

BGI@UC Davis Partnership: Transforming Data To Knowledge

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An innovative opportunity for research collaboration

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Opportunity Background

A major collaboration between UC Davis and BGI for genomics will benefit from and enhance the capabilities of two highly regarded institutions. At UC Davis, the life sciences community is expanding genomic studies of plants, animals, humans and microbes. BGI, with an unparalleled capability for genomic sequencing, is interested in expanding to the western United States, to partner on large, groundbreaking projects in health, agriculture and the environment. This collaboration will form a world-class partnership to expand scientific discovery.

BGI Distinctions

BGI today is one of the world's premier genome sequencing centers. It has tremendous scientific strengths and expertise in the areas of genomics and growing capabilities in transcriptomics, proteomics and clinical diagnostics. BGI is committed to the unlimited progress possible through the use of NextGen, or next generation, sequencing technology platforms to define the genome sequence of plants, animals and microbes. To fulfill this goal, the center



works closely with its partners around the world. BGI:

- **Was founded in September 1999** in Beijing, China, as a minor partner in the human genome sequencing effort, and was known as the Beijing Genomics Institute prior to 2008. With the successful completion of its role in the human genome project, BGI's capabilities extended to sequence the rice genome. Its headquarters were moved to Shenzhen in 2007 and a center was established in Hong Kong.
- **Has several branches including:**
 - **BGI-Shenzhen**, a public research institution that conducts scientific research.
 - **BGI-Hong Kong**, a private institution for international collaborations and services. Profits from this business are transferred to BGI for research and technology development for the next 10 years.
- **BGI-Americas** (Boston) just celebrated its one-year anniversary and announced new joint projects with the Broad Institute and the United Kingdom.
- **Currently employs** about 4,000 employees in the areas of bioinformatics and research, technology development, sequencing and genotyping, system support and management.
- **Has sequencing capacity** that includes approximately 130 Illumina Hi-Seq 2000 machines, providing the capacity to produce more than 5 terabytes of data per day. This is roughly equivalent to sequencing the complete genomes of 1,600 humans, 312 wheat varieties or 1 million microbes every day.
- **Has completed** numerous high-profile sequencing projects and is interested in partnering with two U.S. universities with equipment and projects in order to further large-scale genome sequencing projects of international interest.





UC Davis Distinctions

UC Davis is a burgeoning enterprise for innovation that offers many top-ranked programs especially relevant to BGI. With its land-grant mission, strength of location and depth of academic expertise, UC Davis is uniquely positioned to lead innovation at the crossroads of the world's most critical issues: food, water, health, society, energy and the environment. UC Davis is:

- **A world leader** (ranked #1) in the publication of research in agricultural sciences, environment/ecology, and food science and technology, with high rankings in other biological science areas
- **Home to a fully integrated health system** with a medical school and teaching hospital both ranked among the top 50 in the nation, a school of nursing, an NCI-designated cancer center, a leading NIH-funded Clinical and Translational Science Center, and a nationally renowned Center for Health and Technology
- **Ranked among the top 10** public research universities in the United States
- **Focused on a 10-year plan** to expand our collaboration with industry
- Home to one of the world's **largest concentrations of biological expertise**: more than 800 faculty dedicated to biology and life sciences:
 - **72 members of national academies and institutes, 34 international academy members** and

awards, four colleges (Agricultural and Environmental Sciences, Biological Sciences, Engineering and Letters and Science) and six professional schools (education, law, management, medicine, nursing and veterinary medicine)

- **Poised to use genomics to explore the interaction between host and environment**, with access to a robust clinical database (electronic health records) for the patient population of the UC Davis Health System and to the nationally ranked School of Veterinary Medicine, California's only public veterinary medical school



Partnership Framework

We propose the creation of the BGI@UC Davis Partnership to provide UC Davis' faculty, researchers and students with access to one of the world's premier genomics and bioinformatics companies and associated expertise, while providing BGI with access to our university's diverse and sophisticated educational and research capabilities in biology, medicine, agriculture and the environment. UC Davis and BGI researchers will work together on new and exciting scientific collaborations, as well as partner with other public and private institutions.

In an environment that values rigor, creativity and innovation, UC Davis faculty and BGI scientists **will engage in joint research** that will be published in top-tier journals, to the benefit of both the university and BGI. In addition, UC Davis faculty and BGI scientists will apply for collaborative federal grants that would not be possible without this partnership, resulting in more research funding to the campus and prominence for both partners. The creation of the BGI@UC Davis Partnership will focus initially on three areas, in an effort to bring additional opportunities to the campus, region and BGI:

- **Food Security**
- **Human and animal health and wellness**
- **Biodiversity and environmental health**

UC Davis Leadership Team

UC Davis has named a leadership team to work with BGI on the partnership:

- **Harris Lewin**, *Vice Chancellor of Research—Primary Lead*
- **Mike Boyd**, *Executive Director, Health System Facilities Administration*
- **Steve Drown**, *Campus Counsel, Offices of the Chancellor and Provost*
- **David Levine**, *Health System Counsel, Health System Legal Affairs*
- **Frederick J. Meyers**, *Executive Associate Dean, School of Medicine*
- **Richard Michelmores**, *Director, Genome Center*
- **Mike Minear**, *Chief Information Officer, Health System*
- **Claire Pomeroy**, *Vice Chancellor, Human Health Sciences and Dean, School of Medicine*
- **Bart Weimer**, *Faculty Coordinator, Office of Corporate Relations*