UK-US firms create largest genomics project to study Indian population

A DNA double helix is seen in an undated artist's illustration released by the National Human Genome Research Institute | Photo Credit: Reuters

A UK-based genomics data platform and an American genetics company, on Sunday, collaborated to create the world's largest project of its kind to study Indian population.

Cambridge-headquartered Global Gene Corp (GGC) said its new multi-year tie-up with Regeneron Genetics Center (RGC), a wholly-owned subsidiary of New York-based Regeneron Pharmaceuticals Inc, is aimed at finding innovative diagnosis and therapies for rare diseases.

"We believe that genomics will help India achieve a paradigm shift in healthcare," said Deepak Bagla, managing director and CEO of Invest India, the country's investment promotion and facilitation agency which is supporting GGC to build world-class capabilities in Mumbai and Ahmedabad.

Invest India said the latest collaboration marks a step forward in the Indian government's "Healthcare for All" plans, particularly with the Ayushmann Bharat initiative announced by Prime Minister Narendra Modi. "Genomic technology is important to achieve this mission. This investment by Global Gene Corp and Regeneron will create infrastructure, jobs and opportunity for the future in India," Bagla said.

Genetic evidence has revolutionised scientific discovery and drug development in recent years by providing clear links between certain genes and disease. Sumit Jamuar, chairman and CEO of GGC, explained that this "genomics revolution" is crucial to the delivery of improved healthcare for all. His company is working to solve the problem of genomic data bias — where 81 per cent of genomics data comes from Caucasian populations of European ancestry; India with 1.3 billion people represents 20 per cent of the world's population, yet its population contributes less than 1 per cent of genomic data and insights.

"We are proud that we are collaborating to create the largest programme in India to generate genomic understanding of populations in the Indian sub-continent. We are delighted to be partnering with the RGC as we have a shared commitment to improve the lives of patients," Jamuar said.

The new tie-up with RGC will sequence the exomes of people from the Indian subcontinent in order to gain insights into allelic (alternative forms of genes) architecture and specified diseases. Genomic sequencing data generated by the RGC will be paired with de-identified medical records from consenting patients to examine links between human genetic variations and disease in these populations.

"A deeper understanding of the genetic architecture and disease burden in populations throughout the Indian sub-continent will enable the identification of novel genes associated with many rare and common diseases, potentially facilitating therapeutic development, diagnosis and delivery of precision medicine," said Alan Shuldiner, managing director, vice-president and head of Founder and Special Populations at RGC.

He believes the centre's "extraordinary highthroughput automated gene sequencing and data analysis capabilities" present a great opportunity in India and other under-explored populations.

According to figures collated by the companies, currently an estimated 90 per cent of the potential

medicines entering clinical trials fail to demonstrate the necessary efficacy and safety, and never reach patients. Many of these failures are due to incomplete understanding of the link between the biological target of a drug and human disease. By contrast, medicines developed with human genetic evidence have had substantially higher success rates and patient care has benefited.

Exome sequencing records every letter in the DNA of the exome, the 1-2 per cent (30 to 40 million basepair letters) of the genome that encodes all known proteins and that is believed to have the most direct relevance for therapeutic development and understanding of inherited disease.

GGC was set up with a vision to democratise healthcare through genomics. It is focused on building a longitudinal, genomics data foundation and insights for under-explored patient populations in Asia, Middle East, Latin America and Africa.

The company’s research and development facility is located in the Wellcome Genome Campus in Cambridge, UK, with offices in Boston, Singapore and India. PTI AK CPS 03181817

Perkin discovered the first synthetic dye, known as mauveine.

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