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COVID-19

BGI Unveils Mobile, Inflatable Biosafety Lab: “Huo-Yan Air Lab”

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BGI Unveils Mobile, Inflatable Biosafety Lab: “Huo-Yan Air Lab” Offers an Effective, Rapid Deployment Solution for COVID-19 Testing

SHENZHEN, China, April 6, 2020 – The ability of a country to quickly implement early screening and detection of COVID-19 cases has proven key to effectively managing the spread of the disease. But the scale and speed of infection has posed serious challenges to many governments.

In order to address these challenges BGI, in collaboration with the company Etopia, have jointly designed a mobile, inflatable P2 level biosafety laboratory, the **Huo-Yan Air Lab**, which enables partners to rapidly deploy and implement a professional, in-country diagnostic laboratory solution for COVID-19. The Huo-Yan Air Lab was unveiled at a launch ceremony at the China National GeneBank on April 3. Because of the outbreak, the ceremony was held in the form of an online cloud broadcast, and nearly half a million people watched the event live on multiple platforms.

"For countries without laboratories or where emergency needs cannot be met, we are addressing the problem with bold innovation," said BGI Genomics CEO YIN Ye.

Description:

The "Huo-Yan" Air Lab is an expertly designed biological nucleic acid laboratory launched by BGI for the screening and testing of SARS-CoV-2, for both present and future needs. The Huo-Yan Air Lab uses a modular air dome structure. It can be easily transported by air as standard freight on any commercial passenger plane, and quickly constructed and safely deployed locally to support the screening and detection capabilities of countries around the world, thereby allowing authorities to control the pandemic at an earlier stage. A P3 level biosafety laboratory was constructed using an inflatable structure during the Ebola outbreak in 2014 in West Africa, where BGI contributed to the response efforts and helped to develop virus detection kits. A patent for the Huo-Yan Air Lab has been filed and registered with the international Patent Cooperation Treaty (PCT). The lab covers an area of about 400 square meters and is designed to process from 5,000 to 10,000 samples per day.

Technical Overview:

The design of Huo-Yan Air Lab consists of five major functional areas: Sample Collection, Sample Reception, Sample Preparation, Reagent Preparation and Amplification.

The Huo-Yan Air Lab is equipped with auxiliary conversion space, including air lock conversion and medical waste exhaust system, and is installed with Class II biological safety cabinets, automatic nucleic acid preparation instruments, qPCR instruments, antibody detection equipment, gene sequencers, high-performance servers and other COVID-19 virus nucleic acid detection equipment. The laboratory is designed with a fresh air system and High Efficiency Particulate Air Filter (HEPA) to independently filter and manage the air entering and exiting the air in each functional area. This ensures that the gases in each functional space do not contaminate each other, and at the same time guarantees that outward emissions are correctly and safely filtered to comply with relevant standards and guidelines for biological safety in gene amplification laboratories and virus detection laboratories. "The Huo-Yan Air Lab fully meets the demands of global biosafety requirements and industry specifications," notes Dr. YIN, CEO of BGI Genomics, adding that the first round of experiments has been completed in the inflatable laboratory in Shenzhen with good results.

At the unveiling ceremony it was announced that the laboratory aims to obtain third-party certification for testing in the near future. Dr. SU Yunsheng PhD, Executive Vice President of the Shanghai International Institute of Design and Innovation (Tongji University and founder of Shanghai Etopia, introduced the Huo-Yan Air Lab advantages, including scalability, low energy consumption, intelligent design, effective storage, easy transportation and dismantling. Further, in the future the laboratory will

be optimized so that it can be sprayed with composite materials in order to form a concrete shell structure and become a permanent structure where needed.

About BGI

BGI is the world’s leading genomics solutions group, with the mission to empower the world to benefit from genomics. Founded in 1999, BGI has continually focused on transformative genomics research and applications. From a small group of scientists participating in the Human Genome Project to becoming consistently ranked among the top scientific institutions globally, BGI continues to pioneer its omics-driven approach to solving the world’s biggest challenges in human health & wellness and in life sciences. Beyond its research leadership, BGI also develops and manufactures breakthrough enabling technologies for omics – both tools and infrastructure – to overcome technological limits. BGI’s services and solutions are available in more than 100 countries and regions around the world. With a fully integrated omics platform from science to tools to solutions, BGI partners with governments and institutions in unwavering pursuit of the common goal: Omics for All. More information: <https://en.genomics.cn> (<https://en.genomics.cn>)

◀ **BGI UNVEILS MOBILE** ◀ **INFLATABLE BIOSAFETY LAB: “HUO-YAN AIR LAB”**