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Short Commentary

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Rising Demand for Biopharmaceuticals Has Been Overtly Beneficial for the Downstream Processing Industry

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ABSTRACT

Retinal degenerative diseases, such as Stargardt's disease (SD), glaucoma, retinitis pigmentosa (RP), age-related macular degeneration (AMD) or diabetic retinopathy (DR), represent the main causes of a decreased quality of vision and blindness worldwide. The progression and management of these conditions have always represented a challenge, but promising new evidences about the efficacy of mesenchymal stem cells (MSCs) as therapy for these diseases has been shown. The therapeutic potential of MSCs lies on its ability to release paracrine factors with neuroprotective, immunomodulatory and anti-angiogenic properties that stimulate the retinal pigmented epithelium (RPE) and are even similar to those produced by RPE. In literature we can find many studies conducted animal models, in which MSCs proved their efficacy in stopping the progression of retinal degeneration and for rescuing photoreceptors in the dormant phase. Furthermore, they retain a differentiation potential which allow them to differentiate into various cell types, including the cells of the retina. By all of those properties it is clear how MSCs result an important therapy option in these pathologies. In this review we summarize the various properties of MSCs and their promising applications in various retinal diseases, enhanching a new clinical approach on pathologies which otherwise have a difficult managing and a unfavorable prognosis.

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In the last decade, there's been a steep rise in demand for biopharmaceuticals across the world and at the same time, increase in the expenditure of R&D activities have propped up the setup even more. This, in turn, has given way to surge in usage of membrane filtration in purification & disinfection, thus intensifying the significance of concentration methods to yield vaccines & biopharmaceuticals. Simultaneously, rise in demand for new-fangled solutions, process optimization & cost depletion, and developments in the utilization of techniques to detach biological units from deferment have also been beneficial for the market.

According to a recent report published by Allied Market Research, the global downstream processing market is projected to showcase a distinct CAGR from 2020 to 2030. The outstanding development in the biotechnology sector has propelled the growth of the downstream processing market. The fact that the downstream method helps in segregating and distilling the biological products has facilitated the adoption of the technology in the biopharmaceutical sector.

Substantial innovations in the biotechnology industry have also paved the way for lucrative opportunities for the key players. For example, NALCO (National Aluminium Company Limited) launched AA 1200, i.e. Aluminium Alloy 1200 in 2019, accumulating one more downstream product to its remaining series. This blend is almost similar to the compound AA 1100 and has a huge applications in the manufacturing of LED light caps. Moreover, rise in the incidence of chronic syndromes including diabetes, cardiovascular, and cancer has heightened the demand for the biopharmaceuticals even more, thus increasing the application of sensors too, which in turn has again propelled the growth of the market.

Keeping in tab with Cancer Research UK, fresh cancer cases may escalate to twenty-eight million annually by 2040 in comparison with the number seventeen million in the year 2018. Antibodies are considered to be one of the major modalities propounded by the biopharma market today. There is a constant development in certain approaches in the bioprocessing of antibodies that has further boosted the market. As for example, back in 2018, Novasep came up with a downstream processing device that integrates relevant batches for transgenic proteins, recombinant antibodies, and blood factors.

At the same time, since antibiotic resistance is on the spur, there's been a considerable spike in demand for antibody development that acts against resilient strains. This is why there is a growing inclination toward downstream processing for production of antibodies at industrial measure. The downstream method has now come out as an indispensable part in the fabrication of vaccines, antibiotics, hormones, and antibodies. This, quite naturally aids in the growth of the market.

Simultaneously, the top players in the industry have also started investing significantly to alter the product line so as to cope with the highly competitive setup, thus retaining their foothold in the sphere. Similarly, with high-end technologies on board, the need for improved technology structures are also in the rise, and to cater to the wide-ranging stipulation of the customers, industry participants are endlessly formulating new products.

Commendable R&D infrastructure, significant investments made by the frontrunners, and more & more government provisions have also been advantageous for the market expansion. The steady establishment of supply chains and vendors for bioprocessing comestibles and tools across both the developed and developing countries have helped the downstream processing market spread its wings in more than one way.

A renowned Australia based graphite mine developer Blackearth and Metachem, an Indian graphite producer have come by a five acre site in Pune so as to establish a downstream graphite processing unit under their joint undertaking. Panthera Graphite Technologies is all set to put up a plant that can yield around two thousand to two thousand five-hundred tps of expandable graphite in the primary phase, the initial three years. It is projected to magnify the production volume to four thousand to five thousand tonnes per annum from the fourth year.

The company will start off with site development in the second quarter of 2022, with the completion intended in early 2023. It would take on the trial processing directly after that. Inflatable graphite delivery from the unit will commence from the second quarter of 2023. The organization has also picked up an obligatory offtake treaty to endow all of its initial production to the prominent graphite downstream processing name, Grafitbergbau.

Covid-19 scenario

Here, it's worth mentioning that the outbreak of the pandemic gave way to significant surge in demand for Covid-19 vaccines across the world, which had a sheer positive impact on the global downstream processing market. Since the downstream method tends to play a vital role in the production various vaccines, the top players operating in the industry happened to heighten their production capacity to meet the mounting demand. For example, in the first quarter of 2021, a Germany based contract development & manufacturing venture, Rentschler Biopharma came up with the speculation that CureVac N.V., another biopharmaceutical company increased the production of CVnCoV Covid-19 vaccine to a considerable degree.