Hong Kong's two major medical hospitals have established clinical trial institutions, trial results recognized by both the Mainland and the US, as well as the presence of life science companies.
- Hong Kong's degree of internationalization is an inherent advantage for investment in this sector.

- Hong Kong Stock Exchange under the Chapter 18A rule permits the listing of pre-revenue biotech companies heralding a new era for the biotech capital market in Hong Kong capital.
- Hong Kong is a unique bridge between China and the world.

## **B. Recommendations to stakeholders in Hong Kong**

It is recognized that Hong Kong's Innovation and Technology Bureau was established only about seven years ago. Recent policies and incentives offered by Hong Kong Government have led to a boom in founding startups. However, the lack of specific resources and guidance has left a lot of biotech startups stagnant and unable to get to the next step. Translational research (GLP animal facilities, large animal's studies), clinical research (clinical trials), regulatory guidance (international as well as China NMPA), and pricing strategies (subsidies and reimbursements) are among the largest obstacles to high-impact medical innovations in Hong Kong.

There is a tremendous amount of goodwill, and we would see a lot of progress with the joint efforts of the research community, entrepreneurs, investors, and the Hong Kong government, to make Hong Kong a global hub for innovation. All the panel members expressed enthusiasm to contribute to Hong Kong's biotech development. And the following key recommendations were outlined at the Forum as the initial important consideration:

### **1. In-Depth Evaluation and Policy-making**

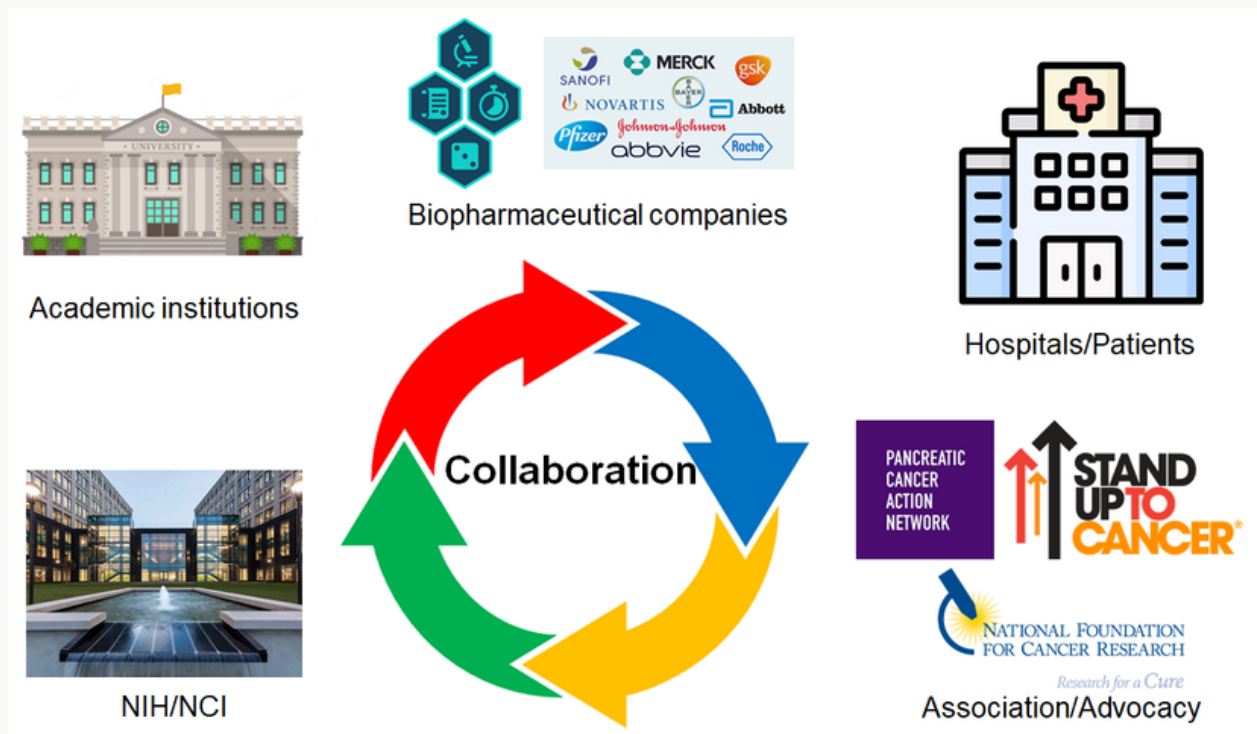
- A deeper dive assessment of Hong Kong's strengths and competitive advantages as well as improvement opportunities benchmarked against global leading hubs should be conducted in order to formulate a clearer strategy to realize the exploration.
- Consider establishing life science and technology as a strategic priority and develop a strategic development plan with the support of government policies which will open up many high-level job opportunities.

### **2. Basic Research and International Collaborations**

- Need more investment to fund basic science research, which would ultimately fuel and produce more competitive innovations from Hong Kong academic communities.
- Enhance global collaboration for the life science industry to impact progress by attracting worldwide capital, talents, and scientific breakthroughs to Hong Kong.
- Build a system to bring academic institutions together, develop a policy for intellectual property protection and licensing, and increase the number of clinical studies.

### 3. Translational Research and Entrepreneurial Ecosystem

- Establish a centralized technology commercialization platform that coordinates and facilitates the technology licensing and company formation with all major universities and medical centers.
- Create a central innovation evaluation platform to assist family offices and smaller types of capital that are willing to tap into the healthcare space but don't know how without the capacity or expertise to conduct their own due diligence.
- Leverage private-public partnerships to create a systematic mentoring and coaching program to train drug development professionals and entrepreneurs, which will support the development of innovative biotech companies.
- Establish the funding ecosystem of public-private funding partnerships to incubate and accelerate early-stage biotech companies to develop the next generations of innovative therapies and technologies that could save cancer patients in Hong Kong and worldwide.



**Figure 13: A biomedical innovation ecosystem of collaboration**

All in all, progress in science and technology requires a collaborative and cooperative system to turn efforts into results. Dr. Ba concluded the discussions by restating our vision to promote breakthroughs and translation of innovations in Hong Kong and in Asia to benefit cancer patients worldwide. She also thanked all the panel members who participated in this forum. Their bios are listed in the appendix.

# About the Asian Fund for Cancer Research

The Asian Fund for Cancer Research Limited (AFCR) is a tax-exempt legal charity registered with the Hong Kong Inland Revenue Department. The AFCR is committed to funding cancer research, especially those cancers prevalent in Asian populations, and promoting global collaborations for high impact to save the lives of cancer patients.

In addition, AFCR provides the public with a wide variety of in-depth, user-friendly cancer prevention information and healthy lifestyle suggestions. We help the community understand the latest scientific achievements and their potential significance in improving cancer prevention, diagnosis, and treatment. Armed with this knowledge, people can better protect themselves against cancer.

AFCR and our partner organizations has joined efforts to promote and facilitate international collaborations in cancer research. Our goal is to further cancer prevention and early detection, support the discovery-oriented and investigative research on cancers in Asian populations, and accelerate cancer treatment breakthroughs, saving cancer patients' lives.

## Ways to Support AFCR:

- **Donor Advised Fund:** If you own a Donor Advised fund, consider choosing AFCR as your beneficiary. It's one of the most popular ways to give a meaningful gift to charity while maximizing tax benefits.
- **Capacity-Building Sponsorship:** Such sponsorships will energize efforts to identify, highlight and develop early-stage technologies and start-ups throughout Asia that are seeking novel ways to battle cancer.
- **Gifts in Honor:** When our loved ones, family, or friends are battling cancer, or have just won their fight against it, we all want to make an impact.
- **Gifts in Memory:** A gift in memory is a truly meaningful way to commemorate a loved one, family or friend who has passed away from cancer.
- **Monthly Giving:** Your monthly automatic donation will PERPETUATE THE HOPE. When AFCR can depend upon your regular contributions, we can make a difference.
- **Legacy Gift:** Support cancer research without writing a check by making a gift in your will. A simple provision or amendment prepared by your attorney at the time you make or update your will or trust is all that is necessary.



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# APPENDIX

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*Panel Members' Biographies (listed alphabetically)*



## **Sujuan Ba, Ph.D.**

*Founder & CEO, Asian Fund for Cancer Research Limited (Hong Kong)*

*President & CEO, National Foundation for Cancer Research (USA) and Co-Founder & CEO, AIM-HI Accelerator Fund (USA)*

### **Organizer and Co-Moderator**

#### ***Topic: Non-Profit Academic Funding and Impact Investment***



Besides her roles at NFCR, AFCR, and AIM-HI Accelerator Fund, Dr. Ba is also a co-founder of the Global Coalition for Adaptive Research (GCAR), a non-profit organization pioneering groundbreaking adaptive clinical trial platforms to deliver innovative therapies to patients faster. She is a scientific advisor and a board member for more than half a dozen oncology startups. She is the former President of the Chinese Biopharmaceutical Association (2010-2011).

Dr. Ba has led the establishment of NFCR's annual Szent-Györgyi Prize for Progress in Cancer Research, an international prize recognizing outstanding scientific achievement in the war against cancer. She has served continuously as co-chair of the Prize Selection Committee since 2006. The prize has now grown into one of the premier cancer research awards in the world.

Dr. Ba has also led the establishment of AIM-HI Women's Venture Competition in 2020, a first-of-its-kind program that provides investment, coaching, and networking opportunities to women-led oncology startups. More than 200 women-led oncology startups have gone through the rigorous review and judging process of the Women's Venture Competition platform.

Dr. Ba was awarded one of the "20 Most Inspiring Women Leaders 2022" by The Women Leaders Magazine. Dr. Ba received *NBC4 WORKING 4 THE COMMUNITY* Award in 2019, recognizing her outstanding achievements as a scientist, leader, and role model in the STEM field. Dr. Ba also received the inaugural *Outstanding Achievement Award* from Society for Neuro-Oncology of the Chinese Medical Doctor Association for our outstanding contribution to international cooperation in 2017. She was named one of the "*Top 300 Women Leaders in Global Health*" in 2015 by the Graduate Institute of International and Development Studies' Global Health Programme. She was also awarded the *Public Service Award* in 2014 by the Chinese Biopharmaceutical Association–USA for her long-term devotion and distinguished service to the global biopharmaceutical community. She was selected to receive the *CRS WOMEN IN SCIENCES Award* in 2011.

## **Zhen Su, M.D., MBA**

*CEO & Director, Marengo Therapeutics*

### **Co-Moderator**

*Topic: Drug Development and leadership at MNC and Biotech*



As CEO of Marengo Therapeutics and a director of the company's board, Zhen Su brings more than two decades of experience as a physician-scientist and business executive, with expertise in building and leading both R&D and commercial organizations.

Before joining Marengo, Zhen served as Senior Vice President and Global Head of Oncology for Merck KGaA. He led the franchise's turnaround to achieve double-digit organic growth and an annual revenue above €1B. In this role, he also successfully expanded the oncology portfolio, including key alliance partnerships with Pfizer (\$2.8B), GSK (\$4.2B), and Debiopharm (\$1.1B). In his earlier role as Chief Medical Officer of EMD Serono and head of its Oncology Medical division, he played an instrumental role in 8 major regulatory approvals across different indications for Bavencio®, Tepmetko®, Erbitux®, and Mavenclad®. He also held leadership roles with increasing responsibilities at Sanofi Oncology and GSK. Before his industry career, Zhen served on the faculty of Duke University, where he led early clinical studies focusing on mRNA-based and cell-based immunotherapy, and then at the University of Florida, where he was the Director of the Cell and Gene Therapy program. He is the author of more than 60 immuno-oncology and targeted oncology publications.

Zhen earned his MD from the Technical University of Dresden, completed his postdoctoral training in tumor immunology at Duke University, and received an MBA from the University of Toronto.

## **Fangning Zhang, MBA**

*Partner, McKinsey Shanghai*

### **Co-Moderator**

*Topic: Management Consulting on Global Biotech Development*



Fangning is Partner of Greater China Life Sciences practice with 15+ years with McKinsey. She is a leader of the Pharmaceuticals & Medical Products Practice and has served pharmaceutical and medtech companies on topics related to business strategy, R&D, medical affairs, organization, and transformation.

Over the past 15 years, Fangning has served leading Pharma, biotech and Medtech companies across a broad range of topics including business strategy, R&D, BD, organization, and digital transformation etc. Fangning also leads our service line to China-originated Biotechs.

Fangning is a regular speaker at leading China healthcare conferences, e.g., Biocentury China Healthcare Summit (2018, 2020), China Trials (2015-19), China Healthcare Investment Conference (2016, 2018), publishes articles focusing on China healthcare innovation and spearheaded efforts to establish China Drug Innovation Index (CDII) since 2015. Most recently she's co-authored two McKinsey white papers titled "The dawn of China biopharma innovation" (Oct 2021) and "Vision 2028: How China could impact the global biopharma industry" (Aug 2022).

Prior to McKinsey, Fangning has worked for 6 years at Pfizer Global R&D center (Groton, CT), conducting drug discovery research as medicinal chemist in Anti-infectives, Immunology and Oncology.

Fangning received her MBA from Kellogg School of Management at Northwestern University. She has been a board member of BayHelix since 2020.



## Ding Ding, Ph.D.

*Founder & Chairwoman, Augere Group*

*Topic: Venture Investment and Private Banking in Biotech in Hong Kong, China, the US and Europe*



Ding Ding, Ph.D. is the founder and chairwoman of Augere Group, which focuses on providing corporate finance advisory and investment services for healthcare companies globally. Dr. Ding is based in New York and travels to Asia on the regular basis. Before starting Augere Group, Dr. Ding spent 21 years in healthcare investment banking and equity research in New York, Hong Kong and China with various leading global banks. She also served as the CFO of a leading pre-IPO stage biotech company in the US.

For her banking career, Dr. Ding was most recently the head of APAC Healthcare Investment Banking and Capital Markets at Credit Suisse, and the head of China healthcare investment banking at Barclays and Nomura respectively prior to joining Credit Suisse. Prior to her banking career, Dr. Ding spent 9 years as an equity research analyst, covering US large cap pharma at Lehman Brothers in the #1 Institutional Investor ranked research team in New York, and as the head of China healthcare equity research at UBS in Hong Kong. Dr. Ding received her Ph.D. in pharmacology/neuroscience from State University of New York, Downstate Medical Center, her MBA in finance from the Wharton School, University of Pennsylvania, and BS in electrical engineering from Huazhong University of Science and Technology in China. Dr. Ding and her team advised some of the most important landmark IPOs, private capital raise and M&A transactions across all healthcare subsectors over the past decade, including:

- 4 out of the 5 largest life science IPOs out of Asia: Beigene (\$903m Hong Kong IPO), Zai Lab (\$750m Hong Kong IPO), Junshi (\$453m Hong Kong IPO), Everest (\$451m Hong Kong IPO)
- Largest pre-IPO financing in the CART space: Carsgen (\$186m pre IPO round)
- Largest IPO in the CRO sector in Asia: Tigermed (\$1.59bn Hong Kong IPO)
- Largest ever cancer genomic IPO on Nasdaq: Genetron (\$256m Nasdaq IPO)
- 1st chapter 18A medtech IPO: Venus Medtech (\$381m Hong Kong IPO)
- Two largest private capital raise for Healthcare companies out of Asia: \$600m crossover financing for Ruipeng, and \$500m F round financing for WeDoctor
- Two largest healthcare follow-on offerings out of Asia: Beigene (\$2.1bn), AliHealth (\$1.3bn)
- Largest healthcare SPAC/de SPAC out of Asia: New Frontier's acquisition of Chindex (\$1.4bn)
- Largest outbound Healthcare M&A for a Chinese buyer: Luye's acquisition of Healthe (Australia) for A\$938m

## **Charles Hu, Ph.D.**

*Founder & CEO, Ryoden Medical Holdings Ltd and Founding Partner, Cere Ventures Ltd*

*Topic: Early Stage Biotech Company and Family Offices*



Charles is a translational biomedical engineer with a strong background in business development. His passion is in bringing disruptive medical technologies to market. He co-founded Incando Therapeutics and heads Ryoden Medical where he oversees healthcare venture investments. He also advises angels, universities, and startups. He most recently established Cere Ventures — a syndicated group targeting and grooming brain- and aging-related developments for and into the GHKM Greater Bay Area. Charles is a board member of two biotechnology startups and Director of several retail, F&B, and property businesses.

## **Feng-Ming Spring Kong, M.D., Ph.D.**

*Clinical Professor & Director, Imaging and Blood Biomarker Group, Li Ka Shing Faculty of Medicine, The University of Hong Kong (HKUMed)*

*Topic: Clinical Cares in the US, Hog Kong, and China*



Dr. Feng-Ming (Spring) Kong is a Fellow of American College of Radiology, Fellow of American Society of Radiation Oncology. Dr. Kong is an Associate Director of oversea experts for Chinese Society of Clinical Oncology.

Dr. Kong, a graduate of Washington University at St. Louis Radiation Oncology Residency program, has published more than 190 peer-reviewed and invited articles, has served as lung cancer expert panelist in NCCN and ACR practice guidelines. She received numerous awards including ASCO young investigator/career developmental awards and NIH/NCI R01. She has served on the editorial board of multiple Journals including JCO, and faculty and scientific committee member of ASCO, ASTRO and world lung cancer congress for years.

Dr. Kong is PI of RTOG1106 and RTOG3502 and a co-chair of NRG imaging committee. Dr. Kong served as President of American Society of Radiologist/Radiation Oncologist (AAWR), is an inaugural fellow of AAWR and is the Founding President and Chair of Board of Sino-American network for Therapeutic Radiology and Oncology (SANTRO).

## **Min Li, Ph.D.**

*Professor of Medicine, Surgery and Cell Biology, University of Oklahoma*

*Topic: Academic Research and Cancer Research Societies in the US*



Dr. Min Li is George Lynn Cross Research Professor of Medicine, Surgery, and Cell Biology at The University of Oklahoma Health Sciences Center (OUHSC), and holds the Virginia Kerley Cade Endowed Chair in Cancer Treatment. He is the Assistant Dean for International Research Collaboration at College of Medicine, and Associate Director for Global Oncology at the NCI designated Stephenson Cancer Center (SCC). He is also Director of GI Cancer Research at the Department of Medicine, and Vice Chair for Research at the Department of Surgery, and Co-Leader of Cancer Biology Program of SCC at OUHSC. He is a leading expert on pancreatic cancer (PC), and his research mainly focus on studying PC pathogenesis and developing new therapies. Dr. Li's group is the first to identify a key zinc transporter ZIP4, which is aberrantly expressed in PC, and promotes cancer growth, drug resistance, muscle wasting, cachexia, and metastasis. He has published more than 200 papers on high impact journals such as PNAS, EMBO Mol Med, Nature, Nature Communications, Gastroenterology, Can Res, Clin Can Res, JAMA Network Open, EBioMedicine (by Lancet), etc., and has four active NIH/NCI R01 grants, and multiple private foundation grants.

Dr. Li is a member of many NIH study sections, such as Developmental Therapeutics (DT), Cancer Etiology (CE), Basic Mechanism of Cancer Therapy (BMCT), Clinical Oncology (CONC), Mouse Model of Translational Cancer Research (MMTR), GI SPORE, Omnibus R21, DoD Cancer Research Program, AACR Pancreatic cancer action network (PanCAN), French NCI, Austrian Science Fund, Prostate Cancer UK, etc. He also serve as Editor-in-Chief, Deputy Editor, and editorial board member for many prestigious journals such as Cancer Letters, Clin Can Res, and BMC Medicine. Dr. Li holds many important administrative positions in OUHSC, and he serve on multiple committees locally, nationally, and internationally. Dr. Li is the current President of American Pancreatic Association (APA). He is also the council member of the International Association for Pancreatology (IAP). He received many awards such as the Outstanding Achievement Award of IAP, and the Provost Research Award at OUHSC. He was nominated to National Academy of Medicine in 2022.

## **Da Liu, MBA**

*Managing Director, CR CP Life Science Fund*

*Topic: Life Sciences Investments in China and the U.S.*



Mr. Liu is now the Managing Director of the CR CP Life Science Fund, whose shareholders, CR Group and CP Group are on the Fortune Global 500 List.

Before that, Mr. Liu was the Business Director of the Strategic Management Department at CR Group, responsible for strategic research and project investment in life science and technology; and as Senior Director of China Resources Pharmaceutical Group Co., Ltd. (HK: 03320), responsible for business development and international cooperation. He has also served as the Senior Director of China Resources Pharmaceutical Business Group, the General Manager of China Resources Pharmaceutical Airport (Beijing) International Trading Co., Ltd., the Deputy General Manager of Beijing Pharmaceutical Co., Ltd., and the COO of Zhoulin Bio-spectrum Technology Co., Ltd.

Prior to 2004, Mr. Liu was a pharmacy manager at CVS Group in the United States, and worked at the New York Healthcare Group as a clinical pharmacist.

**Kwok-wai (KW) Lo, Ph.D.**

*Professor, Department of Anatomical and Cellular Pathology, The Chinese University of Hong Kong*

*Topic: Academic Research in Hong Kong*



Dr. KW Lo is Professor, Dept. of Anatomical & Cellular Pathology, and Associate Member, School of Biomedical Science, at The Chinese University of Hong Kong.

Dr. Lo's long term research interest is to unveil the molecular basis of nasopharyngeal carcinoma (NPC). His research group has focused on identification and functional characterization of the NPC-associated tumor suppressor genes and oncogenes. He has successfully delineated the early events in NPC tumorigenesis and determined multiple recurrent genetic and epigenetic abnormalities in this EBV-associated cancer. Recently, he has systematically characterized the NPC genome by next-generation sequencing approaches. He also interests in elucidating the deregulated signaling pathways and mechanisms for immune evasion in NPC. Other ongoing research activities include establishment of new tumor models, characterization of cancer stem cells, development of novel biomarkers and therapeutic strategies and elucidation of the roles of EBV in NPC tumorigenesis.

Dr. Lo served as Chair (2020-2022) and Vice Chair (2018) of the Gordon Research Conference: Nasopharyngeal Carcinoma. He serves as Editor of *Cell & BioScience* since 2021. He has been training post-graduate students going through Ph.D. and M.Phil. programs.

Dr. Lo received his Doctor of Philosophy degree from The Chinese University of Hong Kong in 1997. He was elected Fellow of the Royal college of Pathologists, UK (FRCPath) in 2014.

## **Tak Wah Mak, Ph.D.**

*Senior Scientist, Princess Margaret Cancer Centre*

*University Professor, University of Toronto*

*Topic: Academic Research & Entrepreneurship in the US, Canada, and Hong Kong*



Dr. Tak Mak is a medical researcher best known for his discovery of the T-cell receptor in 1984 — a major advance in the field of immunology. He also pioneered the use of genetically altered mice in scientific studies, leading to further important breakthroughs in immunology and an improved understanding of cancer at the cellular level.

His later research has sought ways of targeting cancer metabolism — the relationship between cancer and metabolism. Co-founding a biopharmaceutical company to develop medicines to tackle this area, Tak and his colleagues made a number of discoveries concerning relevant enzymes — including a type of pyruvate kinase that plays a role in producing ATP, the cell's chemical energy source — and their involvement in cancer.

Dr. Mak has received a huge number of awards and honours in recognition of his work, including the Canada Gairdner International Award in 1989 and the King Faisal Prize for Medicine in 1995. He was made an Officer of the Order of Canada in 2000 and inducted into the Canadian Medical Hall of Fame in 2008.

Dr. Mak studied biochemistry and biophysics at the University of Wisconsin. After finishing his degree, he moved to Canada to begin his doctoral studies at the University of Alberta, Edmonton and earned his PhD in biochemistry. He then moved to Toronto and became a Canadian citizen.

## **Andrew Siu Wai Ng**

*Managing Director and Head of Healthcare, VMS Group*

*Partner, Panacea Venture*

*Topic: Early Stage Venture Investment in Hong Kong and China*



Andrew Ng is a Managing Director and Head of Healthcare of VMS Group and an Investment Partner of Panacea Venture. He has over 13 years of experience in the healthcare industry across Asia and the US. Andrew has established the healthcare practice of VMS Group in 2017 and led multiple growth-stage investments for VMS across the therapeutics, diagnostics, medical device and CRO/CDMO verticals. He has also served as an Investment Partner of Panacea Venture, a global healthcare venture capital firm, since 2021.

Prior to that, Andrew was responsible for the China Healthcare Equity Research at Barclays Capital based in Hong Kong. Before that, he was an investment banker covering healthcare clients across the Asia Pacific region at Barclays Capital with a focus in healthcare cross-border M&A. Andrew started his career as a management consultant at ZS Associate in the United States advising global pharma on sales & marketing strategy and operations.

Andrew has been on the board of multiple companies that carry out product development, manufacturing and sales in the biotechnology, medical equipment and CXO industries. These companies include New Horizon Health, Chime Biologics, Jade Biomedical, SyMap Medical, Yizun Biomedicine and Profusa.

Andrew received an MBA from INSEAD, a M.Eng. degree and a BS degree in Operations Research & Engineering from Cornell University.



## **Sammi Wong, MBA**

*Founding Member and Leader, HKSTP Ventures*

*Topic: Incubator/Accelerator and Venture Capital Investment*



Sammi is an experienced venture capitalist and serves as a proactive board member to advise the investees on corporate strategy, international business development, governance and finance. As an appointed mentor of Hong Kong Life Science Society, he enjoys mentoring students regarding entrepreneurship in the areas of biomedical and healthcare sectors. Besides, Sammi is a guest lecturer at the University of Hong Kong and Awaji Youth Federation (Japan), coaching and teaching students in new venture creation and venture capital investing.

Sammi is the Founding Leader of the Hong Kong-based HKSTP Ventures, the corporate venture capital of Hong Kong Science and Technology Parks Corporation focused on deep-tech investing from early to growth stages. He oversees all the transaction executions, portfolio strategy and strategic partnership development since its inception in September 2015. The AUM of HKSTP Ventures has grown by 12 times throughout his seven-year tenure. With four pillars of investment themes in Life Science, Smart City, Mobility & Automation and Semiconductor, half of the investment portfolios were established overseas in locations such as Silicon Valley, China, Taiwan, and the UK. Before joining HKSTPC, Sammi led the Greater China Distressed Investment team at Crédit Agricole CIB. Besides, he obtained solid corporate finance exposure from his previous investment banking experience at ABN AMRO and BNP Paribas. He has 10+ years of direct investment experience across various sectors in Greater China, Southeast Asia, Silicon Valley and the UK.

He graduated from St. Hugh's College, Oxford University with distinction and obtained CFA Charterholder.

## **Vincent Xiang, Ph.D, MBA**

*Founder and Managing Partner of 7G BioVentures*

*Topic: Venture Investment in China and in the US*



Dr. Vincent Xiang is the Founder and Managing Partner of 7G BioVentures. He has over 20 years of experience in the life sciences industries in the US and globally. He was Head of Global BioVentures at Hillhouse Capital (\$80B AUM), Partner at 6 Dimensions Capital (\$2.5B AUM), and MD and Head of International Investments & BD at Humanwell (600079.SH). For eight years, Dr. Xiang was PM/Analyst at Franklin Templeton, investing in global life science companies at all stages. Previously, he was VP of BD at Genyous, a US biotech startup. He was also Director of venture investment at Acacia Research, Associate at BioAdvance (a healthcare Angel fund).

Dr. Xiang received his Ph.D. in molecular biology from the University at Stony Brook, his MBA from the Wharton School, and his BS in Immunology and Microbiology from Fudan University. He is a founding member of BayHelix Group and a board member or advisor of many life science companies.

## **Lei Zheng, M.D., Ph.D.**

*Professor of Oncology, Johns Hopkins Medicine*

*Topic: Clinical Cares in the US, China, and Hong Kong*



Lei Zheng, MD, Ph.D. is Professor of Oncology and Surgery at the Johns Hopkins University School of Medicine. He is the Cancer Center and the Department of Oncology's Assistant Director for Translational Research and Associate Cancer Center Director for Precision Medicine. He co-leads the precision medicine research and practice at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins and Department of Oncology. He is Director for a new Multidisciplinary Gastrointestinal Cancer Laboratories Program at the Johns Hopkins Cancer Center. He is also Director of the Pancreatic Cancer

Precision Medicine Center of Excellence at Johns Hopkins. His clinical work is focused on multidisciplinary management for pancreatic cancer, bile duct cancer, colorectal cancer liver metastases, and gastric cancer. He is affiliated with the Tumor Immunology Program as a laboratory investigator. His primary laboratory research focus is on the identification of new targets and strategy for pancreatic cancer immunotherapies by dissecting tumor microenvironment of pancreatic cancer. He is considered to be one of world's leading pancreatic cancer oncologists and researchers and one of leading experts in preclinical and clinical development of cancer immunotherapy.

He is the founding Editor-in-Chief of *Annals of Pancreatic Cancer*. In 2021, he was elected into the American Society of Clinical Investigation. He served or is serving as a Councilor for Pancreatic Disorders (PAN) section of the American Gastroenterological Association Institute Council, a Member of the American Society of Clinical Oncology Grant Selection Committee and Education Committee, and a Member of the American Association for Cancer Research (AACR) Program Committee. He is also chairing the China Regional Advisory Group for the AACR International Affair Committee. He is Vice Chair of the World Association of Chinese Oncologists, is currently the Secretary General of the Committee of Oversea Experts of the Chinese Society of Clinical Oncology (CSCO), and is the Immediate Past President of the Chinese American Hematologist and Oncologist Network (CAHON). Dr. Zheng received his MD from Peking Union Medical College and his Ph.D. from University of Texas Health Science Center at San Antonio. He did his internal medicine training at the Long Island Jewish Medical Center (now Northwell Health and the Zucker School of Medicine at Hofstra/Northwell). He did his medical oncology fellowship training at Johns Hopkins.