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ASIA EDITION

Keeping Pace with Mutating Viruses

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A surge in the pandemic has forced the pharma industry to deliver a wide-spectrum vaccine to fight mutation-prone SARS-CoV-2, pledging to prevent future outbreaks. In order to gain a competitive position in the market, vaccine manufacturers are investing in advanced platform technologies. The most extensive vaccination campaign in history is providing prophylactic results by delivering more than 12 billion doses of the COVID-19 vaccine, protecting 60 per cent of the global population as of June 2022. Now the next-generation COVID-19 vaccine is countering the challenge to enhance the immune response of their vaccine candidate to tackle the emerging COVID-19 variants. It is therefore imperative to remain vigilant and upgrade vaccine candidates to emerging sublineages of the virus. Let's take a closer look at some of these leading vaccines that are approved as broad spectrum virucide inhibitors.

As of July 2022, uncertainty persists as waves of SARS-CoV-2 continue to emerge. Over time, new virus variants arise and threaten to reduce the impact of existing vaccine efforts. There is a clear need for potential strategies to tackle emerging variants, and to protect populations against the future pandemic.

Over the past 30 months, the development of the vaccine has been a prolonged and arduous process for the biopharma industry across the globe. The companies are investing in large production infrastructures with widespread distribution and are steadfast in bringing the COVID-19 vaccine to market. The global industry stakeholders share next-generation vaccine platforms by leveraging the capabilities and long-standing expertise of innovation to overcome the competitive barriers. An enviable network of alliances has emerged among global firms and a wide range of government and regional commercial partners, and the Asia Pacific (APAC) region is not an exception.

As of July 20, 2022, the World Health Organisation (WHO) has granted 11 vaccines an Emergency Use Listing (EUL) for global usage. Around 40 vaccines have been approved, authorised, licensed, granted Emergency Use Authorisation (EUA) by at least one country, or made available for use outside of clinical trials via any pathway by a regulatory agency, a national authority, or another entity. As per the records, at least one COVID-19 vaccine of any type has been approved in 197 countries. Further, there are 753 vaccine trials currently active with 220 vaccine candidates in 78 countries.

Dodgy Omicron

Several COVID-19 vaccine candidates currently in use target the receptor-binding domain (RBD) of SARS-CoV2 spike proteins in order to elicit an immune response. In most cases, the new Omicron variants of SARS-CoV2 and its evolving sublineages have outcompeted BA.1 (primary SARS-CoV-2 variant) by evading the immune response induced by the vaccines currently in use. A recent observation indicates that Omicron now accounts for roughly 97 per cent of infections globally, with BA.2 accounting for the greatest share (39 per cent) as a dominant sub-variant. Further, the Omicron variant of COVID-19 is evolving into several more transmissible variants that are rapidly gaining ground.

“Altogether, multiscale investigations suggest that the risk of [L452-bearing Omicron variants], particularly BA.4 and BA.5, to global health is potentially greater than that of original BA.2,” says Kei Sato and colleagues at the University of Tokyo. Another thing that’s concerning some scientists is a mutation in the spike protein gene at position LR452, which may make BA.4 and BA.5 (and related variants, including BA.2.12.1) more contagious than earlier Omicron variants, as well as more prone to infecting lung tissue.

Having identified these emerging pitfalls, regulatory authorities worldwide have advised vaccine companies to update their products with an additional Omicron BA.4/5 component to create bivalent booster vaccines. Companies are not being asked to tweak their existing primary COVID-19 vaccines, as the regulator sees these as providing a 'base of protection' against serious outcomes. Nevertheless, biopharma companies and R&D centres are now on their toes to catch the race to compete with the virulence rate and regulatory pressure.

Meanwhile, regulators at European Medicines Agency (EMA) and the United States of America (USA) Food and Drug Administration (FDA), and Asian regions are advising vaccine makers to update their booster shots for BA.4 and BA.5 variants to remain vigilant. Companies are thoughtfully deploying capital in a variety of shareholder-friendly ways with the goal of maximising the value for all stakeholders, including patients. Here we discuss some of the vaccine candidates approved by the WHO that are ahead of the race in meeting the global timeline.

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