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Recombinant vaccine is the next big thing

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In continuation with our special series on CSOs, we bring yet another achiever in the field of biotechnology, Dr Venkata Ramana who is the Research Director, Reliance Life Sciences, an expert in vaccines and recombinant proteins

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The recombinant protein area is one of the promising areas for the future. Researchers believe that ld be the answer to many potential diseases.

In India, for the last 10 years, Dr Venkata Ramana has been working with Reliance Life Sciences (RLS) in the areas of recombinant proteins, therapeutic monoclonal antibodies, siRNA-based drugs teins.

Dr Venkata Ramana began his career in microbial fermentation research under the guidance of Prof. NG Karanth and had a chance to apply chemical engineering principles to biology. After completing PhD in biochemistry from Central Food and Technology Research Institute (CFTRI), Mysore, he went to University College London (UCL), London, UK, and worked in the area of organic biocatalysis where his interest was to study the properties of enzymes isolated from thermostable microorganisms, and their action in organic solvents. He worked for three years at UCL before returning to India.

On his return, he joined Shantha Biotech and worked for seven years on various projects including Shantha's most productive project, the development of recombinant hepatitis B vaccine.

Activities at Reliance

Currently Dr Ramana is involved in a number of projects at Reliance. There are many biosimilar recombinant proteins and

monoclonal antibodies, that are in various stages of development. Commenting on this, Dr Ramana said, “The siRNA is one of the focus areas for Reliance Life Sciences. We are evaluating a number of anti-viral and anti-cancer siRNAs in in-vitro and animal models. Research on novel monoclonal antibodies and fusion proteins is underway for a number of indications.”

“Reliance Life Sciences is a research-driven, biotechnology-led, life sciences organization. The company focuses on key areas such as medical, plant and industrial biotechnology. The company gives emphasis to biopharmaceuticals, pharmaceuticals, clinical research services, regenerative medicine, molecular medicine, novel therapeutics, biofuels, plant biotechnology and industrial biotechnology,” adds Dr Ramana.

RLS has the largest biosimilars pipeline in the industry. Regarding the product launches, he says, “The company has launched four biosimilars in the market – ReliFeron (Recombinant Interferon ?) ReliPoietin (Recombinant Erythropoietin), ReliGrast (Recombinant Granulocyte colony stimulating factor) and MIRel (Recombinant Reteplase - tissue plasminogen activator).”

Dr Ramana firmly believes that there are very good opportunities in the area of recombinant proteins. Commenting on the future, he says, “In the area of recombinant proteins, we can expect modified versions. They could be PEGylated, fused to other proteins and mutagenized at various sites, thus exhibiting better phamacokinetic and pharmacodynamic properties. We can also expect natural proteins expressed as recombinant proteins. In the area of vaccines, we will see vaccines developed based on proteomics approach and which elicit T-cell response.”

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Innovation drives growth

According to Dr Ramana, the Indian biotechnology industry has made impressive progress in the area of vaccines and it constitutes a significant amount of exports. He says, “The industry is also trying to replicate such a success story in the area of biopharmaceuticals with substantial investment in research and facilities.”

The Indian industry has to watch the regulatory environment both in India and outside. He adds, “Meeting the requirementsof new guidelines would require completely new mindset from quality standpoint and manufacturing practices. The industry also needs trained manpower to meet these challenges.”

Dr Ramana puts innovation as the key to the success of the biotechnology industry. “While laying stress on the innovation for growth, we need to embrace new technologies in the area of discovery and delivery. Collaboration with institutes and academics is a very important piece in the puzzle of innovation. Also, venture capital funding for testing proof-of-concept would expedite discovery, which would catapult industry to the next level pretty much the way it happened and is still happening in the Western world,” shares Dr Ramana.

Inspiring factors

Dr Ramana is a firm believer of team work. Speaking on his achievements, he says, “Instead of calling them my achievements, I would call it the achievements of the teams I have worked with. My training in CFTRI and UCL have paved the way for my work on projects like hepatitis B vaccine and interferon alpha at Shantha Biotech. In Reliance Life Sciences, my team worked on a number of projects, which has resulted in commercialization of five recombinant proteins and other projects.”

Dr Ramana who believes that if not a researcher, he would have been a teacher. “I think the passion and commitment of the companies that I worked with to develop much-needed life saving drugs is the inspiration,” he shares.

Dr Ramana also feels fortunate to have good friends who constantly inspire him. While crediting his friends and family for his success, while praising his mentor, he observes, “I consider my PhD supervisor, Prof. Karanth as my mentor. From him, I learnt not only about practicing science, but also basic ethos of life.”

As India moves ahead towards new technological revolution in next decade, it is the efforts of scientists like Dr Venkata Ramana that can play an important role in creating new opportunities in biotechnology area to tackle the various problems of mankind.