

# China National GeneBank

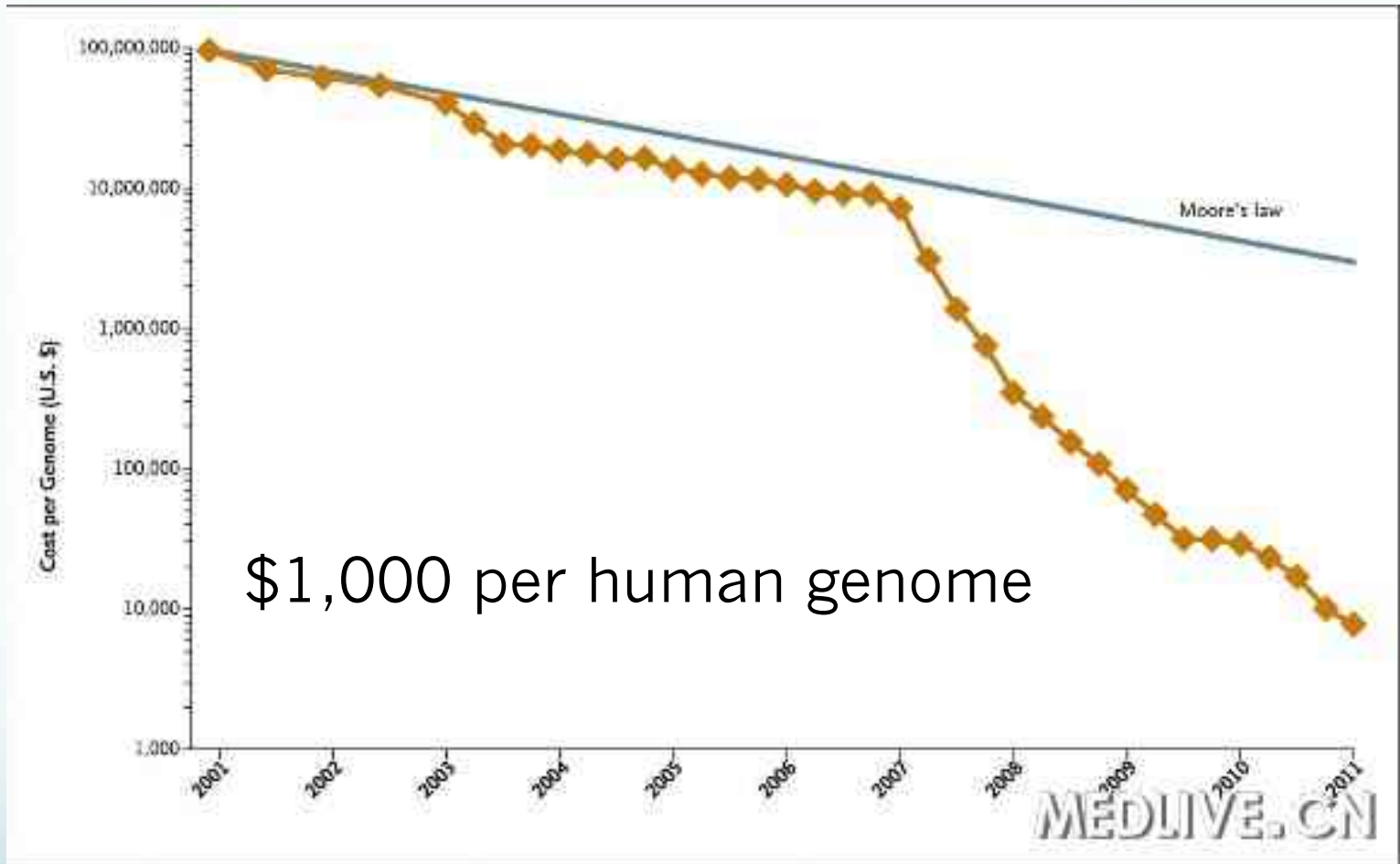
*Making the Resource Valuable to Everyone*

深圳国家基因库  
让资源对每个人有价值

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# 费用降低 Cost Drop



NOW: 1,500 human genome per day.  
\$1,000 per human genome (30x)  
1PB = 1,000 TB = 1,000,000 GB (1 million GB)

# 生命科学进入大数据时代

## Life Science in the Era of Big Data

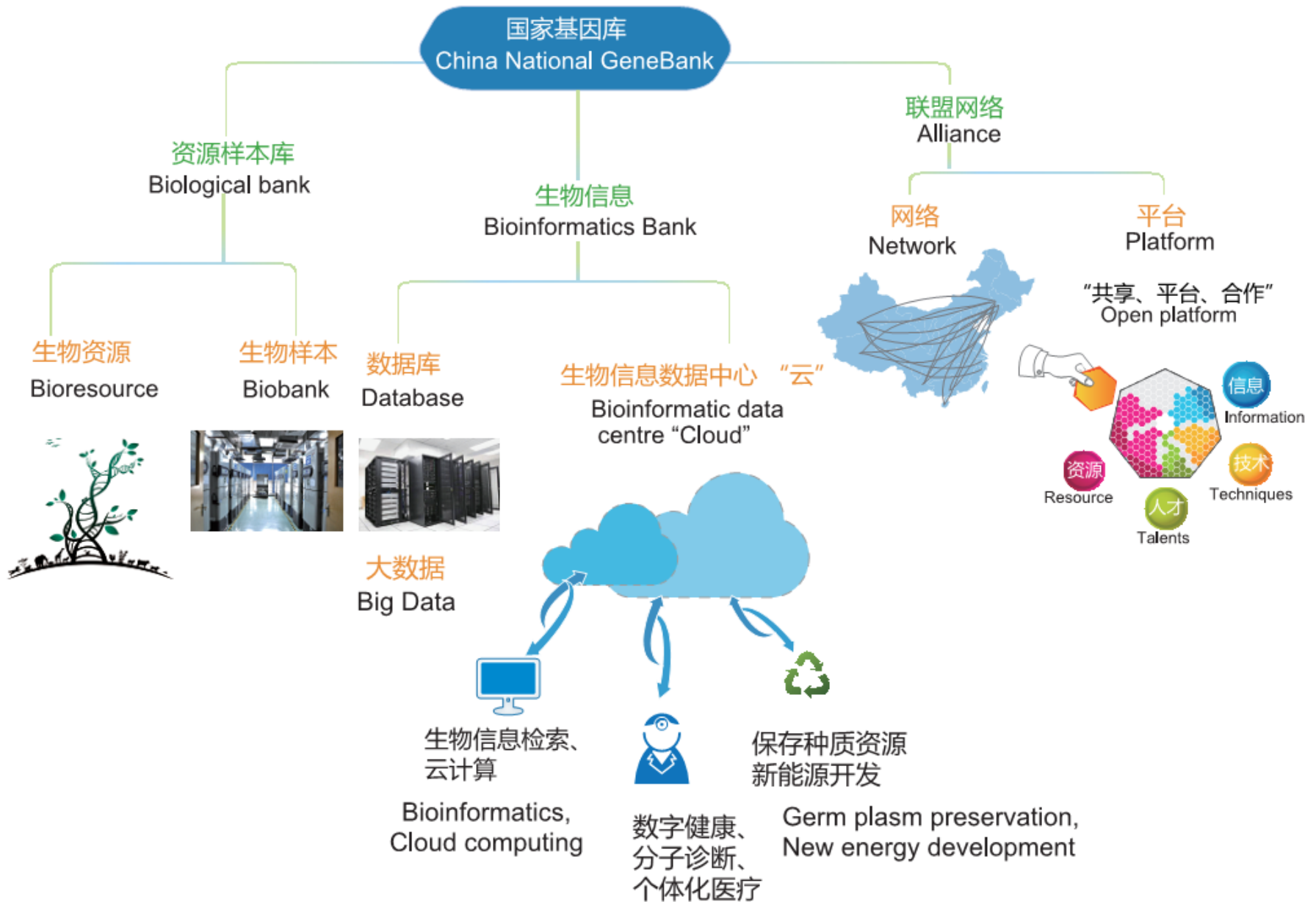
PetaByte

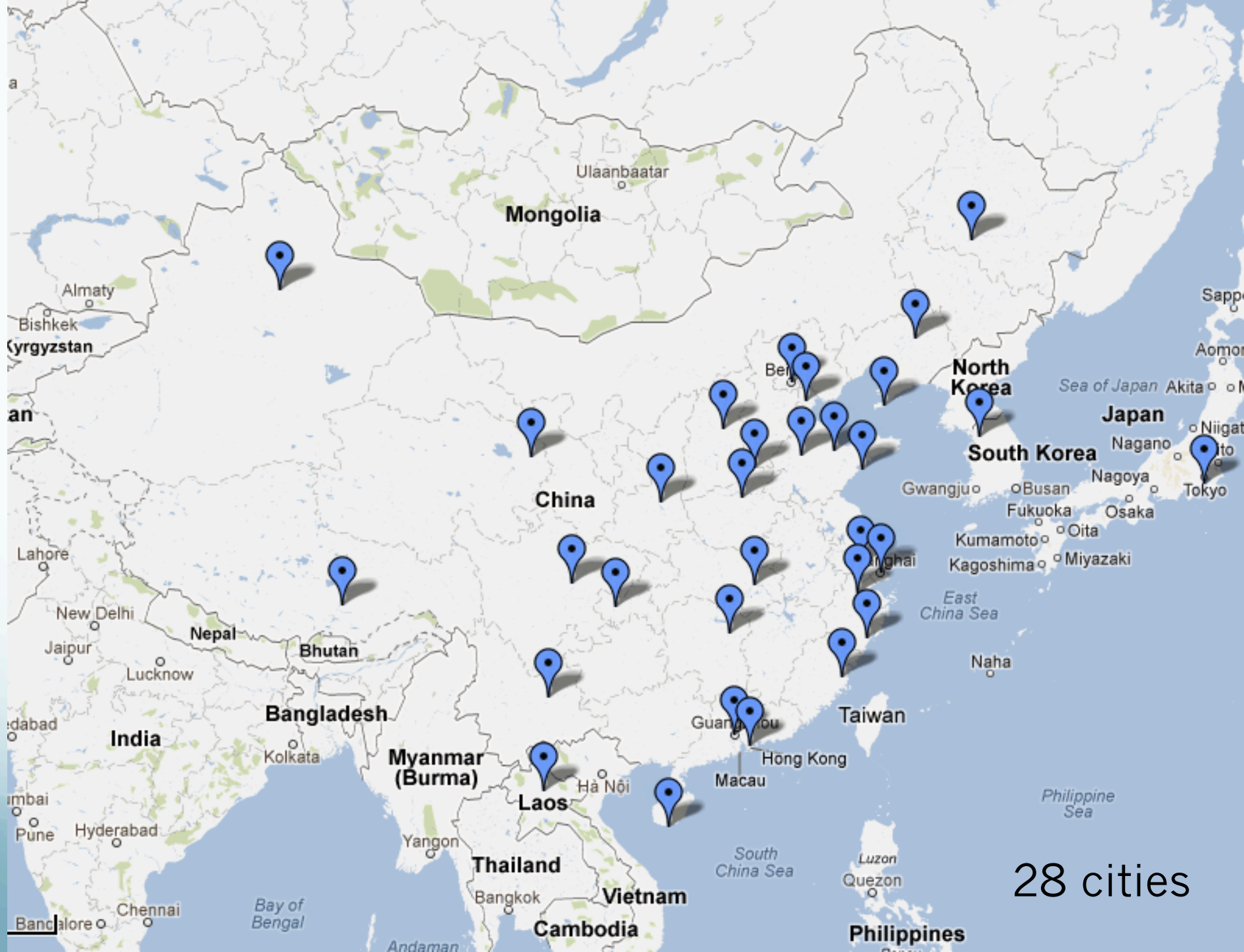
1PB = 1,000 TB = 1,000,000 GB (1 million GB)

# 基因资源是源头

## Genes make Difference







Mongolia

Ulaanbaatar

Almaty  
Bishkek  
Kyrgyzstan

North Korea

Japan

South Korea

China

Lahore  
New Delhi  
Jaipur  
Lucknow  
Nepal

Bhutan

Bangladesh

India

Kolkata  
Chennai  
Bangalore

Myanmar (Burma)

Laos

Thailand

Vietnam

Cambodia

Gwangju  
Busan  
Fukuoka  
Osaka  
Kumamoto  
Oita  
Kagoshima  
Miyazaki

East China Sea

Naha

Taiwan

Guangzhou  
Macau  
Hong Kong

Philippine Sea

South China Sea

Luzon  
Quezon

Philippines

28 cities

# Global Alliance 全球资源联盟布局



21 countries

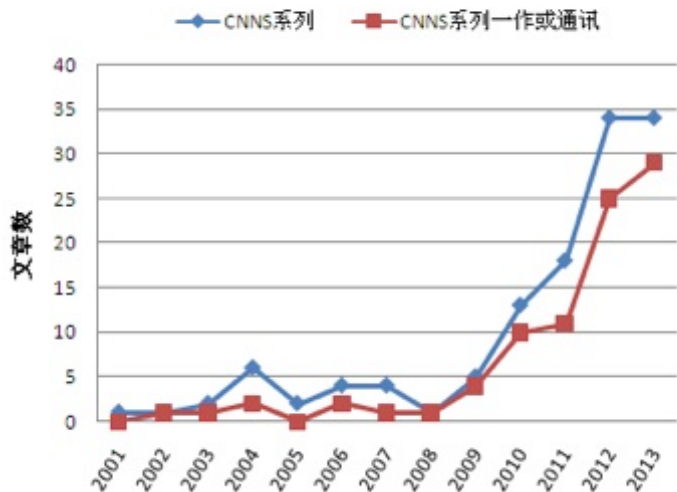
# China National GeneBank (Goal)

- Resource DB (BioBank)
  - 1 million samples (up to 30 million)
  - Blood to cell, seed to tissue, of human, non-human
  - Main DB, separated local DB, and sister-BioBank
- Information DB
  - 500 PB (up to EB) data volumn (~1 million human genomes)
  - DNA, RNA, Protein, Metabolism, and clinical information and phenotype of species.
  - Main DB, BackUP DB, International DB



### Publications on CNNS

CNNS系列文章发表趋势



2010年, 1篇/月 2010, 1 per month

2012年, 3篇/月 2012, 3 per month

2013年, 3篇/月 2013, 3 per month

华大平均引用率89/篇

BGI Citation Per Paper 89

中国平均引用率6.51/篇

China Citation Per Paper 6.51

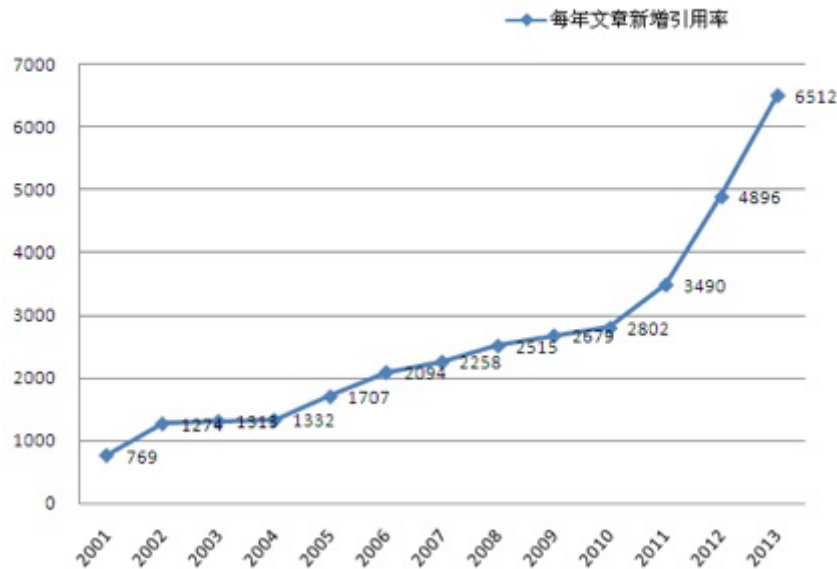
全球平均引用率9.8/篇

International Citation Per Paper 9.8



——CNNS

文章引用率 Citations



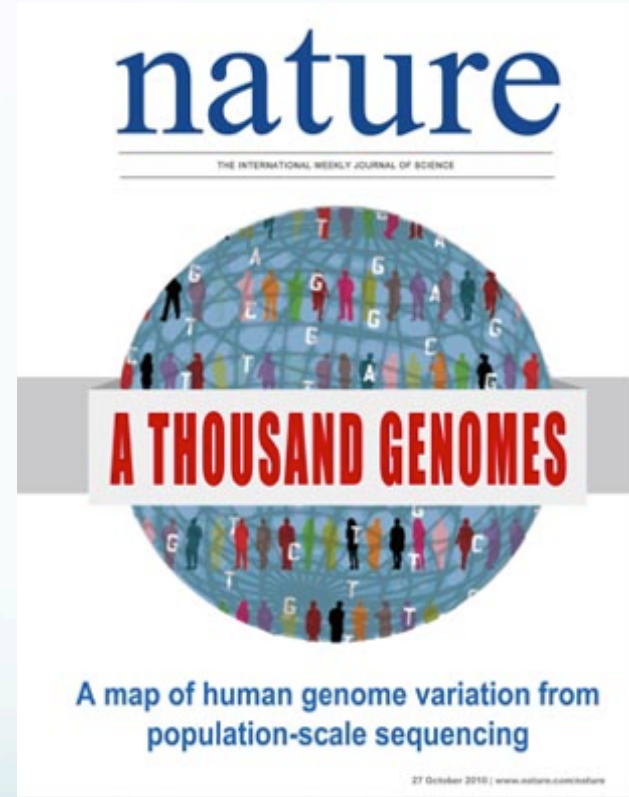
# 人，个体，人人 from 1 to 1000



2001



2008



2010, 2012

# MD Anderson癌症中心

## MD Anderson: Moon Shots

THE UNIVERSITY OF TEXAS  
MD Anderson  
Cancer Center  
Making Cancer History

Home About Moon Shots News Take Action

**THE TIME IS NOW.  
TOGETHER, WE WILL END CANCER.**

Inspired by America's drive generations ago to put a man on the moon, The University of Texas MD Anderson Cancer Center has launched an ambitious and comprehensive action plan, called the Moon Shots Program, to make a giant leap for patients – to dramatically accelerate the pace of converting scientific discoveries into clinical advances that reduce cancer deaths.

The nation's No. 1 hospital for cancer care, with its unparalleled resources and capabilities, is uniquely positioned to accelerate the end of cancer. It's closer than you think. What's learned from these initial cancer "moon shots" will ultimately lead to cures for all types of the disease.

BREAST & OVARIAN	LEUKEMIA (CLL)	MELANOMA
LEUKEMIA (AML/MDS)	LUNG	PROSTATE

THE UNIVERSITY OF TEXAS  
**MD Anderson  
Cancer Center**  
Making Cancer History®

30亿美金，10年，8种癌症  
\$3 Billion in its first 10 years  
on 8 cancers

2012年9月

# Moon Shots Program – MD Anderson

Home » GenomeWeb Daily News

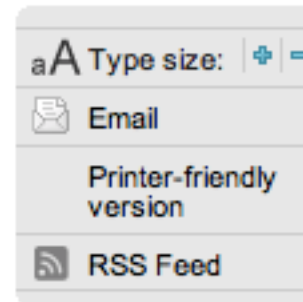
## MD Anderson Makes 'Omics a Major Component of New Program to Reduce Cancer Deaths

September 21, 2012



By a GenomeWeb staff reporter

NEW YORK (GenomeWeb News) – The University of Texas MD Anderson Cancer Center on Thursday announced a major initiative that includes genomics components to accelerate scientific discovery into clinical advances in order to reduce the number of cancer deaths.



begin in Feb. 2013,  
with tens million \$  
(1/1000)

The cost may reach \$3 billion in its first 10 years.

Now on eight cancers: acute myeloid leukemia/myelodysplastic syndrome; chronic lymphocytic leukemia; melanoma; lung cancer; prostate cancer; and triple-negative breast and ovarian cancers

6 team leaders, 12-institution-wide  
genomics medicine, big data, clinical genomics, diagnostics, patient omics,  
early detection.

# 英国启动“患者基因组”计划 Britain launches genome database



1亿英镑，3~5年，10万癌症(人)  
\$160 million, 3~5 yrs for 100,000

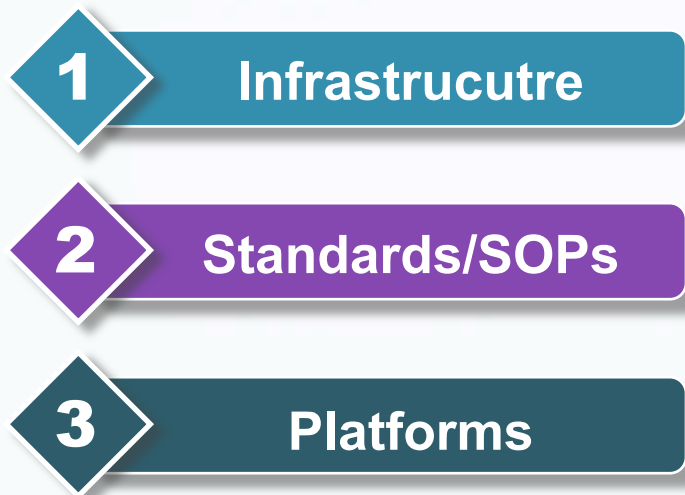
英国首相卡梅伦10日表示，  
他希望英国能够成为第一个  
将基因排序引入健康服务的国家

2012年12月

# 谷歌的使命：生物谷歌

## Google Mission: Ours

- Google 的使命在于整合全球信息，供大众使用，使人人受益。Google's mission is to organize the world's information and make it universally accessible and useful.
- **Biology data** is getting bigger like internet data (valuable biological samples also...)
- A mission to organize the world's **biology information (and biological samples)** and make it useful to better understand the life and runs applications



## 国家基因库 E-BioBank

E-BioBank是一个致力于整合国内外样本库资源、促进样本的科学应用，并且对外提供样本库建设指导、科研应用支撑服务的，具有公益性、基础性、战略性的科技创新服务平台。



### 技术支持

#### ToolBox

样本库建设及运营相关技术支持。



### 样本定位系统

#### Specimens Locator

高效协调的样本资源网络



### 项目资源

#### Project Resources

广泛的科研合作机会



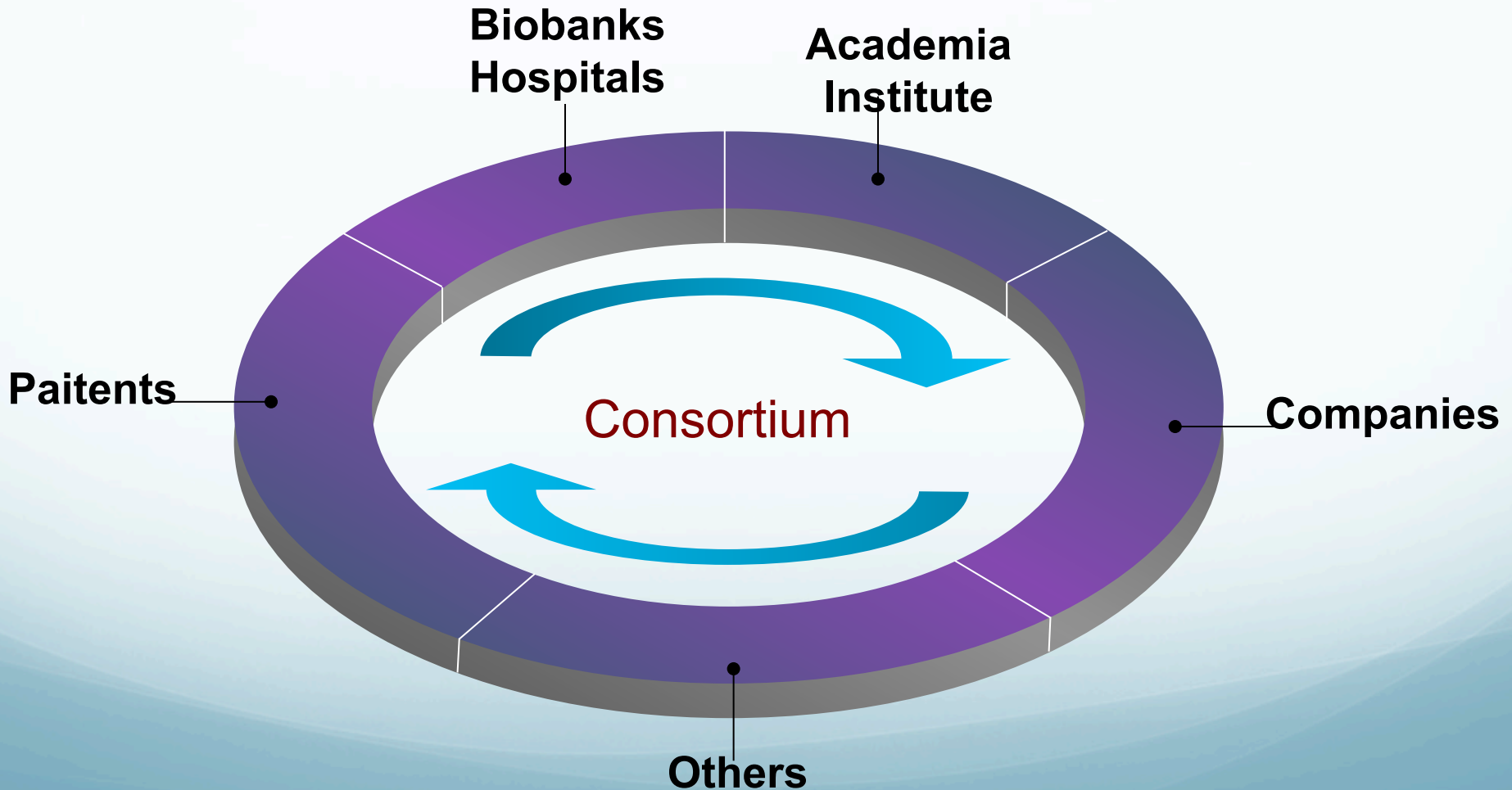
### 成员展示

#### Biobank Catalogue

联盟成员信息展示目录

# lung cancer consortium

**China National GeneBank – Lung Cancer Consortium**  
Co-lead with National Laboratory of Lung Cancer,  
20 Hospitals, 10 academia institute, 5 companies



# Numbers by now

- Published two books: *Construction and Best Practice of Biobanks* and *Best practices for biobanking*
- Published an article: *Chinese biobanks: present and future*;
- 1.5 million traceable biospecimens
- Support about 50 scientific publications;
- 14 authorized patents, 8 more are in application;
- 3 approved standards;
- Over 70 members around the China
- Trans-Omics Working Group in ISBER





# Offers and collaboration

- International/National Standard, SOPs, total solution
- Free-Management Software, Monitor Device/System
- Free Storage Service (sample owner, platform provider, and buyer)
- DNA/... Extraction service (50,000 per month, only charge reagent cost)
- Big Project Plan (Free Sequencing, ~4 million USD, in next 3 years)
  - Cancer: microRNA Screening for 10,000 samples – (\$2 million)
  - Population cohort study, SNP screening for 100,000 samples
- A New Design
  - Hospital + Research Center
  - Sequencing Factory + Big Data Mining Center  
(MD Anderson + Genome Center/University + BGI + IBM Watson)  
LIMS, HIS, BioBank System, Omics Data, Clinical Info, IT Infrastructure

# We will contribute to ISBER

All members

- Trans-Omics Working Group
- Best Practice or Best SOPs
- Training Program and to add new courses for Omics relevant knowledge
- Digitalize Biobank Project
- Scientific Research Projects for Rare Disease, Cancer, etc.
- Clinical Applications, bring research activities to Patient Care
- Trans-Omics and High-throughput Platform
  - “Free Sequencing”\* depends on projects

# Welcome to our following events:



- Trans-Omics Working Group
  - Organizer: Le CHENG and Yong ZHANG
  - 18:30~19:30, Friday, May 23, EUROPE 9
  - Open to all Participants
  
- Poster Oral Presentation
  - For details and progress of China National GeneBank
  - 13:45-14:00, Friday, May 23, Pacific A

Thanks!

两期鸟瞰图 | 深圳国家基因库



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