

TECHNOLOGY

Is A Cancer Vaccine Coming? Moderna, Merck Boosted By The Buzz



Moderna and Merck used the mRNA technology that created the first Covid vaccines to take on cancer. (© Chris Gash)

ALLISON GATLIN | 08:00 AM ET 10/01/2026

Moderna ([MRNA](#)) and **Merck** ([MRK](#)) did the unthinkable in August in the never-ending battle against cancer. Study results showed their long-pursued cancer vaccine reduced the odds that surgically removed melanoma would return. Experts hailed the news as a "landmark win" that could add billions in sales and boost Moderna stock and shares of its biopharma partner.

Now, the duo plan to do it again ... and again and again and again.

Moderna and Merck used the same mRNA technology that created the first Covid vaccines to take on a major medical challenge. The vaccine, intismeran autogene, or INT, aims to prevent relapses in patients with major forms of cancer, including lung, kidney and bladder. It has yet to launch commercially, but buzz is growing on Wall Street of a groundbreaking new drug.

Recent share-price gains for Moderna and Merck suggest sales of the new drug could outstrip those of Keytruda, Merck's blockbuster cancer drug. The excitement around INT is growing ahead of a conference this month where the companies will release the actual test results.

'Grand Slam' Hopes For Moderna Stock

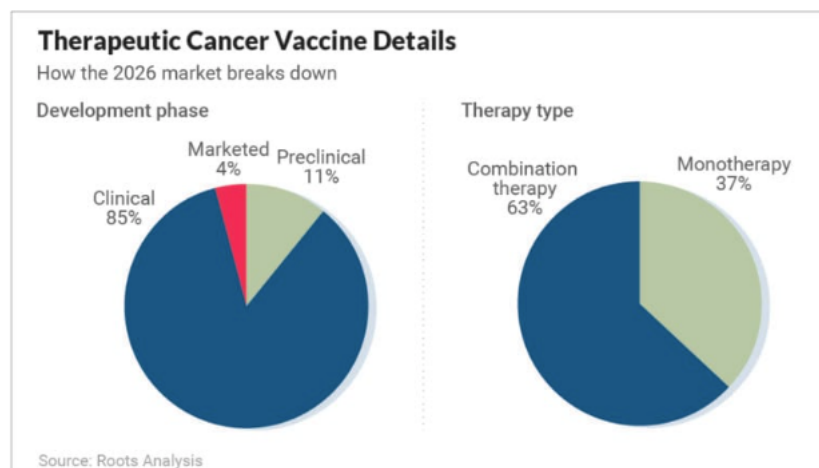
Moderna stock shot up 177% in a day while Merck climbed 13%. Leerink Partners analyst Daina Graybosch says the stock jumps imply expectations for \$18 billion to \$31 billion in de-risked sales of the vaccine. That's two to four times the annualized run rate for Keytruda in early-stage cancers. But while some have heralded the news as a "grand slam," others are less sure.

Even after the [news sent Moderna stock rocketing](#), Dr. Michael Christopher, a Tucson-based dermatologist known as "The Melanoma Hunter," says investors would be smart to wait for the full data.

Challenges remain. If approved, INT could be a million-dollar therapy. Insurers are likely to balk at the price tag, says Shealynn Buck, chief medical officer for Lockton Cos. And the mRNA technology behind the cancer vaccine? It isn't without its own political risks.

Still, hopes abound. After a century of failures, INT is [the first cancer vaccine](#) to succeed in late-stage testing.

"It's dispelling a lot of the cloud that has followed the cancer vaccine field for a number of years because of the prior failures," **BriaCell Therapeutics (BCTX)** Chief Executive William Williams said in an interview. The company is working on cancer immunotherapies. "There's a tremendous amount of promise using this approach."



Why Cancer Vaccines Fail

To understand why the cancer vaccine field is riddled with failures requires a little biology lesson.

Like other living structures, cancer has its own DNA. While different from the human body, the cancer DNA is capable of hiding in plain sight. It camouflages itself with normal proteins that the immune system is used to seeing. Cancer cells can evade the body's natural defenses and continue spreading.

Keytruda, the blockbuster Merck drug, works by binding to the PD-1 protein, commonly used by cancer cells as camouflage. Blocking PD-1 allows the immune system to see and attack the cancer cells.

INT also works with the immune system. It trains the body on up to 34 neoantigens specific to a patient's own cancer. Once the cancer has been surgically removed, the vaccine can teach the immune system how to defend against it.

First, the vaccine eradicates any remaining tumor cells left behind after surgery. Then, it keeps the new antibodies around to stop the cancer from coming back. Keytruda helps take the brakes off the immune system by unmasking the hiding cancer cells.

Phase 3 Success Of Moderna-Merck Trial

Skepticism ran high about this approach initially. Then, on Aug. 19, Moderna and Merck reported the results of a Phase 3 study of Keytruda and intismeran autogene in melanoma patients.

Moderna and Merck have yet to release all the data on INT. But they said patients who received the combination lived longer before relapsing. Further, it reduced the odds of cancer spreading to other parts of the body.

"I was misty-eyed when I heard the results of the Phase 3," Merck executive Jane Healy told Investor's Business Daily. Healy, who has been involved with the cancer vaccine since Phase 1 testing, is Merck's vice president of oncology early clinical development. Developing a cancer vaccine has "been a barrier in the past that we had not been able to overcome and, here, we finally had hope that we had a breakthrough."

That followed a midstage report in January that showed the regimen reduced the risk of cancer recurrence or death by 49% over the course of five years. Nearly three-quarters of patients, or 72%, hadn't relapsed vs. less than half, or 49%, of patients given Keytruda alone.

Moderna, Merck and **BioNTech (BNTX)**, another mRNA-based company working on cancer vaccines, saw their market caps skyrocket by a collective \$92 billion, according to a report from Leerink's Graybosch.

What's Next For Moderna Stock?

The success of the Moderna-Merck drug kicked off a laundry list of urgent tasks, Dean Li, president of Merck Research Laboratories, told [Reuters](#). The companies began preparing to present the data at the upcoming conference, reviewing their plans for regulatory review and applying the findings to other ongoing studies.

The Oct. 24 presentation at the European Society of Medical Oncology meeting in Madrid could be a game changer.

"If the data is equivalent to what it was (in Phase 2 testing), I would say it's a grand slam," Christopher told IBD. The Tucson-based doctor serves on the Arizona Department of Health's Melanoma Task Force. "Maintaining that (same) relapse-free survival at five years vs. (Keytruda) alone, that's amazing. We should celebrate that. That's not a small feat."

Yale Jen, a senior biotech analyst with Laidlaw & Co., says data on overall survival — how long patients live before dying of any cause — will be key. A 40% reduction in the risk of death would signal a home run for Merck and Moderna stocks, he says.

Moderna representatives didn't return a request for comment from IBD.

It's A Therapeutic Cancer Vaccine

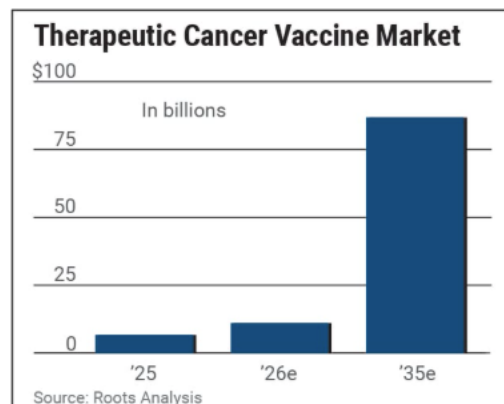
"Cancer vaccine" is something of a misnomer for INT, according to experts who prefer the phrase "therapeutic cancer vaccine."

Unlike the Covid shots that utilized the same messenger RNA technology, this vaccine doesn't prevent disease, at least not in people who don't already have the illness. There are some cancer vaccines that act prophylactically. Merck's Gardasil is chief among them. It prevents human papillomavirus, or HPV, a key driver of cervical and many other reproductive cancers.

INT works differently.

"People are asking me if they have an opportunity to not have cancer," said Aveta Biomics Chief Medical Officer Selda Samakoglu. "We need to clarify. This is not a vaccine like the flu vaccine. It won't reduce their chance of getting cancer or allow them to stop using sunscreen because they got the vaccine."

Intismeran autogene stimulates the immune system. That makes melanoma an "extremely smart" choice for the first big test, Samakoglu told IBD.



Immunologically speaking, melanoma is a hot tumor, which means the abnormal tissue mass has already triggered the immune system. So active immune cells are in the tumor's microenvironment. In other words, the soldiers are already there, ready to attack. They just need something to prime them.

Aveta Bio is working on drugs that would help transform cold tumors into hot tumors.

"With hot tumors, the immune system sees it and knows it wants to attack, but is being shut off by the cancer," Dr. Jason Williams, chief medical officer for the Williams Cancer Institute, said in an interview. "This takes the brakes off the immune system."

Why Melanoma Was A Perfect Test Subject

Melanoma is riddled with genetic mutations. It has the highest level of mutations of all forms of cancer, Christopher says. The mutations are what make melanoma "hot." The vaccine is designed to recognize those mutations.

"It makes a ton of sense why (the cancer vaccine) works in melanoma," he said. Ultraviolet, or UV, light from the sun creates those mutations. Similarly, the air we breathe, including pollution and smoke, causes some of the mutations found in lung cancer.

It's also why this specific vaccine has shown such promise.

"Before, they were picking one antigen," said Williams. "This one went up to 34 antigens. It's much more complex."

But intismeran autogene's strengths could turn into weaknesses when it comes to cold tumors.

It's not a big reach for the cancer vaccine to show promise again in lung, bladder and head-and-neck cancers and MSI-H, or microsatellite instability-high, tumors. Those tumors each have a high level of mutations. But cancers like pancreatic, kidney and colorectal are a harder sell, experts say.

"They are cold tumors," Samakoglu said. She acknowledged timing could be key. Giving a cancer vaccine enough time to help the immune system mount an attack could change the outcome. "So there should be an interest to test cancer vaccines in cold tumors."

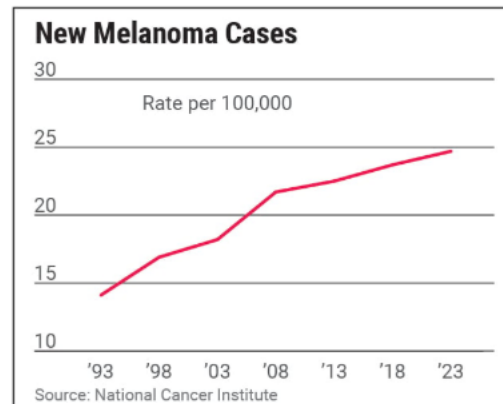
Expectations For The Cancer Vaccine

RBC Capital Markets analyst Luca Issi argues that Wall Street's expectations for intismeran autogene's effectiveness in treating other cancers are too optimistic.

"More data across different tumor types will be needed before we can gain greater confidence in its broad applicability," he said in a recent report.

He sees a 70% probability of success in lung cancer, 60% for bladder cancer and just 25% for the lower-mutation-level renal cell carcinoma. Metastatic cancer — cancer that has spread beyond its originating point to other organs — could be even tougher.

"Metastatic tumors are already surrounded by T cells that may recognize the tumor, and the key intervention needed in that disease state is checkpoint unblocking (PD-1 inhibition is already addressing that need), making the incremental value of the vaccine less clear," he said.



Issi sees just a 25% chance of success for INT in metastatic cancers. Merck's Healy acknowledged the challenge in metastatic cancer, which is more complex. Cancer that has spread beyond its point of origin often requires additional drugs to treat it. This is why some of the earlier efforts to make a cancer vaccine failed, she says. It's also a key reason why Merck and Moderna are focusing on early-stage cancer.

Similarly, Samakoglu sees high odds of success for cervical cancer and HPV-positive head-and-neck cancer — cancers with high mutational burdens.

Jen, the biotech analyst, is more bullish. He notes Keytruda is approved for nearly two dozen different cancers, including melanoma.

"In theory, all of those indications or cancers could work," he said in an interview.

Moderna Stock Analysis

Despite doubts, Moderna stock catapulted on Aug. 19. Shares are now up more than 200% since the readout.

The positive topline news prompted Moderna stock to break out of a **cup base** with a **buy point** at 85.60, **MarketSurge** shows. The stock has a perfect **IBD Relative Strength Rating** of 99, putting its 12-month performance in the top 1% of all stocks regardless of industry group. On a technical basis, the stock is now far extended.

Moderna stock drew back somewhat on Sept. 30 after Citi analyst Geoff Meacham **downgraded it to a sell rating**, saying shares have outrun the company's fundamentals. Owning the stock over the long term poses some risks, he said. Namely, the cancer vaccine might not live up to the hype surrounding it. It could prove to be a one-trick pony in melanoma. Even there, it is not yet approved.

In the same vein, Merck stock has also advanced. Shares touched a record high of 156.92 on Aug. 25. The stock, a Dow Jones industrial average component, had broken out of a **flat-base** entry at 125.14 on June 25.

Though shares fell as much as 4% below their entry on July 14, that wasn't enough to trigger a sell rule. Savvy investors are encouraged to **cut their losses** when a stock falls 7% to 8% below its buy point. After the cancer vaccine news, Merck stock entered a **profit-taking zone**, 20% to 25% above its entry.

The stock currently has a strong RS Rating of 93. It is in the fifth week of a potential new flat base with a possible entry point at the recent high of 156.92.

Technical Analysis Of Other Biotech Stocks

BioNTech stock, though not involved in the same cancer vaccine, also posted gains on the news. Shares surged about 22% on Aug. 19, helping create the right side of a lengthy cup base. The stock has since added on a handle with a buy point at the Aug. 21 high of 120.33. Shares are trading below their 21-day line, however, making a breakout harder to forge.

Roche (RHHBY), which is partnered with BioNTech on the cancer vaccine, rose almost 5% on Aug. 19, but has mostly fallen since. The stock dropped below the lower boundary of a flat base on Sept. 29.

In late August, BioNTech and Roche scrapped a study of their personalized mRNA cancer vaccine after an independent board said it was unlikely to help colon cancer patients. The board also noted that deaths were higher in the treatment group compared with the observation group.

Issi says the INT news strengthened his neutral stance on Moderna stock.

"While we acknowledge this is a major breakthrough in adjuvant melanoma and the data is clearly de-risking other tumor types, we think that a \$50b market cap risk/reward is relatively balanced," he said. Adjuvant refers to the fact that the cancer vaccine is given after surgery.

The next step will be to watch how the data actually plays out. Jen says the next 12 to 24 months will be key for Moderna. That will be the time when Merck and Moderna likely seek approval for the cancer vaccine/Keytruda combo in melanoma. It will also line up with further data releases involving other cancer types. The companies are testing the regimen in nine other ongoing or planned studies.

This will "define the scope of the vaccine," he said.

Moderna Stock: Counseling Caution

Christopher says investors should remain cautious about the vaccine. Topline releases, such as the Aug. 19 news, are not data releases.

"People want to put money where they believe the science is going," he said. "But as a scientist myself, I think you have to actually have the data before making any investments. You can get good results, but in the real world as things go further on ... you may not actually have the benefit there."

Merck and Moderna have agreed to split the profits and development costs for the vaccine. Merck will be responsible for commercializing and booking all global sales of the cancer vaccine.

Analysts polled by FactSet expect intismeran autogene to generate \$180 million in sales for Merck in 2027 and peak at \$1.98 billion in 2030 before falling to \$1 billion in 2031. Moderna will book its share of the profits as sales. That would mean \$159 million in 2027, growing to roughly \$2.53 billion in 2030 and \$2.45 billion in 2031.

Based on the projections, the cancer vaccine is expected to be Moderna's second-biggest product in 2030, trailing the flu shot, mCombrax. The company is also working on another cancer vaccine for advanced solid tumors, code-named mRNA 4359. That year, the Street projects \$2.27 billion from that drug.

But Christopher notes these are likely to be costly therapies. Insurers are likely to take a very close look at which patients actually need a cancer vaccine.

"If you have somebody who is stage 3B and you are looking at a five-year survival rate of 60% (with that stage of melanoma) ... you bet I would be treating them" with the cancer vaccine, he said. "I would be taking that risk. I would be counting on my patients to do it."

Will Insurers Cover Cancer Vaccines?

Insurance coverage is a major potential issue.

Insurance companies and employers might not take the same view, Lockton's Buck says. Lockton is an independent insurance brokerage. Buck's job is helping employers understand healthcare innovations.

There's no question healthcare costs are on the rise, she says. And, to make matters more complicated for the cancer vaccine, it's not a replacement therapy. It's an additive therapy.

"We're adding costs to an already costly therapy," she told IBD, referencing Keytruda.

"What they're going to be asking is: How is that going to, in a fairly short period of time, reduce the likelihood of cancer costs down the road?" she said. "And for this therapy, there is really good evidence that it could reduce recurrence and metastases. That's where the cancer costs really sit."

Healy says Merck is looking forward to having those conversations with insurers when the time comes.

Still, a single million-dollar claim could be damning for some employers.

"It's going to bust their budget," Buck said. Employers are going to ask tough questions, like: "Can we continue to provide healthcare for everyone on the plan, and also cover the increasing number of million-dollar drugs?"

Moderna stock will hinge on that question if the companies seek a premium price tag for their cancer vaccine. Healthcare, says Buck, is no longer only a human resources conversation.

"We are now seeing CEOs and CFOs at the table," she said. "These conversations have boardroom visibility. ... It's going to be the lab bench to the boardroom, whether they cover a therapy or not."

Is It mRNA's Time To Shine?

Many patients could also resist an mRNA vaccine of any kind in the aftermath of the Covid pandemic. Arguably, mRNA technology helped dig the world out of the worst of the pandemic. But the fallout saw many people grow uneasy with the technology and the potential for long-term side effects.

Jen says the context is different.

For Covid and other viral vaccines, "those are for mass market and you need to offer a smaller amount to work," he said. "For the cancer vaccine, you can think about (the fact that) the patient is under a much greater threat of disease progression or death."

In other words, the cancer patient is much more motivated to seek treatment and take on the risk of any adverse effects. The companies, though, have said the cancer vaccine doesn't seem to add any side effects other than what's already tied to Keytruda by itself — fatigue, muscle and joint pain, rash and digestive issues.

In fact, says Williams of the Williams Cancer Institute, the cancer vaccine could launch a much-needed renaissance for mRNA technology and Moderna stock.

"I think the cancer space is definitely where the mRNA technology can shine," he said. "It's unfortunate that Covid gave it a bad name. This is a rebranding with cancer. We will see this will be effective, and there will be other things that come along — not just making antigens, but other things that will activate and block receptors to help boost immune responses. I do think it's a renaissance."