

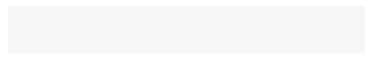
The Nasdaq Junior Biotechnology Index

2021 Research Update

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The Nasdaq Junior Biotechnology Index (NBIJR) was launched on April 30, 2020, in the midst of the Coronavirus pandemic, perhaps the most consequential backdrop imaginable for the overall Biotech industry. NBIJR's methodology is rather straightforward, taking the existing membership of the Nasdaq Biotechnology Index (NBI) and limiting constituents by placing a cap on market capitalization of \$5Bn. NBIJR most recently numbered 239 components (40 fewer than NBI), with the following derived constraints: minimum market capitalization of \$200MM; average daily trading volume of at least 100,000 shares; classified as Biotechnology & Pharmaceuticals by ICB (Industry Classification Benchmark); and Nasdaq-listed. The index is modified market capitalization-weighted such that constituents are capped at 8% (for the top 5) and at 4% (for the remaining) at each quarterly index rebalance. The entire index is reviewed and reconstituted annually in December, which is also the reference date for the \$5Bn maximum market cap screen. Let's examine how NBIJR has performed since the launch of its tracking product - the Defiance Nasdaq Junior Biotechnology ETF (Ticker: IBBJ) - on August 4, 2020.

Investors can access the Nasdaq Junior Biotech index through the Defiance Nasdaq Junior Biotechnology ETF (Nasdaq: IBBJ).



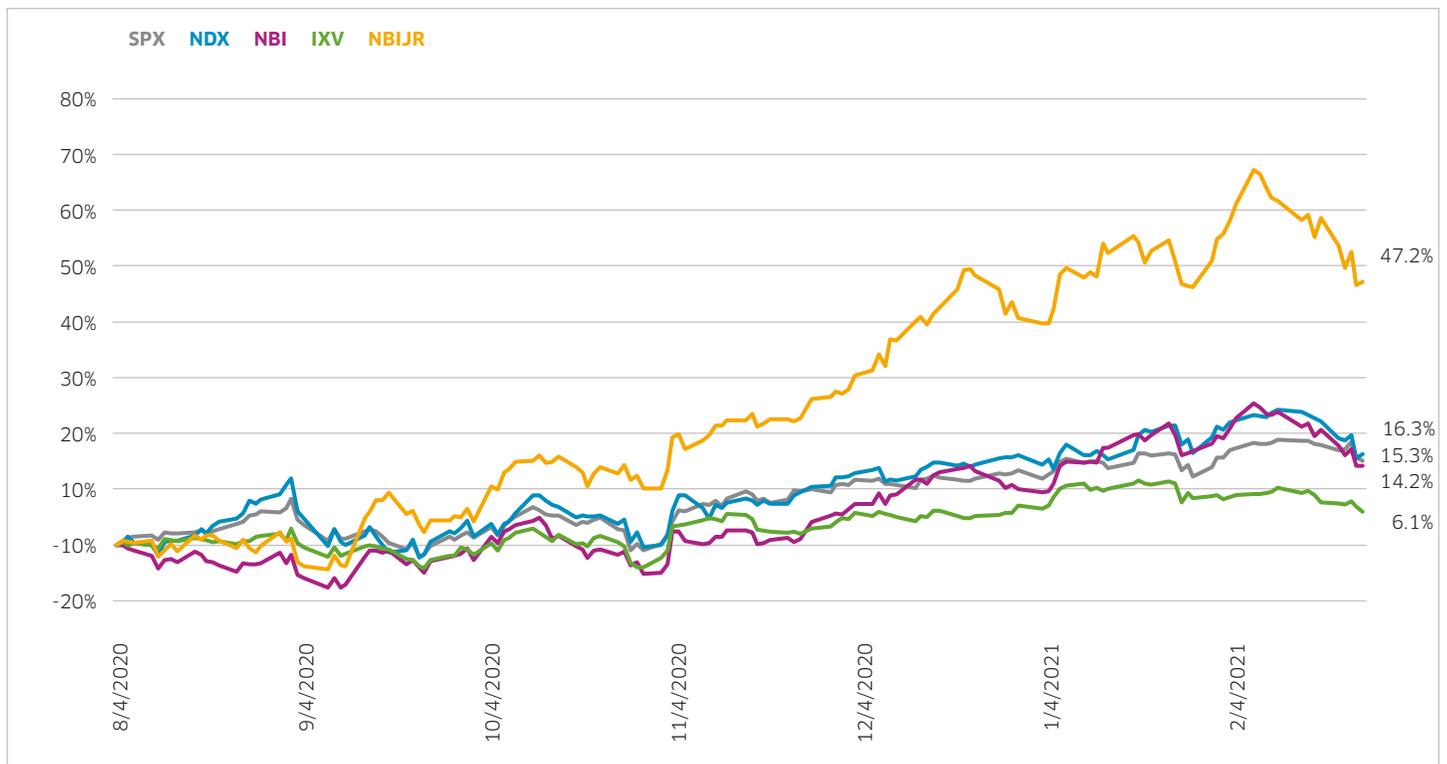
47.2%

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Recent Performance

NBIJR is up an impressive 47.2% since the launch of IBBJ, as of February 26, 2021. The Nasdaq-100 (NDX) is up 16.3% over the same timeframe, while the S&P 500 Index (SPX) trails closely behind at 15.3%. The Nasdaq Biotechnology Index (NBI) rose 14.2%, while the S&P Health Care Select Sector Index (IXV) grew by only 6.1%, neatly illustrating the dispersion of returns within the broader healthcare space. After running up impressive performance in the first half of February, NBIJR has roundtripped back to levels seen in late January 2021.



December 2020 Reconstitution and Recent M&A Tailwinds

NBIJR's annual reconstitution went effective on December 21, 2020. Reflecting the generally strong trends across the industry in the past year, there were 99 additions made to the index, and only 26 deletions. Put another way, the index's constituent pool grew by more than 40% (from 169 to 242), a result of the historic growth in the pool of smaller-cap biotech companies that now meet the minimum \$200MM market cap threshold. More than half of the new additions conducted an IPO in the past three years, with 26 going public in 2020, 17 in 2019, and 10 in 2018. And of the 26 deletions, roughly half (12) graduated into the senior ranks of NBI with market capitalizations exceeding \$5Bn.

Since the launch of IBBJ, there have been a further 10 deletions from the index outside of the annual reconstitution, mostly reflecting M&A activity in which a constituent was acquired by a larger firm. Some of the most prominent recent examples include Gilead's purchase of Immunomedics; Bristol Myers' purchase of Myokardia; BridgeBio Pharma's purchase of Eidos Therapeutics; Johnson & Johnson's purchase of Momenta Pharmaceuticals; and Nestle's purchase of Aimmune Therapeutics. Collectively, this group of companies contributed 10.1% of the index's price return of 67.4%.

All in all, the index's performance has been driven by broad strength in its constituent pool, with only one company (Immunomedics) contributing in excess of 3% of the cumulative return since the launch of IBBJ. The Top 20 contributors generated 39.2% of the cumulative return, collectively averaged 26.7% of the index weight, and recorded an average individual price return of 182.4%. As of January 29, 2021, no single constituent had a weight exceeding 3%, and only four index members had weights in excess of 2%. In stark contrast, NBI's 7 largest constituents represented 37.2% of the total index weight, while the 40 constituents unique to NBI represented 68.9%. Given the recent outperformance of smaller-cap names, as well as the much greater concentration of index weights in NBI, it is no surprise that the Nasdaq Junior Biotechnology Index has accelerated ahead of its older, more established sibling.

R&D Update

In our previous research on NBIJR, we noted it was a more speculative play on innovation in the biotech industry as a whole. More specifically, it offers a “pure-play” approach to investing in future returns from today’s most important healthcare R&D investments. We observed that in 2019, fully 63% of the index constituents’ aggregate revenue was spent on research & development. Looking at the most recent four quarters of data (with a few companies still left to report full-year 2020 results), that ratio has increased to 68% -- double the rate of NBI.

Given a host of seminal technological advancements in the process of disrupting traditional medicine – everything from AI & machine-learning-assisted clinical trials, robotic surgery, advances in genomics (including human augmentation, gene therapy and next generation sequencing), and the rise of bioinformatics & biochips – it is an exciting time indeed to be investing in biotech, to say nothing of the historically favorable tailwinds sure to follow the defeat of the Covid-19 pandemic by the industry.

For further reading on NBI and the biotech industry more generally, please find our long-form research paper here: <https://www.nasdaq.com/articles/biotech-in-the-age-of-coronavirus-2020-07-13>

ETFs currently tracking NBIJR include the Defiance Nasdaq Junior Biotechnology ETF (Nasdaq: IBBJ).

Sources: Nasdaq Global Indexes, FactSet, Bloomberg.

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