



Opportunities and Challenges of Biotechnology at TJAB China

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TIANJIN INTERNATIONAL JOINT ACADEMY OF
BIOTECHNOLOGY AND MEDICINE
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— T . J . A . B —

Tianjin International Joint Academy of Biotechnology and Medicine (TJAB)

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Founded by “Four Ministries and Tianjin”

- Founded by multi-discipline central and municipal government agencies
 - Ministry of Science and Technology (MOST)
 - Ministry of Commerce (MOC)
 - Ministry of Health (MOH)
 - State Food and Drug Administration (SFDA)
 - Tianjin Municipal Government



Key Events

- June 26, 2006, establish TJAB
 - Named Nankai University President, Dr. Ziheng Rao as the President of TJAB
- December 19, 2006, Break ground
 - Identified over 50 acre land
 - Phase I 700,000 sf R&D building
- June 26, 2007, named 7 founding Vice presidents
- November, 2007, identified as top twenty projects and progress reported in Tianjin People's Congress conference
- December 2008, Completed construction of Phase I 700,000 sf R&D building and started interior work
- June 25, 2009, R&D building Grand opening and 22 Companies moved in

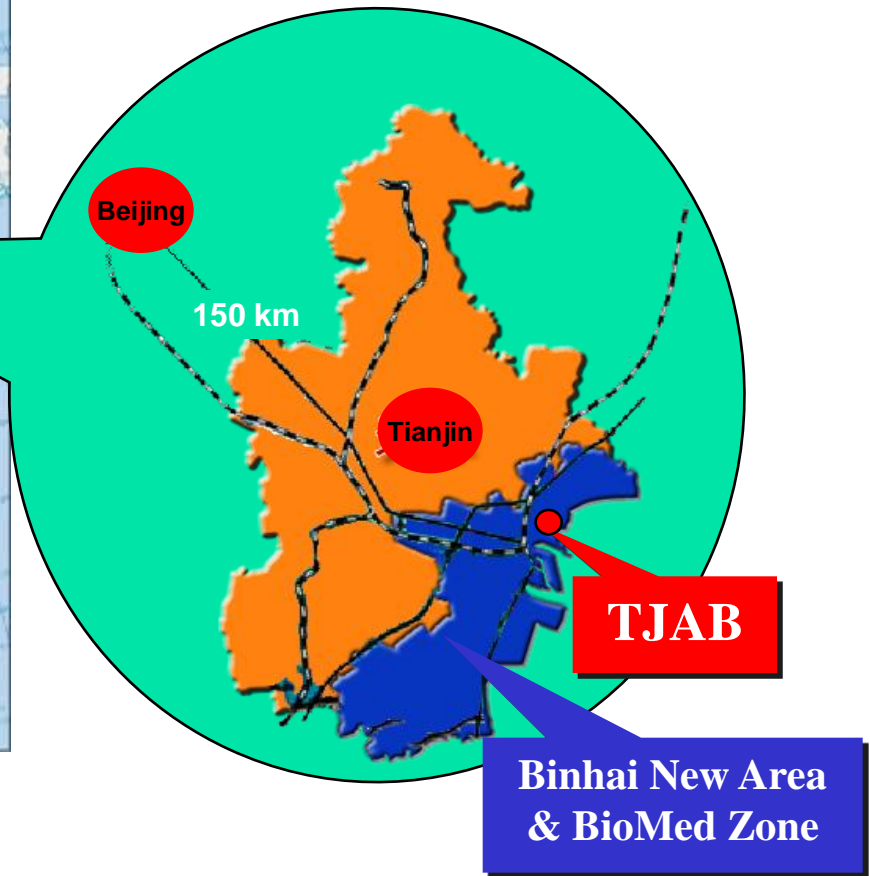




Investments

- Total over 1.1 billion RMB new investment from Tianjin for Phase I:
 - 370 million RMB for Phase I R&D building
 - 130 million RMB for Process development lab and Clinical GMP facility
 - 70 million RMB for Analytical center
 - 30 million RMB for Clinical Phase I center and Clinical central lab
- 1.5 billion RMB investment from Tianjin for Project support and talent recruitment for 5 years
 - 1.0 billion RMB for project support (200million/year)
 - 500 million RMB for latent recruitment (100 million/Year)
- Total >100 million RMB project funding from Central Government
 - 100 million RMB for Drug discovery and commercialization platform
 - 2.2 million RMB for international collaboration
 - 1.2 million RMB for microbiological derivative library

About Tianjin





About Tianjin



- A city with over 600 years of history and over 11 million residence
- Tianjin Port is ranked as the 5th largest port in the world
- 45 education institutions including universities such as Nankai, Tianjin, etc. with 357,000 of undergraduates, 30,000 graduate students
- 2384 Hospitals
- 43,643 Beds
- 37.7 million Patients/year



Opportunity

- As an important part of the strategic plan to further develop China's economy, the central government sets Tianjin Binhai New Area as the third focused eco-development area in China
- This provides a historical opportunity for Tianjin's development following Shenzhen Economic development Special Zone opened in 1980's in Guangdong and Pudong New Area established in 1990's in Shanghai



Vision

- Bring safe, effective and affordable therapeutic drug to patients in China and rest of the world
- Promote Chinese Biotech and pharmaceutical industry into world class



Strategy

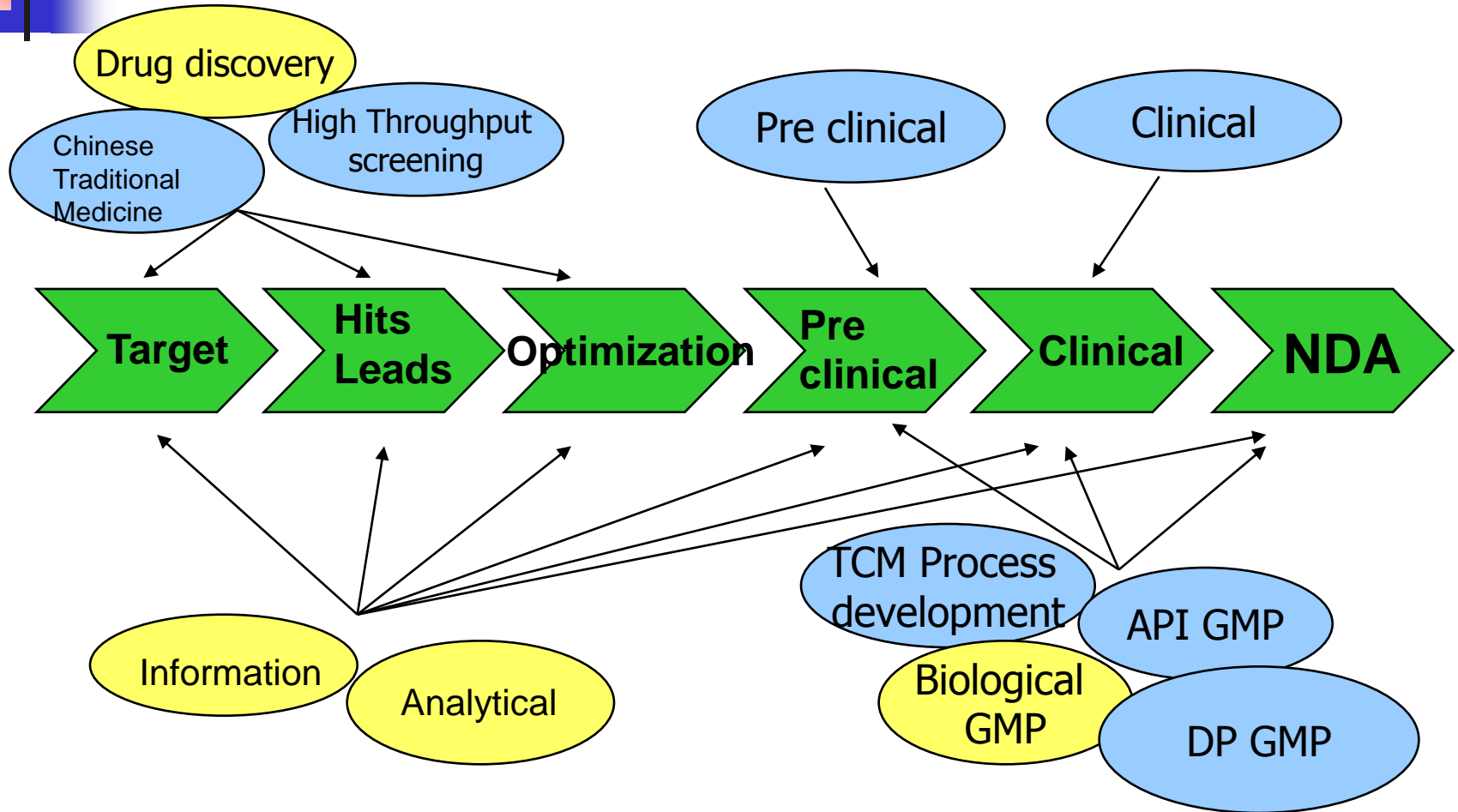
- Attract and develop talents
- Build fully integrated technical platforms to accelerate Biomedicine commercialization
- Promote regional and global collaborations
- Meet international standards
- Deliver high Quality of products



Technical Platform

- Key platforms for drug discovery, development and commercialization
- Quality, Speed, Cost
- Meet SFDA, FDA, EMEA and other regulatory requirements
- Build up through collaborations
- Managed through experienced, reputable, professional teams

Technical Platforms





Technical platforms

| System | Platform | Key Function |
|---------------|------------------------------|---|
| Discovery | R&D | Targets, Hits, Leads, Candidates, |
| | Screening | High Throughput |
| | Traditional Chinese Medicine | TCM candidates |
| Pre-clinical | Pre-clinical | Tox, PK, PD, Efficacy models |
| Clinical | Clinical | Phase I, II, III, |
| Pilot and GMP | TCM PD | Process Development, Specification, Formulation, Stability, CTM |
| | Biological GMP | |
| | Chemical API | |
| | Chemical DP | |
| Service | Information | Project evaluation, IP, Filing |
| | Analytical | Method development and testing |



Technical platforms

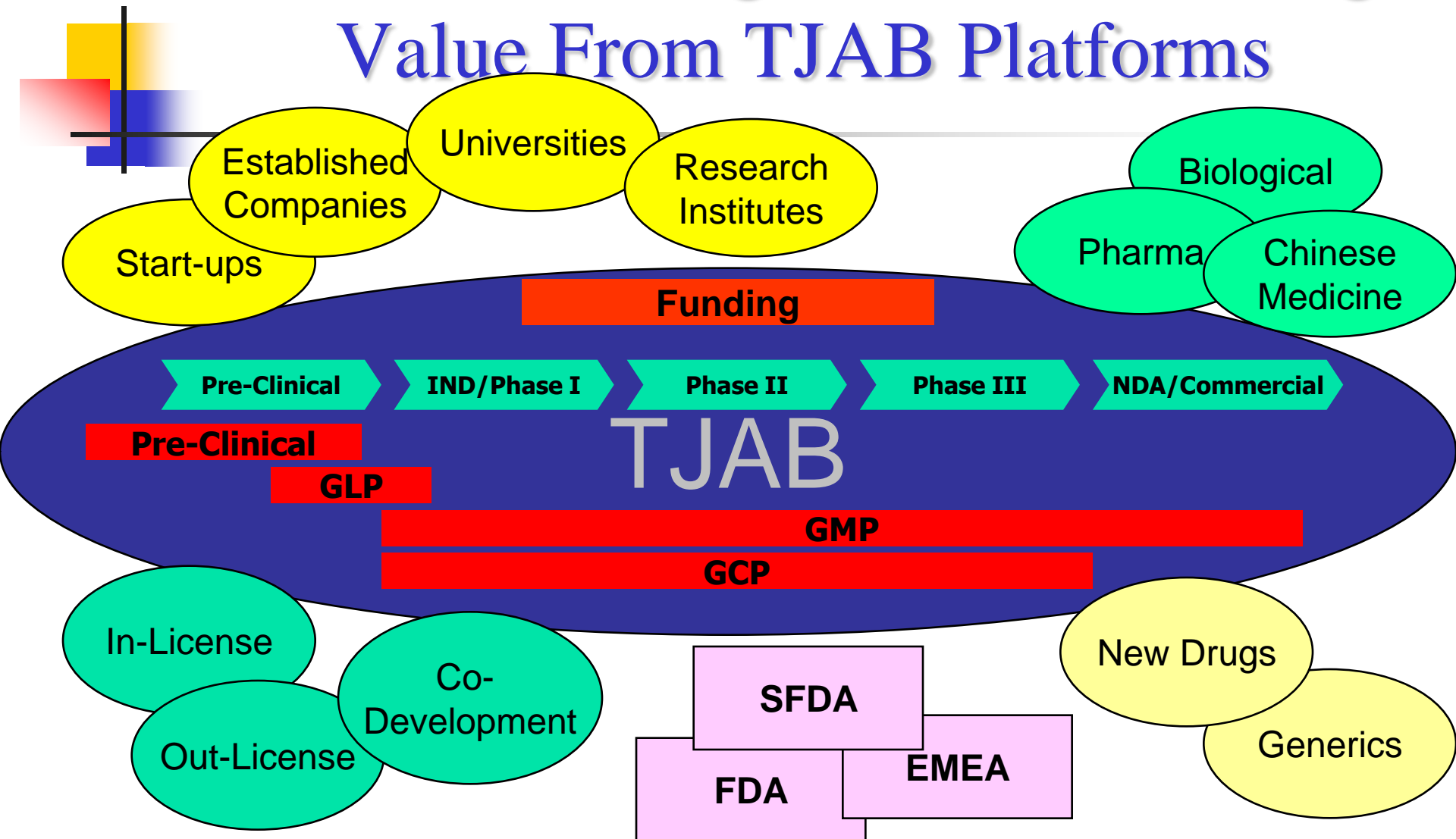
| Platform | Current Status | Plan |
|----------|--|---|
| R&D | <p>Four core technical platforms</p> <ul style="list-style-type: none"> ■ Protein structure based, target identification and high throughput screening ■ TCM discovery ■ Cell based drug screening and toxicology study ■ Silk worm bioreactor and protein drug oral formulation development | <p>Four core technical platforms</p> <ul style="list-style-type: none"> ■ Generate hits, leads, candidates ■ Provide services <p>Evaluate new technology and expand portfolio</p> |
| | <p>Pipeline</p> <ul style="list-style-type: none"> ■ 31 projects in progress build through collaboration with companies, research institutes ■ Recruited 49 PIs to join TJAB | <p>Pipeline</p> <ul style="list-style-type: none"> ■ Through collaboration to expand pipeline ■ 100 PIs by end of 2010 |



Technical platforms

| Platform | Current Status | Plan |
|-------------------|---|---|
| Screening | Over 10,000 compound library Provide CRO services | Build 500 more new compound templates and expand library to over 50,000 |
| Analytical center | Purchased over 70 million RMB analytical equipment | Provide high quality and competitive pricing services |
| Pre-clinical | SFDA approved Tox/PK/PD lab >50 animal based efficacy models | Develop 30 more efficacy models |
| Pilot and GMP | Chemical API and DP <ul style="list-style-type: none"> SFDA/FDA/EMEA approved Process development and CTM manufacturing | Focus on DP formulation development and new technology development |
| | Biological DS and DP <ul style="list-style-type: none"> Process development lab will be in operation end of November, 09 | Clinical GMP facility will be in operation end of 2010 |

Business Arrangements: Extracting Value From TJAB Platforms





“BinHai Model”

- Seed-investment from Government
- Market-driven (meet patient needs)
- Professional management teams
- Collaborations
- International standards



Management Team

- President : **Zihe Rao , Ph.D.**, President of Nankai University, Member, Chinese Academy of Sciences
- Vice Presidents:
 - **Yu Zhao**
 - **Zeqi Zhou**
 - **Yaozhou Zhang**
 - **Jin Li**
 - **Changyou Du**
- Scientific Advisor
 - **Zhu Chen, Ph.D.**, Minister, Ministry of Health, Member, Chinese Academy of Sciences



Founding Vice Presidents

- **Daochang An** , Vice Director of China National Center for Biotechnology Development
- **Yan Tian** , Vice Director General of Bureau of Life Science and Biotechnology of Chinese Academy of Sciences
- **Yongxiang Zhang** , Vice Minister of Science and Technology Department of The Academy of Military Medical Sciences
- **Qimin Zhan** , Vice President of Chinese Academy of Medical Sciences
- **Xiaohong Chen** , Vice President of PLA 301 Hospital
- **Yunqi Geng** , Professor of Nankai University
- **Boli Zhang** , Principal of Tianjin University of Traditional Chinese Medicine, Member, Chinese Academy of Sciences
- **Baochun Li** , Vice Director of Tianjin Municipal Science and Technology Commission
- **Yamin Ai** , Vice Director of Tianjin Economic-Technological Development Area Management Commission



Project Strategy

- What required

- IP
- Innovative
- Favorable commercial future
- Strong execution team
- Some self-founding
- Commercialization in Tianjin

- What TJAB provides

- Facility/Land/Tax/Policy for investments
- Integrated technical platform supports
- Funding
- Multiple business model for collaborations
 - Share risk and share benefits



Policy

- Talent policy
 - Comprehensive relocation package, and seed money for projects
- Enterprise and project policy
 - On site SFDA support, central GXP platforms, tax benefits, project funding, and rent compensation package
- Financial policy
 - Matching fund, establishment of BioMedicine Fund



Next Five Years

- Multi-Billion RMB Investment for Investigator Groups, Projects and world-class services
- Recruit 200 PIs
- Launch 100 enterprises and R & D institutions
- Accelerate 100 significant projects towards commercialization
- Achieve Multi-Billion RMB revenue



National Level Bases

- Recruitment Program for Global Experts
- International Collaborations
- SFDA Clinical Trial Monitoring and NDA Applications
- Professionals Training



Summary

- New engine of China's future development In Biotech & Pharmaceuticals
- A place for both established and start-up companies to grow
- An attractive environment for investors
- An unique opportunity for personal and professional development

Thank you!





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