BioSpectrum the business of Bio & Health Sciences

“Virology, epidemiology and biochemistry research need governmental push to catalyse vax development”

01 September 2021 | Views

To expand its current media offering, specifically by specialised media for manufacturing viral vectors and, additionally, in the area of media analytics, Germany-headquartered Sartorius, through its subgroup Sartorius Stedim Biotech, has recently acquired cell culture specialist Xell AG. Sartorius is, also, helping the industry across the globe during all stages of vaccine development, which is the need of the hour. In conversation with BioSpectrum, Amit Sharma, Head of Sales, Bioprocess Solutions- Asia, Sartorius, Singapore talks about the company’s latest developments. Edited excerpts;

How is Sartorius currently serving the vaccine requirements in Asian countries?

We serve all the major vaccine players in Asia who have developed their own vaccines or are manufacturing vaccine doses on behalf of other companies for local distribution. Particularly in India, there is undoubtedly an urgent need for local vaccine production and distribution to serve the huge population. Sartorius is working with all manufacturers in India to develop and produce vaccines using both traditional techniques and emerging technologies. Our end-to-end solutions span cell culture technologies, filtration and purification technologies, fluid management technologies, data analytics solutions, and bioprocess development and engineering services. These solutions can help vaccine manufacturers quickly ramp up production.

How is the recent acquisition of Xell helping in this regard?

For Xell media, like the rest of our portfolio, all countries in Asia are our focus. To increase the availability of critical raw materials and consumables, Sartorius has maximised its media supply through a mix of in-house development, owned manufacturing, CMO partnerships, and acquisitions of media developers and manufacturers such as Xell. We aim to help India and other countries reach their goals of fully inoculating their population as early as possible to bring an end to this pandemic.

How do you foresee new trends shaping up in vaccine R&D and manufacturing space in the post-COVID-19 era?

The COVID-19 pandemic created unprecedented demand to produce and distribute vaccines quickly. The vaccine manufacturers had to rapidly expand or re-purpose existing facilities which overwhelmed their entire supply chain network. Manufacture of the approved vaccines across multiple sites needed strong support for efficient technology transfer.

Vaccine manufacturers turned to vaccine platforms that had been studied for decades but had not yet reached the clinic, namely, mRNA and viral vectors.

Viral vector vaccines use genetically engineered viruses to coerce patient's cells into expressing the antigen, while mRNA-vaccines are developed by inserting an mRNA sequence encoding an antigen into a lipid nanoparticle that grants the mRNA access to one's cells. Since mRNA is produced using enzymes rather than via cell culture, the process of developing these vaccines is simpler and more straightforward than traditional vaccine manufacturing.

Both mRNA and viral vectors are true platforms because all a manufacturer needs to do is synthesise the correct genetic sequence. The rest of the process can be transferred easily from one indication to the next, leading to an extremely rapid process that yields vaccines that reach the clinic much sooner. Given the savings they offer in terms of cost and time, flexible process platforms such as these enable vaccine manufacturers of all sizes to respond to novel viruses.

Vaccine manufacturers should continue investing in tools and expertise that can accelerate vaccine development and production. They must reinforce and expand their vaccine pipelines, de-risk raw material and equipment supply chains with dual sourcing to prevent shortages and further invest in technologies such as mRNA to boost flexibility.

Manufacturers also need to source the required knowledge to develop these vaccines. Finally, governments and academic institutions must invest more resources into virology, epidemiology and biochemistry research to catalyse vaccine discovery and development.

With the right government support and by increasing their commitment to scientific knowledge, flexibility and agility, vaccine manufacturers can potentially counter the next viral outbreak more effectively before it becomes a pandemic.

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