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# IS IT TIME FOR BIOTECH?

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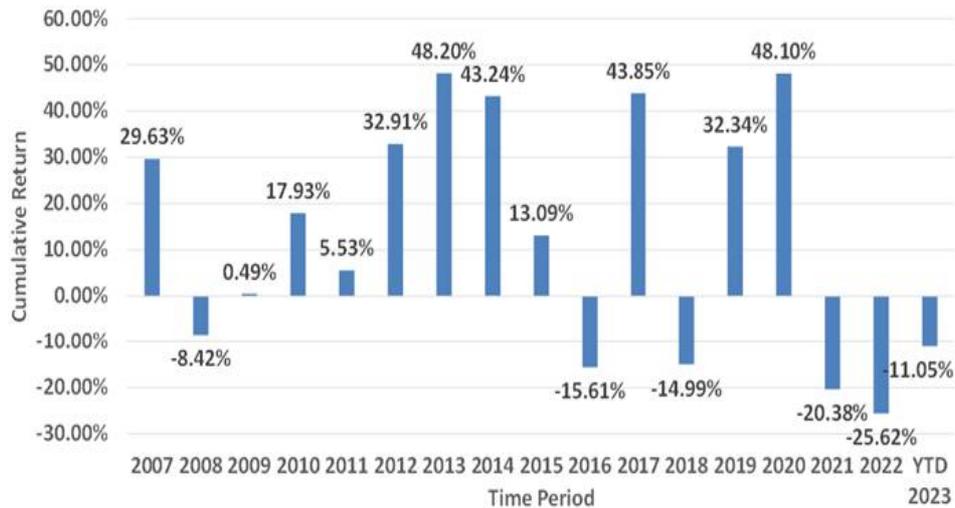
## Is it time for Biotech?

Few areas have been as performance-challenged as biotechnology stocks in the past three years. Sometimes it makes sense to search for opportunity among the areas that recently performed the worst.

## Double digit negative returns for three years?

- The S&P Biotechnology Select Industry Index had a return worse than -10% in 2021 and 2022, and recognising that a lot of 2023 is on the books (through November 24, 2023), 2023 may be the third full year in a row where this occurs. Looking back 10 years, this set of stocks has been volatile, but such negative returns three years in a row is unique.
- Putting recent drawdown into context, assuming an investment of \$100 at the end of 2020, simply holding through those returns would have left a bit more than \$52 on the market's close at November 24, 2023. Sure, we've written at length about the macroeconomic challenges contributing to this, but we must also recognise that biotech is an important industry that is unlikely to disappear either. We may be in a position where simply 'less negative' news could lead to a rebound.
- Even in 2008, we did not see anything like the most recent period of nearly three full calendar years.

Figure 1: Calendar year returns for the S&P Biotechnology Select Industry Index (December 31, 2006 to November 24, 2023)



Source: <https://www.spglobal.com/spdji/en/indices/equity/sp-biotechnology-select-industry-index/#overview>  
 Historical performance is not an indication of future performance and any investment may go down in value.

### The beauty of a ‘catalyst’

Sometimes thematic strategies trade based on macroeconomic developments, like when valuations adjust downwards amidst a higher interest rate environment. However, solely gauging the macro misses the core story underlying thematics—these companies are plumbing the depths of certain opportunities to find potentially transformative growth. Even if this is a high-risk endeavour, it is not a 0% endeavour.

We just saw how ChatGPT, launched in November 2022, contributed to artificial intelligence (AI) having a strong 2023, even though the rise in interest rates has been historic. AI stocks bucked the overall macro trend.

What will be the next catalyst for biotech?

### CRISPR?

CRISPR stands for ‘Clustered regularly interspaced short palindromic repeats.’ It can be used to precisely cut DNA at certain points that could then focus on targeting very specific characteristics. Jennifer Doudna and Emmanuelle Charpentier received the 2020 Nobel Prize in chemistry for their work on this topic.

But, we also have to keep in mind:

- Doudna and Charpentier’s work on precision gene editing occurred in 2012, more than 11 years ago.
- The recognition of the Nobel Prize was now more than three years ago.
- Even if the concept of CRISPR is understood, we do not yet have a global network of CRISPR-based cures that people around the world are routinely accessing through their healthcare providers.

ChatGPT was launched in November 2022 and within a year companies with large productivity platforms (Alphabet, Microsoft) developed an offering that could be widely purchased. It speaks to an important difference in speed to have in mind that CRISPR's proliferation is taking far longer. Clinical research is highly regulated with much testing and lots of different hurdles to clear.

While we likely all agree it's important that the standard for releasing a healthcare treatment with the ability to influence a person's genes is much higher than releasing a software program, the challenge for thematic investors is navigating different business models and product runways. Shifting from analysing the release and proliferation of generative AI software to looking at CRISPR therapies effectively requires the most advanced of mental gymnastics and managing of expectations.

#### A catalyst arrives?

In November 2023, British regulators approved the first treatment derived from CRISPR. The treatment will be called Casgevy, and it would be focused on sickle-cell disease and beta thalassemia. It is expected that about 2,000 patients in Britain could be eligible for the treatment. The two companies involved are Vertex Pharmaceuticals and CRISPR Therapeutics<sup>1</sup>.

It is expected that in late December 2023, the FDA will approve another sickle cell gene therapy, this one by Bluebird Bio, which uses a method that inserts new DNA into the genome<sup>2</sup>.

If we force ourselves to respect the journey of discovery and all the steps required to get to this point, these developments are extremely exciting. However, we are likely still a long way off from CRISPR therapies being used at scale. Patients will only be eligible if they have gone through other possible treatments without success. Additionally, the cost of the therapies is extremely high and the expertise required would not, at least initially, be available at just any hospital.

DNA represents the information required to assemble all the different proteins required by living organisms. Being able to edit this at will to induce certain characteristics or 'fix' mistakes would be nothing short of remarkable. We are clearly on the path and much further than we were ten years ago, but at the same time, if people are expecting widespread deployment of these therapies at scale, they may yet be disappointed.

#### Convergence of innovations

Still, the promise for the convergence of technology can accelerate the learnings in biotech. AI and the growth of models to help researchers unlock new drug discoveries looks to be increasing future innovation potential.

#### Sources

<sup>1</sup> Kolata, Gina. "Sickle-Cell Treatment Created with Gene Editing Wins U.K. Approval." The New York Times. November 20, 2023.

<sup>2</sup> Kolata, November 20, 2023.

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