

中国科学院北京基因组研究所

BEIJING INSTITUTE OF GENOMICS, CHINESE ACADEMY OF SCIENCES

An Interview with a Leader in Genomics — Beijing Genomics Institute

Beijing Genomics Institute (BGI) is a large scale genome sequencing research center located in Beijing, China. It is an important center for the sequencing the human genome. BGI completed one percent of the human genome for the Human Genome Project.

Please share with us the background and the history of Beijing Genomics Institute (BGI).

BGI was founded in 9 Sept 1999. Since then, it has established worldwide collaborations with the international genomics community. As one of the core centers of the International Human Genome Project, BGI has made significant contribution to the working draft and then the finishing sequence map of the human genome. BGI is also one of the active members of the International Hap Map Consortium, the International Chicken Genome Sequencing and Polymorphism Consortiums, as well as the current International Cancer Genome Consortium and International Multi-Genome Sequencing Consortium. BGI also contributed to genome sequencing and the analysis of several important species, such as rice, silkworm, chicken, and pig. BGI also made tremendous contributions to the fight against SARS in China in 2003 and DVI (Disaster Victim Identification) during the tsunami in Thailand in 2005.

Is BGI a private or governmental company? Does the Chinese government give support and incentives BGI? How does BGI get its funds from?

BGI is not a government institute. We do receive substantial government funding. These funds are used for some of our projects, as well as the construction of our institute and some laboratories.

BGI has many campuses. BGI-Shenzhen is currently a major non-profit genome research institute. Other branches, including BGI-Beijing, BGI-Hangzhou, and BGI-Tibet, are for-profit spin-off divisions. For-profit spin-off divisions, we make profit from scientific service such as sequencing. The not-for-profit part is supported by the local government and some donations as well.

What is your staff strength? Are most of them educated in China?

The staff is more than 500 now. They comprise top-level scientists, skilled technicians, and bioinformatics specialists. Most of them were educated in China. Others are educated in western countries such as the US, the UK, Europe, and Australia.



[Special Issue]

Please share with us some of the projects that BGI is working on.

In collaboration with NERC-BS (National Engineering Research Center of Bioinformatics System) and BIG-CAS (Beijing Institute of Genomics, Chinese Academy of Sciences), BGI has just finished “the First Asian Genome Project”. Now, we are sequencing the first volunteer’s genome which is the fourth personal genome in the world.

Another project, “Yanhuang Project”, started in April 2007. There are three phases for the “Yanhuang Project”. The first, which has been finished in October 2007, is to sequence a Chinese individual’s genome which will serve as the reference. The second would be to sequence at least 99 genomes for the construction of Chinese genetic polymorphism map. The last phase is to study the result gained from the first two phases, leading to further medical applications.

We are also going to start another project soon. It is known as the “Panda Genome Project”. As the national treasure of China, the panda has been the focus of much research including taxonomy, disease control and ecological distribution. However, little has been done on genomic level. The fine map of the panda’s genome and the further transcriptome studies will provide tremendous information in terms of explaining its genetic uniqueness and the decoding of the function and structure of all its genetic units. These studies will also help in the explanation of its unique niche in the ecological system and the molecular mechanism of its evolution. These studies will also help us to understand its development, population protection and molecular breeding.

How is the Chinese genome different from other races’ genome? How will the knowledge of the genome aid in finding a cure for diseases?

Using the next-generation sequencing technology, we successfully finish the first fine sequence map of the diploid genome of a Han-Chinese individual recently. This work marks the third individual genome sequenced in the world and the first of its kind in Asia. We are composing a paper on this project now and will submit it to a scientific journal.

Each race has its characteristic genetic background and thus may have different susceptibility to diseases. In the purpose of targeted prevention and therapy, we have to understand the corresponding relationships between diseases and their genetic determinants. Therefore, it is very important to construct population-specific genome maps to fully understand the mechanisms underlying diseases. This is one of the aims of the “Yanhuang project”.



[Leading Biotech Companies in Asia Pacific]



What is your latest product or those in the pipeline?

We have a lot of experience in both large-scale and microbiology genome projects. We also have products such as downstream analysis software, assembly algorithm and software etc.

Are any of your products in clinical trials now?

We have several array-based ELISA kits on clinical trials now. As we are a genome center, selling of products is not our main purpose.

Has your company marketed any products to the market yet?

Yes, most of them are ELISA diagnostic kits.

Ultimately, who are your target audience or clients?

We target research institutes and organizations for now, while clinical markets are our ultimate target audience.

Does BGI have any collaboration with local or foreign institutes? Please share with us the important collaborations.

We have collaborations with both local and foreign institutes. Our domestic collaborators include the Chinese Academy of Sciences, Chinese Academy of Agricultural Sciences, Zhejiang University, Dongnan University, Shenzhen University and Beijing University.

We also have collaborations with foreign institutes such as Wellcome Trust Sanger Institute, University of Aarhus, University of Southern Denmark, National Human Genome Research Institute (NHGRI), U.S. National Institutes of Health (NIH), etc.

Please name one specific area that is worth investing in the future?

Personalized medicine. ■



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