A Dog, a Diagnosis and a Different Way to Understand AI

Published April 1, 2026

Christopher Gannatti, CFA
Global Head of Research

Key Takeaways

- A personalized cancer treatment case shows how AI is turning biology into a data problem—using sequencing and computation to move from vast genetic data to targeted therapeutic decisions faster than traditional methods.
- By accelerating steps like mutation prioritization and protein structure prediction, AI is compressing what was once a fragmented, multi-year drug discovery process into a more continuous and computational workflow.
- As AI increasingly connects breakthroughs across healthcare, from genomics to mRNA therapies, investors should evaluate diversified exposure across strategies like QGRW, WTAI and WDNA to capture both enabling technologies and downstream applications.

What happens when biology becomes something we can read, interpret and act on like software? For most people, that moment doesn't arrive in a lab or a research paper. It arrives in something personal, something familiar, something that forces you to care about the outcome in a way that theory never does.

If you've ever had a dog, you understand how quickly they become part of the structure of your life. They start as a presence in the background, but over time, without much notice, they become something closer to family. That's what makes a serious diagnosis feel different. It's not just information—it's a shift in the future you thought you were going to have. And in many cases, especially with aggressive cancers, the conversation quickly moves from what can be done to how much time is left.

Introducing Rosie

That's where this story begins. Rosie, a rescue dog in Australia, was diagnosed with mast cell cancer, an aggressive and often difficult-to-treat disease.1 Under normal circumstances, this would set a fairly well-understood treatment path and set of expectations. But Rosie's owner, Paul Conyngham, approached the situation differently. With a background in technology and systems engineering, he reframed the problem in a way that would have sounded unusual not long ago. Instead of thinking about cancer purely as a biological condition, he asked what it would mean to treat it as a data problem.

The first step in that reframing was sequencing. A sample of Rosie's tumor was taken, along with a sample of her healthy tissue, and both were translated into digital information. At a basic level, sequencing is the process of reading DNA, the underlying code that governs how cells function and convert it into a format a computer can analyze. That detail matters because it represents a shift in how disease is understood. For most of medical history, illness has been something we observe through symptoms, imaging and progression over time. Sequencing changes that interface. It allows us to examine disease at the level of code, similar to how we examine the code that governs a software program.

Reframing Cancer

In that context, cancer is no longer just a mass of abnormal cells. It is altered code. By comparing the DNA of the tumor to that of healthy tissue, it becomes possible to identify exactly what has changed. But that clarity introduces a new kind of complexity. The output of sequencing is not insight—it is volume. Thousands, sometimes millions, of mutations appear, most of which are irrelevant. These are the biological equivalent of noise—accumulated changes that do not meaningfully drive the disease.

What matters is a much smaller subset of mutations known as drivers—those that actively push cells toward uncontrolled growth and define the behavior of the cancer. The challenge is not finding mutations, but determining which ones actually matter.2 This is where the problem begins to look less like traditional biology and more like signal processing. You are no longer just observing a system; you are trying to extract meaningful information from an overwhelming dataset.

Historically, that process has been slow, dependent on accumulated research and expert interpretation, and often uncertain. AI changes the scale of what is possible. This is not because it understands cancer in a human sense but because it can process patterns across large datasets, ranking and prioritizing mutations based on what has mattered in similar contexts. What emerges is not a definitive answer, but a set of plausible targets.

From DNA to Proteins

From there, the problem shifts again, this time from identifying mutations to understanding their consequences. DNA does not act directly and control the actions of cells; it encodes proteins, which carry out the functions of biology. What proteins do depends not just on their sequence, but on how they fold into three-dimensional structures. For decades, predicting how a protein folds from its sequence was one of the most difficult problems in biology.3 The number of possible configurations is so large that brute-force approaches are impractical, and experimental methods, while effective, are slow and resource-intensive.

The introduction of systems like AlphaFold changed that dynamic. Rather than attempting to simulate the physics of folding directly, AlphaFold used deep learning to infer structural relationships from known protein data.4 The result was the ability to predict protein structures with a level of accuracy that, in many cases, approached experimental methods. That shift is easy to underestimate, but it removed a major bottleneck in understanding how biological systems operate at a molecular level.

Back to Rosie…

In Rosie's case, that capability was essential. The immune system does not recognize DNA sequences; it recognizes shapes. So once mutations are identified, the relevant question becomes which of those mutations produce protein structures that the immune system can detect and respond to. By predicting how mutated proteins fold, it becomes possible to evaluate which ones are most likely to serve as viable targets. What began as a long list of genetic differences is transformed into a set of biologically meaningful candidates.

At this point, the process begins to take on a different character. What was once a fragmented, multi-year sequence of steps starts to compress into something more continuous. Sequencing leads to comparison, comparison to prioritization, prioritization to modeling and modeling to decision-making. Each stage still requires expertise and validation, but the transitions between them are faster and increasingly driven by computation. The lab remains essential, but the early stages of discovery begin to take place in a different environment, one that looks more like software development than traditional experimentation.

mRNA Vaccines

Once viable targets were identified, the next step was to design a response. This is where mRNA technology becomes particularly relevant. At a conceptual level, mRNA therapies work by delivering instructions that prompt the body to produce specific proteins, allowing the immune system to recognize and attack them.5 In this case, those proteins were cancer-specific neoantigens derived from Rosie's tumor. The result was not a generalized treatment, but a therapy tailored to a single organism, a single tumor and a single genetic profile.

This approach, often described as 'n equals one' medicine, represents a departure from the traditional model of drug development. Instead of a standardized therapy designed for broad populations, the treatment is customized at the individual level. Importantly, this was not an isolated or informal effort. Academic institutions were involved, and the process operated within a framework of oversight. What changed was not the presence of rigor, but the speed and structure of the workflow. What would traditionally take years was compressed into a much shorter loop of sequencing, analysis, design, manufacturing and delivery.

The outcome, while encouraging, requires careful interpretation. Reports suggest that Rosie's tumors shrank significantly and that her condition stabilized. For an owner, that result is meaningful regardless of statistical framing. But from a scientific perspective, it remains a single case. There were other treatments involved, and there is no control group or established reproducibility. The significance lies not in declaring a cure, but in recognizing what the process made possible. AI did not solve cancer, but it enabled a form of intervention that would have been difficult to execute under traditional constraints.

From Rosie to…the World?

The deeper story, then, is not about one dog. It is about a shift in how medicine can be practiced. For decades, the field has been shaped by limitations of time, cost and specialization. Drug development has been slow and expensive, and expertise has been distributed across highly specialized domains. What this case suggests is that those constraints may begin to compress as biology becomes more computational and more modular.

At the same time, it challenges the traditional assumption that medical progress must be built around scale. The dominant model has been one therapy applied to millions of patients, an approach that works well when diseases are relatively uniform. Cancer is not. It is inherently individualized, shaped by unique genetic variations in each case. As the cost of sequencing declines, analytical tools improve and manufacturing becomes more flexible, the idea of individualized therapy becomes more practical.

AI sits at the center of this transition—not as a replacement for biology but as an interface that connects its components. It reduces the friction between steps, translates complexity into something actionable and allows processes that were once sequential to become more integrated. The remaining challenges are less about technical feasibility and more about how existing systems, regulatory, clinical and economic, adapt to a model that prioritizes individualization over standardization.

Rosie's story does not establish a new standard of care. It does something more subtle. It offers a glimpse of a direction. The kind of signal that initially appears as an outlier, but over time begins to look like part of a broader shift in how we understand and interact with biology.

Conclusion: Thinking about the Investment Landscape

We think that people may see this story and start thinking about AI in a different light. If that light involves any sort of investment portfolio, it's useful to think about how different strategies may touch the AI topic in different ways. There is no single right way—it is becoming harder to find strategies that completely avoid AI as more companies consider adopting it in a variety of ways. It's more useful to look at an array of tools and understand how they either directly or indirectly touch the topic.

Let's look at three WisdomTree strategies to make the point:

1. The WisdomTree U.S. Quality Growth Fund (QGRW): QGRW is designed to track the total return performance of, before fees and expenses, the WisdomTree U.S. Quality Growth Index. The focus is on large, U.S. companies with strong return on equity, return on assets and growth characteristics. Looking at the top 10 positions as of March 16, 2026, one can see the Magnificent 7.[6] If someone is thinking that the biggest firms with the most capital could exemplify an AI investment, this strategy is worth consideration.
2. The WisdomTree Artificial Intelligence and Innovation Fund (WTAI): WTAI is designed to track the total return performance of, before fees and expenses, the WisdomTree Artificial Intelligence and Innovation Index. Instead of focusing on the largest companies, this strategy focuses more directly on what is driving the AI theme forward and which companies may represent the strongest forward-looking opportunities in such areas as semiconductors, software, other hardware and innovative use cases.

3. The WisdomTree BioRevolution Fund (WDNA): WDNA is designed to track the total return performance of, before fees and expenses, the WisdomTree BioRevolution Index. This strategy is not directly focusing on AI, but rather, such areas as human health, agriculture & food, materials, chemicals and energy—to name a few. When people think of Rosie's story and think about mRNA vaccines, which rose to prominence during the Covid-19 pandemic, the companies directly focused here would be among those included, along with a very diversified array of others.

Again, there is no one right option, and we emphasize the need to look under the hood at what types of exposure are out there if the goal is to consider AI investment exposure.

1 Unless otherwise noted, the source for this narrative is: Conyngham, P. (2025, June 27). Paul turns to AI to save his dog from terminal cancer. University of New South Wales.

2 Source: Vogelstein, B., Papadopoulos, N., Velculescu, V. E., Zhou, S., Diaz, L. A., Jr. and Kinzler, K. W. (2013). Cancer genome landscapes. Science, 339(6127), 1546–1558.

3 Source: Dill, K. A., Ozkan, S. B., Shell, M. S. and Weikl, T. R. (2008). The protein folding problem. Annual Review of Biophysics, 37, 289–316.

4 Source: Jumper, J., Evans, R., Pritzel, A., Green, T., Figurnov, M., Ronneberger, O. and Hassabis, D. (2021). Highly accurate protein structure prediction with AlphaFold. Nature, 596(7873), 583–589.

5 Source: Karikó, K., Muramatsu, H., Welsh, F. A., Ludwig, J., Kato, H., Akira, S. and Weissman, D. (2008). Incorporation of pseudouridine into mRNA yields superior nonimmunogenic vector with increased translational capacity and biological stability. Molecular Therapy, 16(11), 1833–1840.

6 Magnificent 7 refers to Amazon.com, Apple, Microsoft, Meta Platforms, Alphabet, Nvidia and Tesla. Source: WisdomTree. Holdings subject to change.

Important Risks Related to this Article

There are risks associated with investing, including possible loss of principal. Please read each of the Funds' prospectus for specific details regarding the Funds' risk profile.

QGRW: Growth stocks, as a group, may be out of favor with the market and underperform value stocks or the overall equity market. Growth stocks are generally more sensitive to market movements than other types of stocks. The Fund is non-diversified, as a result, changes in the market value of a single security could cause greater fluctuations in the value of Fund shares than would occur in a diversified fund. The Fund invests in the securities included in, or representative of, its Index regardless of their investment merit and the Fund does not attempt to outperform its Index. The composition of the Index is governed by an Index Committee and the Index may not perform as intended.

WTAI: The Fund invests in companies primarily involved in the investment theme of Artificial Intelligence (AI) and Innovation. Companies engaged in AI typically face intense competition and potentially rapid product obsolescence. These companies are also heavily dependent on intellectual property rights and may be adversely affected by loss or impairment of those rights. Additionally, AI companies typically invest significant amounts of spending on research and development, and there is no guarantee that the products or services produced by these companies will be successful. Companies that are capitalizing on Innovation and developing technologies to displace older technologies or create new markets may not be successful. The Fund invests in the securities included in, or representative of, its Index regardless of their investment merit and the Fund does not attempt to outperform its Index. The composition of the Index is governed by an Index Committee and the Index may not perform as intended.

WDNA: The Fund invests in BioRevolution companies, which are companies significantly transformed by advancements in genetics and biotechnology. BioRevolution companies face intense competition and potentially rapid product obsolescence. These companies may be adversely affected by the loss or impairment of intellectual property rights and other proprietary information or changes in government regulations or policies. Additionally, BioRevolution companies may be subject to risks associated with genetic analysis. The Fund invests in the securities included in, or representative of, its Index regardless of their investment merit and the Fund does not attempt to outperform its Index. The composition of the Index is governed by an Index Committee and the Index may not perform as intended.