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ASIA EDITION

Nanjing YiGenCloud Institute to speed up the process of China's precision medicine with AI

May 29, 2019 | News

With the advancement of precision medicine, a lot of genetic variations associated with human diseases/phenotypes have been uncovered through genomic studies.



Xinjun He, Ph.D., the executive director of Nanjing YiGenCloud Institute, a leading medical big data AI company in China, described the blueprint of their China's precision medicine at the Nature conference: Genome Variation in Precision Medicine 2019 held in Nanjing, China.

With the advancement of precision medicine, a lot of genetic variations associated with human diseases/phenotypes have been uncovered through genomic studies, providing important clues for exploring the development of detrimental diseases and human characters.

"It's imperative to accelerate new cutting-edge technologies and transformation of research achievements by tapping into genomic studies," Dr. He said at the symposium.

The symposium was jointly hosted by Nanjing Medical University, the journal of *Nature Genetics* and *Nature Communications*, Nanjing Jiangbei New Area, Anhui Medical University and the Genome Institute of Singapore. With the theme of "Nature conference: Genome Variation in Precision Medicine 2019", participants discussed on international collaborations in relevant fields such as cardiovascular diseases, reproductive medicine, cancer genomics and genomics within precision medicine.

As a pioneer in precision medicine, Dr. He was invited by the symposium to share his experience in developing clinicogenomics big data products to push forward precision medicine, enhancing China's technological competitiveness and international influence, with the introduction of their unique development strategies by YiGenCloud.

In his opinion, in current era of modern medical development, the precision medicine in a narrow definition, is to precisely obtain examination and testing results and implement targeted treatments by combining clinical data and genomics data for each patient, has become the basis for precision medicine in real world clinical practices; and what is needed in the future is to fulfill a complete "health portrait" for an individual, based on which "preventive treatment of disease" can be achieved.

"To meet the goal, we need to collect patients' data both inside and outside hospitals such as environmental data, social economic data and health monitoring data as well," he said.

Taking an advantage of various standardized application systems in a hospital, in one hand, YiGenCloud collects and integrates these massive clinical data accumulated over the past decades, in another hand, develops various practical applications based on these data for medical institutions. This not only produces fruitful research results based on real world clinical data and facilitates the construction of various disease models, but also makes the companion diagnosis and treatments assisted by AI possible.

YiGenCloud also faces major challenges as its peers: 'With the tsunami of genomic data generation, how to standardize massive sequence data and apply it in the current AI assisted diagnosis and treatment hold another key on clinical big data".

"This requires a very sophisticated capability of integrating medical big data," Dr. He said, and he also indicated that the integration process "is tough and difficult", which is not only subject to very strict regulations but also requires huge manpower and other inputs.

With its experiences in precision medicine and understanding of the industry, YiGenCloud has invested a lot of manpower and resources since 2018 to develop an AI driven healthcare platform, with a team involving experts from multidiscipline such as doctors, medical, bioinformatics and IT, unleash its full potential of medical AI.

By doing so, YiGenCloud not only carries out researches on basic algorithms and utilizes data integration platforms to assist standardized clinical business systems of medical institutions, but also normalizes genetic data to provide quality assurance for upper-level data application and improve structuring of disease models, actively pushing forward the understanding of the molecular mechanism of disease and the precision medicine in China.

YiGenCloud was also enrolled in the first batch of innovative research institutes for 2019, published by Nanjing Municipal Science and Technology Bureau as a model for "focusing on driving application and transformation of technological achievements".