THE NEAR FUTURE REPORT

Special Report September 2024

The End of Diseases: The AI Company Behind the Genetic Revolution

By Jeff Brown, Editor, The Near Future Report

Barbara Barnes seemed to be in perfect health.

The 58-year-old homemaker's mammograms had come back clean. And she had no symptoms of any illness.

But in 2016, Barbara sequenced her genome. All it took was a small blood sample.

A genome is the entire genetic makeup of a living organism. And we can think of "sequencing" a genome like creating a map, or blueprint, of our genetic code.

Barbara's results were concerning. She had a DNA mutation that put her at a higher risk of developing breast and ovarian cancer. Armed with this knowledge, doctors conducted further studies. They found a golf ball-sized tumor in her fallopian tubes.

If Barbara had waited until she felt sick to identify her illness, she may not be alive today. And Barbara's story is one of many.

For instance, famous actresses Angelina Jolie and Christina Applegate have publicized that they have a mutation of the BRCA1 gene. This is most likely the same gene mutation Barbara had. And to avoid the likelihood of developing breast cancer, both actresses underwent a preventative bilateral mastectomy.

Genetic sequencing technology is saving lives. And it will save millions more in the years ahead.

Today, we're investing in the single most important company behind this trend.

This company has a 70% market share in this industry. And as we'll see shortly, it is rapidly growing its free cash flow as we speak. We love to see that as investors.

Genetic Sequencing for the Masses

While the BRCA1 gene is a well-known genetic mutation that increases one's odds of developing cancer, many mutations aren't as well documented.

That's why the company in this report has developed a new AI algorithm. One that can predict whether a given genetic mutation will cause disease.

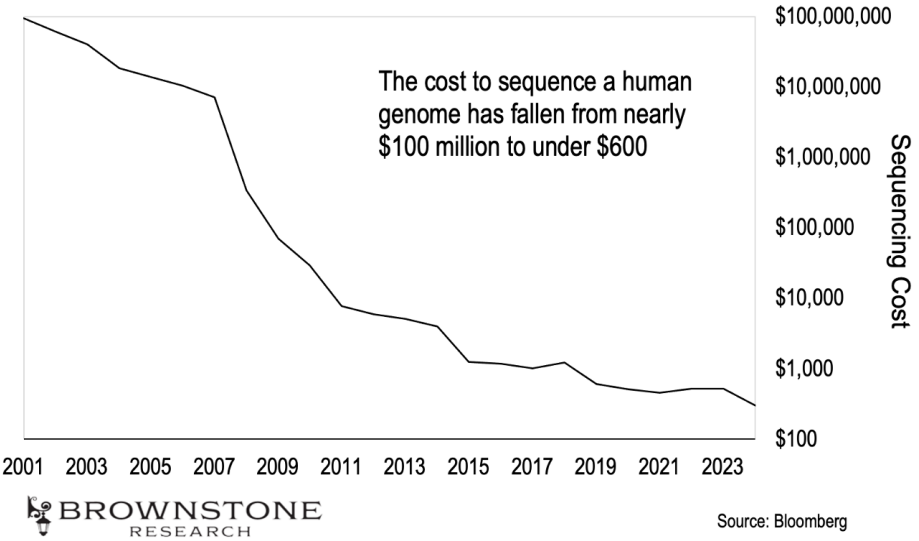
This will help patients with less common genetic variants know if they're at risk for certain diseases. Armed with this information, it can also recommend any actions they can take to prevent or delay the onset of symptoms...

In fact, Nvidia CEO Jensen Huang said that genetic research is one of the biggest areas of potential for AI.

This technology is well suited for sorting through these mammoth data sets created from genetic data and identifying patterns.

In this report, we'll be focusing on genetic sequencing and how it is enabling precision medicine. This is an emerging approach to treat and prevent diseases by considering each person's unique genetic makeup, environment, and lifestyle.

Cost to Sequence a Human Genome



The idea is that we shouldn't have to wait until we present symptoms of a disease before seeking treatment. As Barbara's story shows, our genes can alert us to future conditions years before symptoms manifest.

And if we get sick, we won't use a "one-size-fits-all" approach to treat the disease… which historically is the way that the healthcare industry has operated.

Currently, many treatments simply address the symptoms of disease, not the underlying causes. Some refer to this as "sick care" not "health care".

But soon, precision medicine and its associated therapies – like CRISPR genetic editing – will be able to cure the underlying cause of any genetic disease.

This technology has the potential to put an end to all human diseases caused by genetic mutations.

And as I mentioned above, the company we'll cover in this report is the single most important player in the world of genetic sequencing. That's where it all begins.

Genetic sequencing tests used to be something only available to high-net-worth individuals.

But that's no longer the case. The cost of genetic testing has declined considerably over the past two decades.

In 2001, it cost $100 million to sequence a complete human genome. Today, it's a tiny fraction of that cost – less than $600. According to data published by the National Human Genome Research Institute, a division of the National Institutes of Health, the average cost dropped to around $525 a year and a half ago.

That means it now costs less than a year's cell phone bill to sequence our entire genome. The above chart shows us just how dramatic the cost reduction has been.

And get this – the company we'll discuss today now claims it can sequence the human genome for as little as $200.

Genetic sequencing has become affordable for just about anyone. And these tests are so cheap even some insurance companies are starting to cover them.

For example, Cigna became in-network with direct-to-customer genetic testing screenings in late 2019. This gave 16 million people easy access to genetic sequencing.

And UnitedHealthcare now covers whole exome sequencing for patients where clinical presentation is nonspecific and does not fit a well-defined syndrome.

In other words, if a physician knows something is wrong but can't figure out what it is, UnitedHealthcare will pay to have the patient's whole exome sequenced.

And Blue Shield of California now covers rapid and ultra-rapid genome sequencing for critically ill children. This gives parents additional insight and treatment options they would have never had access to.

Why are these insurance companies offering this kind of coverage? It's simple actually. When a genetic test is conducted for a few hundred dollars and identifies the root cause of a health condition, no money is wasted paying for therapies or medicines that wouldn't work.

Insurance companies have a financial incentive because an accurate diagnosis can reduce healthcare costs. And fortunately, that's great for patients as it affects better patient outcomes when the root cause is understood.

What's more, some people can even get free genetic sequencing through programs like the MyCode Community Health Initiative. This initiative has sequenced DNA samples from over 250,000 people. It's also the program that helped to sequence Barbara's DNA and likely saved her life.

Scientists hope that by sequencing and analyzing a broad number of DNA samples, they can pinpoint the DNA mutations of certain diseases. The goal is to use this information to develop new treatments that will eventually eradicate all genetic diseases.

I know I listed a wide range of companies and initiatives utilizing genetic sequencing to drive the precision medicine trend forward. All of these have one thing in common… They use the same company's genetic sequencing equipment.

That company is **Illumina (ILMN)**…

Illumina Dominates the Industry

Illumina is the dominant player in the genetic sequencing industry, and its sequencing technology is the backbone of the burgeoning precision medicine trend.

According to Morningstar, Illumina has a more than 70% market share in the industry. And it's estimated that over 90% of all the world's sequencing data has come from Illumina's sequencing equipment.

As we saw earlier, Illumina can now sequence an entire human genome for just $200. That's thanks to the company's latest sequencers, the NovaSeq X Series.

Illumina unveiled this new series of sequencers in September 2022. These machines are capable of sequencing more than 20,000 whole genomes per year. That's 2.5 times the throughput of previous models.

Here's a snapshot of the NovaSeq X sequencer:

Source: Illumina

As we can see, Illumina's newest sequencer is about as tall as an average person. This device retails for $985,000. And Illumina charges about $2 per gigabase for sequencing consumables.

This pricing model follows the classic "razor and blades" strategy. The initial cost of the sequencer is complemented by ongoing consumables revenue. That is to say, Illumina's customers must constantly buy consumables, even after they have purchased the sequencer outright.

While $985,000 might seem like a significant investment, the NovaSeq X Plus can sequence a genome for as low as $200. That's a game-changer for precision medicine.

Thanks to this dramatic reduction in sequencing costs, we'll likely see more and more health insurance companies begin to cover whole genome sequencing.

The economics here are simple.

Is it cheaper to pay for whole genome sequencing to identify the underlying cause of a disease that can lead to a cure? Or is it cheaper to pay for continuous treatments of a patient's lifetime that can only manage symptoms?

At this point the choice is clear. It's now cheaper for insurance companies to pay for genetic sequencing which can lead to more accurate diagnoses and ultimately cures.

Doctors will sequence patients' DNA. Then they will be able to understand which mutations are causing symptoms, and physicians can put together a plan. They'll know if they need to use genetic therapy, RNA treatment, preventative surgery like a mastectomy, or another appropriate treatment or therapy.

It's not an exaggeration to say that Illumina's sequencers will save the healthcare system billions of dollars as this technology is adopted. And that will drive adoption, which in turn will increase Illumina's sales dramatically.

And scientists can use Illumina's sequencers for more than just sequencing human DNA…

Additional Uses for Genetic Sequencing

Through a technology called Next-Gen Sequencing (NGS), companies can also sequence the genome of a virus. It didn't take long for scientists to sequence COVID-19.

By January 24, 2020, the entire genome was published in the *New England Journal of Medicine*. You guessed it… This was made possible thanks to Illumina's technology.

Knowing the genome sequence can help scientists in many ways. Researchers can understand the origin of a virus. We can also learn the epidemiology and transmission routes to help develop diagnostic and treatment strategies. We can even understand how a virus mutates over time with each genetic sequencing.

In other words, Illumina makes it possible to track viruses like COVID-19. Illumina's technology can also look for things like antimicrobial resistance and also determine if a virus was intentionally modified for malicious applications. These could be future business lines for Illumina.

And there are many other uses for its sequencing technology. Those uses include:

- Screening parents before conception to ensure there are no genetic diseases that might be transferred to the child
- Replacing amniocentesis for a prenatal test
- Immuno-oncology
- Therapeutic selection
- Data storage
- Diagnosis of rare genetic diseases
- Embryo selection in IVF
- Oil and gas exploration

We will see explosive growth in these new applications because of the rapid increase in the speed of sequencing and the dramatic drop in costs per sequence.

So we can expect demand for Illumina's sequencers to grow in the coming years. And that brings us to the company's financials...

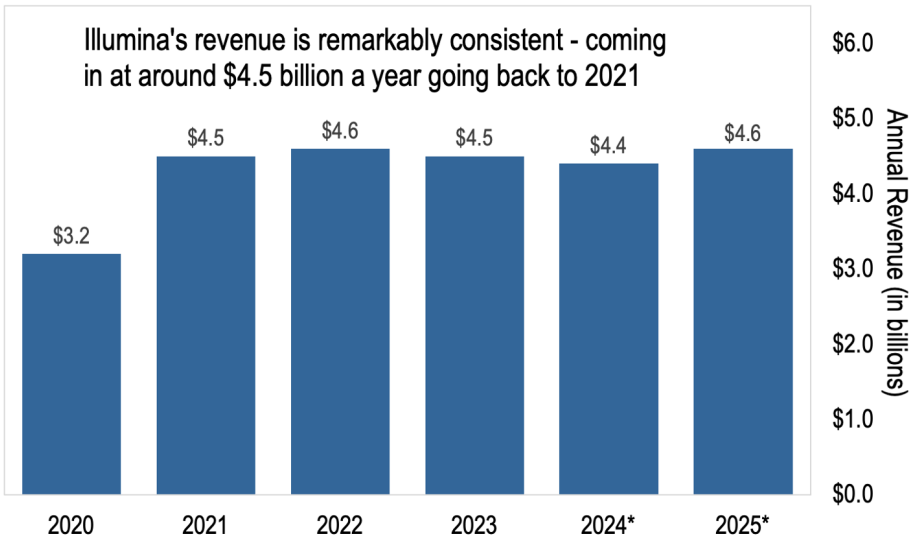
Illumina Has Become a Massive Cash Cow

There are now over 23,000 Illumina sequencing systems in operation right now. And these sequencers are deployed by over 9,500 customers in 155 companies. Genetic sequencing is truly a global market.

This customer base has provided Illumina with remarkably consistent revenue. Above is a visual.

As we can see, Illumina consistently generates around $4.5 billion in revenue each year. This speaks to the fact that Illumina dominates the sequencing industry. Illumina doesn't deal with "churn"... because its customers have nowhere else to go.

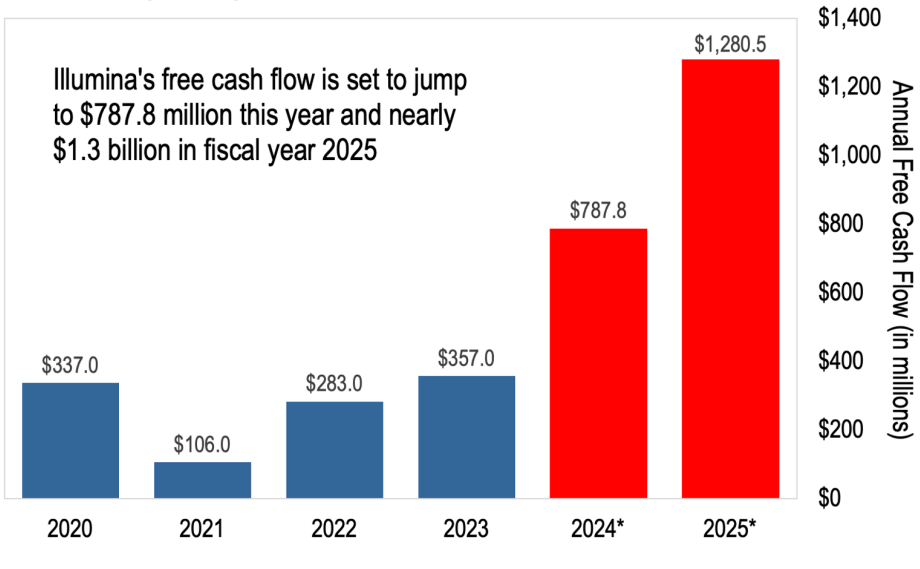
Illumina (ILMN) Annual Revenue



BROWNSTONE RESEARCH

Source: Bloomberg

Illumina (ILMN) Annual Free Cash Flow



BROWNSTONE RESEARCH

Source: Bloomberg

And thanks to its consumables business model, Illumina's gross margins are high for a company producing such high-tech hardware. A company's gross margins tell us what percentage of its revenue the company retains after accounting for the costs of goods sold.

Illumina's gross margins were about 61% for fiscal year 2023. And based on current projections, Illumina's gross margins are on track to hit nearly 68% for fiscal year 2024.

That degree of margin expansion shows us that Illumina is becoming more efficient. And we can see this clearly in the company's free cash flow projections in the second chart above.

As we can see, Illumina's free cash flow is on pace to hit nearly $788 million this year. And based on current orders, Illumina is positioned to generate nearly $1.3 billion in free cash flow next year.

This represents year-on-year growth of 121% and 63%, respectively… which is quite impressive for a company of Illumina's size. As I write, Illumina trades at an enterprise value (EV) of $23 billion.

Yet, Illumina currently trades at a forward EV/Sales of 5.2 and a forward EV/EBITDA of just 22. These are very reasonable valuations for a company that is growing its free cash flow so rapidly.

And that's why now is a great time to take a position in Illumina (ILMN). This company will be the cornerstone of the precision medicine trend for years to come.

Action to Take: Buy shares of **Illumina (ILMN)** and use a 35% trailing stop.

Risk Management: At time of publication, ILMN is not in the portfolio so we will not provide regular updates unless we officially add it. But if anyone purchases ILMN, make sure to use a trailing stop. We use volatility-adjusted trailing stops – meaning more volatile stocks have wider stops to avoid getting stopped out during normal market fluctuations. For more details please see our risk management guide.

The volatility-adjusted trailing stop for ILMN is 35%.

To contact us, call toll free Domestic/International: 1-888-493-3156, Mon-Fri: 9am-5pm ET or email memberservices@brownstoneresearch.com.

© 2024 Brownstone Research, 55 NE 5th Avenue, Delray Beach, FL 33483. All rights reserved. Any reproduction, copying, or redistribution, in whole or in part, is prohibited without written permission from the publisher.

Information contained herein is obtained from sources believed to be reliable, but its accuracy cannot be guaranteed. It is not designed to meet your personal situation—we are not financial advisors nor do we give personalized advice. The opinions expressed herein are those of the publisher and are subject to change without notice. It may become outdated and there is no obligation to update any such information.

Recommendations in Brownstone Research publications should be made only after consulting with your advisor and only after reviewing the prospectus or financial statements of the company in question. You shouldn't make any decision based solely on what you read here.

Brownstone Research writers and publications do not take compensation in any form for covering those securities or commodities.

Brownstone Research expressly forbids its writers from owning or having an interest in any security that they recommend to their readers. Furthermore, all other employees and agents of Brownstone Research and its affiliate companies must wait 24 hours before following an initial recommendation published on the Internet, or 72 hours after a printed publication is mailed.