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CCMB DEVELOPS INDIAN MRNA VACCINE PLATFORM

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The Centre for Cellular and Molecular Biology (CCMB) here has established the “proof of principle” of the first indigenous mRNA vaccine technology coming from a scientific institution in India, Vinay K. Nandicoori, Director of the of the Council of Scientific and Industrial Research institution, said on Friday.

“We are very excited about this achievement of replicating the mRNA vaccine technology end-to-end. We are proud to have developed the potential mRNA vaccine candidate against SARS-CoV-2 within 10 months of having initiated the concept. It is based on the Moderna model, but has been built with the information available in the open and our own technology and materials,” he said a press conference at the CCMB, along with N. Madhusudhana Rao, Director, Atul Incubation Centre (AIC-CCMB).

Dr. Nandicoori said “robust immune response” had been observed against the COVID-19 spike protein in mice upon administration of two doses of the mRNA vaccine. “The anti-spike antibodies generated were found to be more than 90% efficient in preventing the human ACE2 receptor binding to the coronavirus,” Rajesh Iyer, scientist, said.

The mRNA vaccine candidate is now undergoing pre-clinical hamster challenge studies to evaluate the efficacy to protect against live virus infection.

While vaccines work by training the immune system to identify disease-causing micro-organisms and eliminate them quickly when they encounter them, in the mRNA technology, the host cell’s immune system is trained to evade the real infection. This is done by introducing mRNA of the micro-organism of concern into the host.

The home-grown mRNA vaccine platform holds promise to deal with other infectious diseases such as TB, dengue, malaria, chikungunya, rare genetic diseases and others. “The beauty of this technology is in its rapid turnaround times, which means vaccines can be developed for other diseases or a pan-COVID vaccine covering different variants,” the CCMB Director said.

The scientists said the technology was ready to be transferred to any interested firm to take it to the next level of human trials and bring out the vaccine into the market after approval of the regulatory authorities.

“We have been having discussions with a few private firms to scale up to the next level of trials and commercial production,” a scientist added.

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