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Gene expression for personalized medicine: Report

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Singapore: Gene expression profiling can bring significant improvements to disease profiling and diagnoses based on genetic disposition and recent technology advances in this area are enabling personalized medicine to fight diseases, according to an analysis by Frost and Sullivan.

According to the report, Advances in Gene Expression Profiling, gene expression profiling technology has established a presence in North America and most of Europe and emerging markets including India, China, South Korea and Australia.

"Physicians increasingly rely on gene expression profiling to get a thorough picture of the patient's genetic profile prior to arriving at a diagnosis and recommending a course of treatment," noted Ms Madhumitha Rangesa, technical insights research analyst, Frost and Sullivan. "With multiple disease diagnostic tests currently undergoing clinical trials and approval procedures, patients will soon have access to interpretable genetic profiles a definite way to boost patient awareness and encourage preventative care."

However, regulatory barriers pose a huge challenge for providers and life science firms, mainly due to the lack of standardization. The industry should focus on creating a standard platform for gene expression profiling scoring high on accuracy, sensitivity, and performance. In addition, the industry must invest in more clinical trials to enhance the credibility of gene expression profiling tests and create standardized protocols to enable life science firms to conduct clinical trials across developer platforms.

Having tight protocols in place will also support the development of data storage, management, and visualization platforms. These platforms will be necessary as the declining costs of next generation sequencing (NGS) lead to a boom in raw genetic data production. Large investments are already taking place across the industry, with life science firms actively trying to enter the software world and software players looking to capture start-up genetic profiling companies. Cloud-based data tools for accessing genomic information will prove particularly useful in related industries including pharmacogenomics and oncology diagnostics.

"Gene expression profiling will continue to grow rapidly over the next five years as consumer awareness grows," stated Ms Rangesa. "In fact, gene expression profiling will become a crucial aspect across pharmacogenomics, direct to consumer genetic testing and academic research."