When megatrends collide, lives could be saved

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Superconvergence. That's the big story of the moment, according to WisdomTree BioRevolution UCITS ETF partner, Jamie Metzl. Technologies of Artificial Intelligence (AI), genetics, and biotechnology revolutions are both inspiring and being inspired by one other, continuously accelerating innovation and impact. An impact that is being seen in many different sectors, including healthcare.

On 14 December 2023, Moderna reported data from an ongoing, early-stage, trial for a personalised therapy for late-stage melanoma, an often deadly type of skin cancer. Moderna's CEO, Stephane Bancel, described the approach and results during an interview with CNBC[1]:

- Cancer cells are typically subject to mutations within the patient's DNA, which could create the conditions for cancer to flourish.
- Moderna is able to use AI analytics and massive cloud computing power to analyse the sequenced DNA data derived from both cancerous cells and that of the healthy cells around them.
- Moderna's algorithm compares the cancerous DNA code to the healthy DNA code to help scientists understand how the cancer cells are mutating.
- This information is then used to identify unique elements of the cancer cells that could become targets for a patient's immune system.
- A therapy designed to trigger the individual patient's own immune system to attack the specific target in the cancer cells can then be created and delivered using the same mRNA technology that underpinned the COVID-19 vaccines, essentially training the patient's individual immune system to attack the unique cancer. Creating a personalised cancer vaccine.
- Remarkably, this personalised cancer therapy can be ready for use just 30 days after the patient's cells are extracted and sequenced, thanks to the combined tools of the AI, genetics, and biotechnology revolutions.

Moderna reported that after three years of trials, this therapy – mRNA-4157 – in combination with Merck's blockbuster cancer drug, Keytruda, reduced the risk of recurrence or death by 49% in late-stage melanoma patients compared with Keytruda alone. The combination reduced the risk of developing distant metastasis or death by 62%, compared with Keytruda alone[2]. These results are nothing short of astounding.

It sounds like science fiction, but discoveries like this are the future of many fields, including medicine, agriculture, materials science and data storage.

Biorevolution->AI->Cloud Computing

Moderna is pivoting from its COVID-19 mRNA vaccine development success to becoming a platform company upon which mRNA therapies can be used to achieve multiple goals.

Its cloud service provider, Amazon Web Services, is the world's largest public cloud platform, with roughly 40% of the market share. A unique value of these platforms is that a company like Moderna can never buy, on its own, the most advanced computational infrastructure that would allow for individual patient genomes to be analysed with the depth, speed, and scale that is possible through its partnership with AWS. Working with AWS provides Moderna with a suite of AI and machine learning tools to better process data, derive actionable insight and target capabilities.

So, we are seeing something that represents the intersection of three megatrends: biorevolution, AI and cloud computing. Many believe that the future of medicine will see us going from generic treatments – like everyone taking the same painkiller for a headache – to personalised medicine, recognising that each person is unique and can be treated differently. At the center of that transition is data, and when data is involved, you usually see the cloud and AI in the background.

Conclusion: Biotech for 2024

We have already written about biotechnology as an area that has experienced extreme underperformance of late. However, recently we've been seeing a lot of articles focused on falling interest rates which, historically, has been an indicator of positive returns in biotechnology.

While we think the macroeconomic dynamic is important, it's also important to recognise that science is advancing at an astounding rate. Even if there are ups and downs in some of the markets, the exponential growth of the capabilities driving massive societal change is undeniable. We recently wrote about Casgevy, a new CRISPR therapy for Sickle-Cell anemia[3], and we now have an mRNA example too. We are excited that a more positive macro environment may coincide with improvements in AI and cloud computing, to support the efforts to make these therapies available for widespread use. Given that there are thousands of such therapies in the approval pipeline, with Moderna itself currently developing 40 different therapies – seven of which are in late-stage trials, the chance of this progress is likely[4].

To capitalise on these trends, the WisdomTree Biorevolution UCITS ETF (Ticker: WDNA) is worth taking a deeper look at.

[1] Source: https://www.youtube.com/watch?v=8oVRYQe2bX8

[2] Source: Nathan-Kazis, Josh. "Moderna Reports More Promising Data on Its Cancer Treatment. The Stock Jumps." Barron's. December 14, 2023.

[3] Source: https://www.wisdomtree.eu/en-gb/blog/2023-12-13/is-it-time-for-biotech

[4] Source: https://s29.q4cdn.com/435878511/files/doc_earnings/2023/q3/presentation/Moderna-3Q23-Earnings-Presentation-Final.pdf

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