BioSpectrum the business of Bio & Health Sciences

Wellness Genomics: Genomics for health and wellness

15 December 2014 | Features | By Rahul Koul Koul

Wellness Genomics: Genomics for health and wellness

Genomics or genome sequencing was earlier synonyms with finding out the risk of getting a disease or more so a deadly disease. With genome sequencing becoming cheaper and affordable, many bioinformatics companies are offering services which utilize DNA-based information to treat ageing, managing or identifying the wellbeing or even the sports which a person should pursue as per the genetic information and ultimately trying to add up healthy approach to a one's life. Genetic information can be utilised for a much healthier life. This has given rise to a term, "wellness genomics."

Wellness genomics the new trend?

"In General, health and wellness has gained a lot of recognition in consumer conscience in recent years. Personalized health and wellness through genetics is the next frontier. At Xcode, we are already seeing a significant awareness among consumers about genetics and its role in disease prevention, health and fitness. It's a trend that is growing quite rapidly. Our 100andLife program, which is a DNA-based holistic health and wellness program, has found significant interest among corporate as well as individual customers," said Mr Abdur Rub, CTO, Xcode Life Sciences, a Chennai-based, bioinformatics company. It has recently launched come alive, where DNA information is utilised to gather information like collagen elasticity, etc, and that is being utilized for treating ageing. It is a DNA based anti-ageing solution in which uses body's defences to slow down the aging process. The service is being offered at a nominal fee. The company also has offer services in the pipeline like lifelong wellness which analyse genes for health risks and metabolic variables to give an effective nutrition and fitness plan.

Echoing similar views Ms Anuradha Acharya, CEO, Mapmygenome said that wellness is going to be bigger and genome is definitely a piece of wellness industry. Mumbai-based Mapmygenome also offers DNA based tests to find the right sport/fitness activity for an individual and many other services like Gynaecmap a women's wellness predictive panel. This revolutionary test gives the genetic vulnerabilities to key functions of women's health. The company also offers Oncomap, a DNA-based test that predicts the genetic risk of developing cancer. By combining genetic report and health history with genetic counseling the company provides actionable steps for individuals and their physicians towards a healthier life.

The cost of these tests typically range from Rs 5000-25000, and like any other thing can also be purchased online. Recently, mapmygneome, partnered with online retailer snapdeal.com for selling its kits.

Similarly, some of the companies are partnering with hospitals to reach out to people. Like Mapmygneome India has partnered with CARE Hospitals Group to offer personal genomics and molecular diagnostics at the hospital. Also, Positive Bioscience has partnered with Medanta-The Medicity to launch India's first Personal Genomics Clinic, which offers state of the art facilities and services in preventive healthcare and personalized medicine within the country.
Prospect in India

How is wellness genomics industry in India?

"Very new at this place will take some time to actually take it off", said Ms Acharya. Elaborating further on this Mr Rub said, "The wellness genomics market in India is nascent but expanding rapidly. Our company, Xcode Life Sciences has had good success among various customer segments. We anticipate the market to grow significantly once the marketing efforts ramp up in the coming months. A significant increase in preventable lifestyle-related conditions among the workforce has given rise to a need for effective preventative health tools, where genetic-health and wellness fits in perfectly. A significant number of Xcode's customers are corporates."

Future trends

Speaking of the future prospect in wellness genomics, Mr Rub said, "The downward trend in the cost of genetic sequencing will continue. The industry is eagerly anticipating the $100 human genome, which will open the flood gates for large scale whole genome data, which will lead to a dramatic increase in number of discoveries and an explosion of niche products that are matched to consumer genotypes. With a significant first mover advantage in India, Xcode Life Sciences is well positioned to ride this trend. We have multiple products, partnerships in place which will be rolled out in the near future. Thus, it is becoming increasingly evident that personalised medicine could be the next era in the healthcare industry."

Defying aging?

With the help of personal genomics is it possible to defy ageing? Or live long? Answering to the question, Mr Rub said, "We are living in unprecedented times. The pace and magnitude of scientific progress in biomedical sciences is phenomenal. Given the developments and underlying trends it is plausible that aging can be significantly slowed, if not arrested- in the not so distant future. Personalized nutrition, fitness and other interventions will play a significant role in achieving that goal. At Xcode, the goal to achieve a long, healthy and youthful life underlines our product philosophy and is a recurrent theme across all our product. It will offer a range of personal genomic services that predict diseases and pinpoint the right medicine for an individual."

Our genome is the blue print of life and ultimately defines what our life is going to be as far as health and disease are concerned. "Genetics is a portion of what your life is going to be and you can made changes in your lifestyle and that will allow you to live long and healthier life. Preventive genomics can add 10 years to a healthier life," adds Ms Acharya.

Exploring reasons for longevity

However there are some other researchers who are trying to find out the molecular reasons for the longevity. A team of scientists at the Institute of Genomics and Integrative Biology (IGIB), are trying to sequence the genome of centenarians to decode the secrets of longevity.

The project, funded by CSIR, titled 'Wellness Genomic Project' is led by Prof. Samir K Brahmachari (SKB) former DG, CSIR along with his colleagues Dr Sridhar Sivasubbu and Dr Vinod Scaria, scientists at IGIB.
Many other countries like US UK, Japan New Zealand are also working on decoding the secrets of longevity.

Speaking about the project, Prof. Samir K Brahmachari said, "We wanted to be a part of Xprize Archon genomics so that we have access to all the data. Unfortunately, the Xprize got closed. But we decided to sequence the Indian genome, and 91 in India is as good as 100 in Japan. We are trying to find out what signals longevity by studying their genome."

Life expectancy in India has increased considerably due to the advancement in science and healthcare. It was 30 in India at the time of Independence and it is now 65. In the US it is 69. And this can be improvised further by understanding the genome at the molecular level.

They have collected 88 samples (of people aged 91 or above) from across India, out of which 16 are sequenced so far. They have formulated few theories. Prof. SKB elaborated further, "Idea is to find something common in these genes. Some special types of genes, or other genes whose activity is slightly higher than the others. We are looking at C.elegans genes which are

shown to be related to longevity, are these genes different here? If we can find a marker or some particular metabolism process that allows longevity.

Sequencing is not an easy task, and sequencing the genome of centenarians is even more difficult, as it is very hard to collect blood samples from them. So working with small samples, with the present day technology, and to analyse large genomic data, are some of the challenges in this project.

This is the first of its kind study in India. Earlier, Bangalore-based Avesthagen had launched a Parsee genome project with an investment of Rs 125 crore. Parsee community has a life expectancy of 75 years as opposed to 60 for Indians. "The Parsis tend to have a higher longevity than the rest of the Indian population, and most people live well into their 90s. A multitude of factors could give rise to a trait of longevity in a population. These could be genetic, or environmental (such as lifestyle, dietary habits etc), or more likely a combination of both. We are currently focussing on three disease groups-cancers, metabolic disorders and neurodegenerative diseases.

Using parallel genomic, proteomic and metabolomic approaches, a massive amount of data is being collected. For example, whole genomes of 11 individuals have been sequenced so far. These data will be analysed and integrated with the environmental factors that we have collected in our questionnaires, and cumulatively these could give us hints about a complex trait as longevity. That is one of our long term goals," said Dr Villoo Morawala-Patell, Founder and CMD, Avesthagen.

We hope after sequencing 30 genomes we will have statistically significant data, sums up Prof. SKB. If the project is successful, it would pave the way for long, and healthy living.