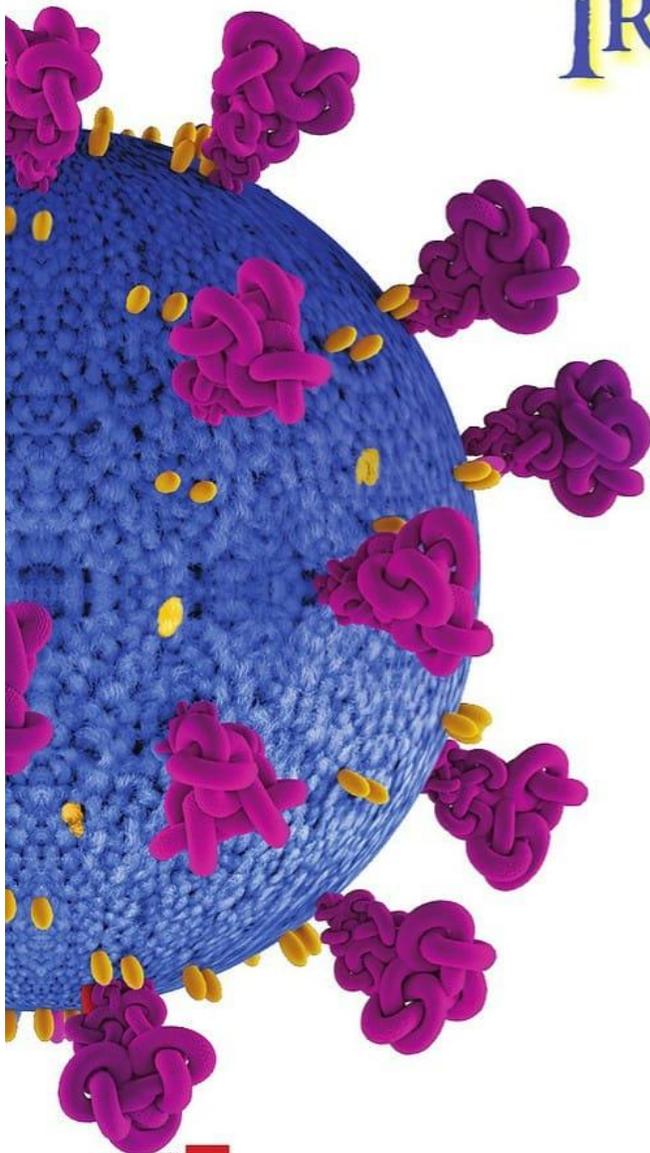


In the Spotlight

# PHARMA COMPANIES AND COVID-19 TREATMENTS



**Dr Sandeep Narula**, Assistant Dean, School of Pharmaceutical Management, talks about the advances being made in the development of a vaccine to treat coronavirus

**T**he coronavirus pandemic has, among other things, changed our approach to vaccine science and will teach us about what we can achieve in terms of applying emerging technologies, speed and collaboration. Since this is a newly identified virus, we are trying to understand how it behaves across populations and time. However, a lot of clinical and scientific experience is already being applied to the challenge, including the scientific knowledge of other viruses, and other corona viruses like SARS, MERS and the flu, which remains a health threat annually.

#### **How does vaccine development work?**

In non-pandemic times, a new vaccine takes over ten years for development and approval. This is not because of the lack of urgency on the part of researchers and manufacturers. It is mostly due to the need to establish the safety and efficacy of vaccines through long-term, large-scale clinical trials, regulatory processes, which vary across geographies, and the level of complexity involved in manufacturing vaccines.

In a pandemic, all of the above steps have to be compressed into a very small time scale, so we can address the real time tragedy. We all are moving at a pace that has not been seen in vaccine development. While the degree of scientific collaboration is encouraging, it is way too early for us to know if these endeavours will lead to an effective vaccine any time soon. So far, the signs have mostly been positive.



Novel approaches, including mRNA-based vaccine candidates, can move through early developmental stages and testing protocols, and generate data faster than the more established approaches. If the candidate vaccines progress beyond the laboratory, they will have to prove successful in clinical trials on human populations. They usually start out small and progress into larger efficacy and safety trials, which have to be robust enough and conducted in a sufficiently large group of people, and in an environment where the virus is in circulation, for meaningful results.

We have to understand that vaccine trials are different, and in a lot of ways, more challenging than ones for a new medicine. With a medicine, we identify sick patients and conduct trials to evaluate the outcomes of patients using a newer treatment, compared to the ones using another treatment or placebos. With vaccine studies, we test it on healthy people who may not have got sick from the disease under question, and monitor how people are prevented from becoming ill. This is a difficult assessment to make.

**Vaccine major players in full swing:**

The world has so far witnessed approximately 94 lakh people infected with Covid-19 and nearly 4.80 lakh people have died. India alone has nearly 4.60 lakh active Covid-19 cases and has reported 15,000+ death due to Covid-19.

The pandemic has forced the entire scientific community to go all out for vaccine development, and the entire universe is eagerly looking forward for the magical vaccine. ICMR and Bharat Biotech from India had claimed significant progress, and officials have reported that they are moving in the right and positive direction in terms of vaccine development. One has to wait between 6-12 months to see the first dose of vaccine available commercially.

Apart from this, there are seven other Indian players who are working for the development of a vaccine, and their work has been approved by WHO. Serum Institute of India has tied up with Oxford University for the clinical trials of the Covid

vaccine. US based global vaccine company Moderna Therapeutics has made significant progress with its RNA-1273 prototype, which is seen as a strong contender for the vaccine.

**Our best guess is that a successful vaccine against the coronavirus will take anywhere between 12 to 18 months to become widely available. We will also likely need more than one vaccine**



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Russia based Vektor Institute has also claimed that their vaccines have shown positive results during animal trials and are expecting positive results in human trials by September.

The Chinese company Sinovac Biotech is 99% sure with the success of their vaccine, as the company is in stage 2 of the clinical trials. There are five other Chinese companies who have entered the human clinical trial stage successfully.

Apart from vaccines, Patanjali Ayurvedic medicine has also claimed that it has a cure for Covid-19. The Ayush department, however, has stopped the commercial sales of the Ayurvedic drug of Baba Ramdev's Patanjali, and has asked the company to deliver scientific evidence proving its efficacy.

### When can we see results?

Our best guess is that a successful vaccine against the coronavirus will take anywhere between 12 to 18 months to become widely available. We will also likely need more than one vaccine, and the adjuvant technology should be made available to research teams across the globe to speed up the vaccine development. Factoring in all of the above, we can expect a vaccine by the second half of next year. Other estimates are more hopeful, and the sooner we find a safe and effective vaccine, the better. While speed is not or should not be the primary criteria, it is a big motivator to all the teams that are involved in vaccine development.

The next phase of this global programme will be to scrutinise the data that starts to emerge from the clinical trials. Although this has begun to happen already, researchers will have to exercise caution with the data, because the information from the use of candidate vaccines in people who have been exposed to the virus can show us if we achieve what we want to achieve. The lessons we learn from this pandemic will change the way we deal with infections. In the future, when faced with infectious diseases, including all future pandemics, we will be better equipped with vaccine technology, global mechanisms, and the right collaborative mindset to advance immunisation as a critical and powerful health intervention at our disposal.

