BioSpectrum the business of Bio & Health Sciences

Expert Opinion - Dr Binay Panda

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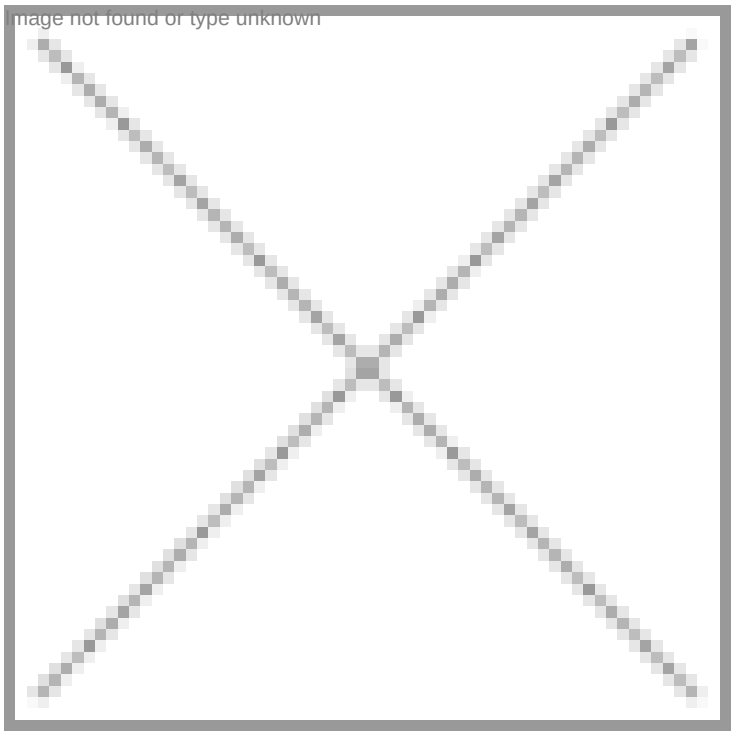

BIOINFORMATICS

Binay Panda

India does de novo genome assembly

High-throughput genomics has broad utility and applicability and India is beginning to harness it.

Introduction of the high-throughput tools such as new generation of sequencers have changed the face of biology research forever. India, like in many other fields, might be late in catching up with the US, Europe, Japan and China in producing petabyte and exabytes of data but will stay ahead of the curve in developing novel applications utilizing the data, given the right talent and proper milieu of interdisciplinary research along with proper regulatory framework.

Market trend in this area has been fairly static in India after the initial euphoria. New service providers have emerged in the last couple of years providing bioinformatics services using next-generation sequencing data. But, it will take considerable skills to translate data into actionable items and knowledge in biology, medicine and agriculture. Lack of institutes and companies in India that practice inter-disciplinary research, which is a requirement for success in the high-throughput genomics field, is a serious concern. Most bioinformatics companies in the space are engaged in data processing and not data analysis. Getting to know the nuts and bolts of biology requires thinking beyond one's own expertise and effectively collaborating with others, and with complementary skills working in an inter-disciplinary environment.

As the major portion of the total cost in the high-throughput sequencing experiments is attributed to the consumables and reagents, India does not have any particular advantage(s) over players in other parts of the world. The cost arbitrage, due to low cost labor in India, is not relevant in the lab-based services beyond a point. There must be an impetus to innovate in the area of consumables and reagents that we currently import. In order for us to move in the value chain, the business model has to change from providing services using available tools and assays to innovating both in the lab (in finding newer and improved assays) and in the data analysis area (in writing faster and more efficient algorithms).

The biggest achievement in India, last year, in the area of high-throughput genomics has been the realization among the thought leaders on the segment's broad utility and applicability. Scientists across the country now utilize the tools in asking important and interesting biological questions that could lead to novel applications in the future. For example, we, at Ganit Labs, have sequenced several oral tumors and are discovering novel genetic changes that might lead us to newer diagnostics. In another area, we have sequenced the genome and transcriptomes of a neem plant. We are one of the very few labs in the country that could not only produce the sequence information but also analyze and interpret the results from the next-generation sequencers. Our work on neem genome could yield rich benefits in the area of producing sustainable, environmental-friendly and bioactive pesticides.

Finally, the government needs to put the right guidelines and regulatory framework in place. This is especially critical in realizing the true potential of genomics' products in clinic, agricultural fields and alternate energy space.

-Dr Binay Panda, chief officer and head, Ganit Labs