HEALTH

Merck Scraps Covid-19 Vaccine Candidates

The two shots generated comparatively weak immune responses in early-stage studies

Merck said it would now focus on advancing two experimental Covid-19 drugs.

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By Jared S. Hopkins

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Merck MRK **-1.11%** ▼ & Co. said Monday that it is halting development of its two experimental Covid-19 vaccines, after early clinical-trial data showed the shots generated disappointing immune responses against the virus.

Early-stage studies of the vaccines indicated they produced inferior immune responses in subjects given the shots compared with people who survived Covid-19 or took authorized Covid-19 vaccines, the company said.

The exit removes a major vaccine player from the constellation of companies seeking shots to curb the spread of the virus, as the few that have been able to bring shots to market struggle to meet heavy demand.

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Kenilworth, N.J.-based Merck, one of the world’s leading vaccine makers, said it would now focus on advancing two experimental Covid-19 drugs.

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Merck said it expects test results for the pair of drugs in the coming weeks, and the company could ask regulators to authorize use if the results are positive.

“We’re quickly informing society so that obviously we can refocus on therapeutics, but also so that some of the knowledge is shared with the broader community,” Nick Kartsonis, who oversees Merck’s vaccine clinical research, said in an interview.

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Dr. Kartsonis said it was unclear why the shots weren't very effective, though they were safe. Merck didn't provide the study results, saying it would submit the findings for publication in a peer-reviewed medical journal.

Due to the discontinuation, the company said it would record an unspecified tax charge in the fourth quarter of 2020.

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Merck's decision Monday underscores the difficulty in developing a vaccine, which normally takes years to bring to market. Development of a Covid-19 vaccine by Sanofi SA SNY **-0.97%** ▼ and GlaxoSmithKline GSK **0.82%** ▲ PLC was set back last year after a laboratory mistake, delaying a potential authorization by several months.

Some 60 Covid-19 vaccines are in human testing, according to the World Health Organization, but regulators have only authorized a handful for general use, leaving limited supplies.

Many scientists and public-health experts placed high hopes on Merck, which pioneered vaccines that have become staples around the world, including the first to prevent mumps, chickenpox, rubella and shingles.

Yet Merck was slower than rivals to pursue Covid-19 vaccines. Chief Executive Ken Frazier and then-R&D chief Roger Perlmutter expressed concern about the years vaccine research usually takes, and that it would divert resources from thriving areas, such as cancer drugs, The Wall Street Journal reported in October.

Merck executives have also said they wanted to use vaccine technologies that have worked against other viruses, and that could be fashioned into a single-dose regimen.

The drugmaker discussed collaborating with the University of Oxford on its experimental vaccine, but university scientists and the U.K. government resisted a proposed deal, the Journal reported. Oxford ended up joining with AstraZeneca AZN **0.80%** ▲ PLC.

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As Covid-19 vaccines roll out in several countries, counterfeits are being marketed online. WSJ explains how phony vaccines end up on the internet and the risks for people who buy them. Illustration: Crystal Tai

In late May, Merck said it was pursuing two Covid-19 vaccines, one as a result of the company's acquisition of Themis Bioscience and the other in partnership with the scientific-research organization IAVI.

The Themis vaccine uses a weakened version of the virus that causes measles to deliver coronavirus's spike protein to the immune system, helping trigger an immune response. Merck conducted a 260-person early-stage study to evaluate whether it worked safely against Covid-19.

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Merck’s second vaccine, developed with IAVI, employs the technology that is the basis for the drugmaker’s Ebola virus vaccine, using a modified and weakened virus to carry the genetic instructions to teach cells to make a protein from the coronavirus. The vaccine was tested in a 252-person trial.

In reviewing the results from the early-stage studies for both vaccines, Merck wasn’t encouraged when it looked at data for antibody production, including the neutralizing antibodies that play a key role preventing the virus from entering cells and replicating, Dr. Kartsonis said.

“It doesn’t appear that our responses are numerically on par with what you would see either following natural infection or what we’ve been seeing” with vaccines from Pfizer Inc., PFE **0.08%** ▲ Moderna Inc. MRNA **3.35%** ▲ or AstraZeneca, he said.

The vaccines from Pfizer, and its partner BioNTech SE, BNTX **-3.91%** ▼ and Moderna are authorized for use in the U.S. AstraZeneca’s shot has been cleared for use in the U.K. and certain other countries, though not the U.S.

The Pfizer-BioNTech and Moderna vaccines were more than 94% effective in late-stage trials, while the AstraZeneca-Oxford shot was at least 62%

effective in some final-stage studies. All are given in two doses.

Merck’s vaccines were so much further behind in development that health authorities didn’t anticipate them to be part of the initial vaccine rollout under way globally. But they may have served as crucial backstops to countries that don’t have access to the first wave of vaccines or have been another tool to use against the emerging variants.

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Some scientists had hoped Merck’s vaccines might have meant the longest protection due to their proven platforms.

Merck and vaccine experts also said the proven technologies and single-does potential made the vaccines easier to manufacture and distribute to poorer countries that lack the infrastructure needed to handle some of the vaccines already cleared by regulators.

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One of the experimental drugs Merck is working on would treat severe and critical Covid-19 patients. Merck acquired the drug via a $425 million acquisition of a company named OncoImmune. Merck expects results from a late-stage study by the end of March.

Merck signed a $356 million agreement with the U.S. government to supply the drug, should regulators give the treatment a green light.

The company’s second Covid-19 therapy, an oral antiviral called molnupiravir and developed with privately held Ridgeback Biotherapeutics LP, is under evaluation in hospitalized and outpatient Covid-19 patients. The companies expect late-stage trial data by the end of March, Merck said.

Having effective Covid-19 treatments remains important, especially as new variants emerge that may be able to thwart vaccines, Dr. Kartsonis said.

Despite Merck’s storied history in vaccines, the company in recent years grew to become the market leader in the emerging field of cancer immunotherapy, thanks to its top-selling product, Keytruda. The drug generated more than $11 billion in sales in 2019.

Meanwhile, Merck’s research and development underwent a change at the top, with Dean Li, who joined the company in 2017 after holding positions in medical research at the University of Utah, taking over this month as Dr. Perlmutter retired at the end of last year.

IAVI and Merck are still studying in preclinical animal testing whether the vaccine could be more effective if given orally or intranasally, as well as whether the vaccine itself could be adjusted, said IAVI President Mark Feinberg. No decision has been made whether to advance toward human testing.

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Write to Jared S. Hopkins at

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Corrections & Amplifications

Merck & Co. said it would record an unspecified tax charge in the fourth quarter of 2020. An earlier version of this article incorrectly said the company would record an unspecified pretax charge. (Jan. 25)

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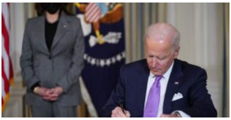

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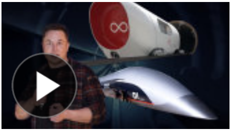

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