

Feature: Biotechnology

Matt Kamm, Portfolio Manager on the Artisan Partners Growth Team, explains why biotech stocks are still early in a pharmaceutical renaissance that can create opportunities for the longer term

The biologic drug boom

MATT KAMM

Earlier in 2014, a sharp sentiment swing pressured biotech stocks in particular. Since then, the category has bounced back as a number of positive developments have reinforced investor confidence. Among them was Regeneron Pharmaceuticals' recent approval in the US and EU for a second indication of its macular degeneration drug Eylea—already one of history's strongest new drug launches.

Further, the firm announced positive late-stage trial results for its novel cholesterol-lowering drug and strong mid-stage results for its medicine for allergic conditions such as atopic dermatitis. Investors in Regeneron and stocks like it were rewarded for their patience through 2014's volatility. And we believe patient, selective investors in high-quality biotech franchises should continue to be rewarded over longer periods—though nearer-term, sentiment-driven disruptions can and certainly will happen.

Disease mechanics

The optimism is based on several trends which have only just begun to yield important new medicines. First, huge gains in human genetics research are enabling improved understanding of the mechanics of human disease. This research has identified a number of promising new pharmaceutical targets, especially in the area of severe and rare genetic disorders. Key to those gains have been next-generation sequencing tools. We have barely scratched the surface here, as only just this year, human genome sequencing costs fell to \$1,000. Falling prices should allow more and



larger studies of the links between genes and disease.

Second, newer and emerging pharmaceutical technologies are expanding the tools available to go after an increasing number of targets. The biologic drug era is just now hitting its stride. Twenty years ago, pharmaceuticals were nearly all traditional chemical drugs. Now, though only a small portion of all market drugs are biologics, our research shows almost half the industry's pipeline is biologic.

Part of the biologic drug allure is the inherently 'rational' design. These drugs are based on naturally occurring proteins performing targeted functions with outcomes that, in many cases, have already been observed—so their effect can be reasonably well understood ahead of time. Rational designs should lead to more effective, safer therapies with more predictable and positive outcomes in trials, thereby condensing approval timeframes. Faster times to market are a major attribute for patients—who want

better therapies sooner—and firms—who can have a longer period to exclusively market their drugs, improving profitability.

Emerging technologies

Behind the massive wave of biologics are exciting emerging technologies, including RNA therapeutics and gene therapies that have shown tremendous promise in precisely targeting and silencing disease-causing proteins at the genetic level. Or the reverse—inducing a natural, healthy genetic response to help the body combat disease.

As compelling as these trends are, biotechnology investing is still very risky. Pharmaceutical R&D failure rates are high and costly. Plus, many of these firms face a binary event—approval, or not, of a first or perhaps only pipeline drug. Approved drugs can be economic windfalls—failed drugs can mean failed firms.

Our investment process is designed to mitigate binary-event risk while aiming to invest in accelerating profit cycles. Selectivity

is key, we want to identify firms with a current profit driver we can understand—a credible drug or drug portfolio already on the market or a promising therapy very likely to be soon approved. Behind that, we look for a diversified pipeline supported by an innovative technology platform and a management team with a proven ability to make good research decisions.

New stocks

A few such firms fit this profile. For example, in addition to Regeneron, Biogen Idec is a stock we hold in our Artisan Global Opportunities Fund. Biogen is seeing strong global uptake of Tecfidera, its multiple sclerosis (MS) therapy. And Biogen's impressive pipeline includes promising additional therapies for MS but also Alzheimer's, lupus and spinal muscular atrophy. Should one or more of its pipeline drugs not be approved, it still has multiple potential opportunities, in our view.

Sanofi probably would not strike most as a nimble biotech. Yet, this holding has undeniable franchise characteristics we like. Further, its management has struck smart partnerships with innovative firms like Regeneron and Alnylam that we believe can potentially reinvigorate Sanofi's pharmaceutical business after years of legacy drug patent expirations.

Though not a biopharmaceutical company, our holding Illumina is a key enabler of biotechnology innovation as the dominant provider of next-generation gene-sequencing instruments and consumables to both research and clinical diagnostic labs. The firm's commitment to ongoing research and development should aid future profit growth.

Past performance is not a reliable indicator of future results.

Carefully consider the Fund's investment objective, risks and charges and expenses. This and other important information is contained in the Fund's prospectus and summary prospectus, which can be obtained by visiting www.artisanfunds.com. Read carefully before investing.

International investments involve special risks, including currency fluctuation, lower liquidity, different accounting methods and economic and political systems, and higher transaction costs. These risks typically are greater in emerging markets. Securities of medium-sized companies tend to have a shorter history of operations, be more volatile and less liquid and may have underperformed securities of large companies during some periods. Growth securities may underperform other asset types during a given period.

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For the purpose of determining the portfolio's holdings, securities of the same issuer are aggregated to determine the weight in the portfolio. The holdings mentioned comprised the following percentages as of 30 Sep 2014: Artisan Mid Cap Fund—Regeneron Pharmaceuticals Inc 5.0%; Illumina Inc 3.1%. Artisan Global Opportunities Fund—Regeneron Pharmaceuticals Inc 5.4%; Biogen Idec Inc 3.8%; Sanofi 2.7%; Illumina Inc 2.2%. Holdings named in the Commentary, but not listed here are not held in the portfolio as of the date of this report. Portfolio holdings are subject to change without notice.

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