

Nasdaq Biotechnology Index[®]

Investing in the Next Generation of Healthcare Innovators

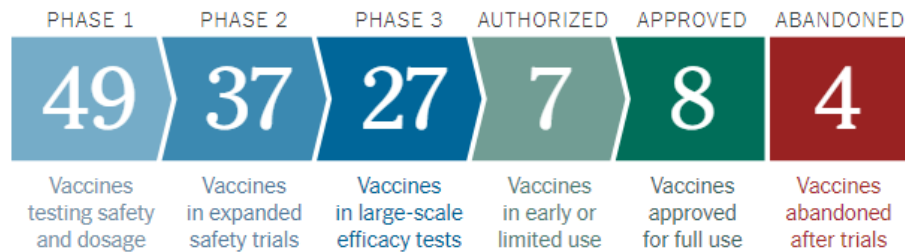
 Nasdaq | REWRITE TOMORROW

Biotech in the Age of Covid

- **5 Key Areas of Impact** – Vaccines, Vaccines, Vaccines! But also: significant advancements in Identification, Diagnosis, Treatment, and Epidemiology
- **Harbinger of the Future of Tech-Driven R&D** – Biomolecules, Biosystems, Biomachine Interfaces, and Biocomputing


Coronavirus Vaccine Tracker

By Carl Zimmer, Jonathan Corum and Sui-Lee Wee Updated May 18, 2021



Vaccines typically require years of research and testing before reaching the clinic, but in 2020, scientists embarked on a race to produce safe and effective coronavirus vaccines in record time. Researchers are currently testing **90 vaccines** in clinical trials on humans, and 27 have reached the final stages of testing. At least 77 preclinical vaccines are under active investigation in animals.

PHASE 3 APPROVED IN SWITZERLAND EMERGENCY USE IN U.S., ELSEWHERE

moderna  National Institutes of Health
Turning Discovery Into Health

VACCINE NAME: [mRNA-1273](#)
 EFFICACY: [More than 90%](#)
 DOSE: 2 doses, 4 weeks apart
 TYPE: Muscle injection
 STORAGE: 30 days with refrigeration


On Dec. 18., the F.D.A. gave [emergency use authorization](#) to the second one authorized by the vaccine made by Pfizer and BioNTech.

Like Pfizer and BioNTech, Moderna in recent years, the company has tested several vaccines for various diseases, but they have yet to bring any to market. The company began developing a vaccine for the coronavirus in early 2020.

The United States government began providing nearly \$1 billion in support for Moderna. In April, the **Institutes of Health**, they found that Moderna's vaccine was the most promising from the coronavirus. Last March, the [FDA](#) granted Moderna [a promising results](#), Phase 3 testing is under way for 27.

PHASE 2 **PHASE 3** COMBINED PHASES

APPROVED IN SEVERAL COUNTRIES EMERGENCY USE IN U.S., ELSEWHERE

 **BIONTECH**

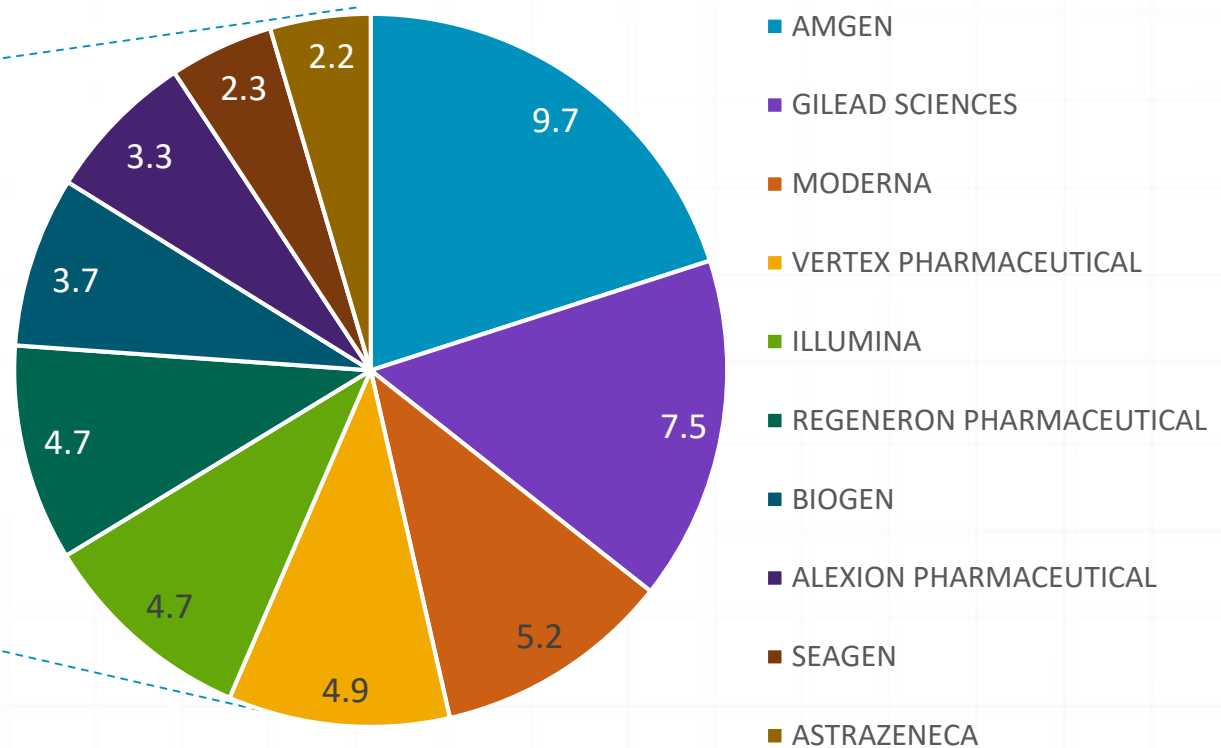
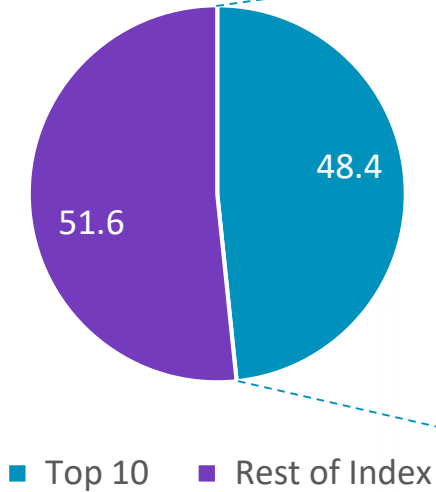
VACCINE NAME: [Comirnaty](#) (also known as [tozinameran](#) or [BNT162b2](#))
 EFFICACY: [91.3%](#)
 DOSE: 2 doses, 3 weeks apart
 TYPE: Muscle injection
 STORAGE: Freezer storage only at -13°F to 5°F (-25°C to -15°C)

On Nov. 9, New York-based **Pfizer** and the German company **BioNTech** made history by announcing that their coronavirus vaccine had an efficacy rate of [over 90 percent](#), far surpassing expectations. It was the first time anyone had found such evidence. Just over a month later, on Dec. 11, the Food and Drug Administration granted it the first [emergency use authorization](#) ever given by the United States to a coronavirus vaccine. On May 10 the F.D.A. expanded the authorization to [children as young as 12](#).

NBI™ Index Composition

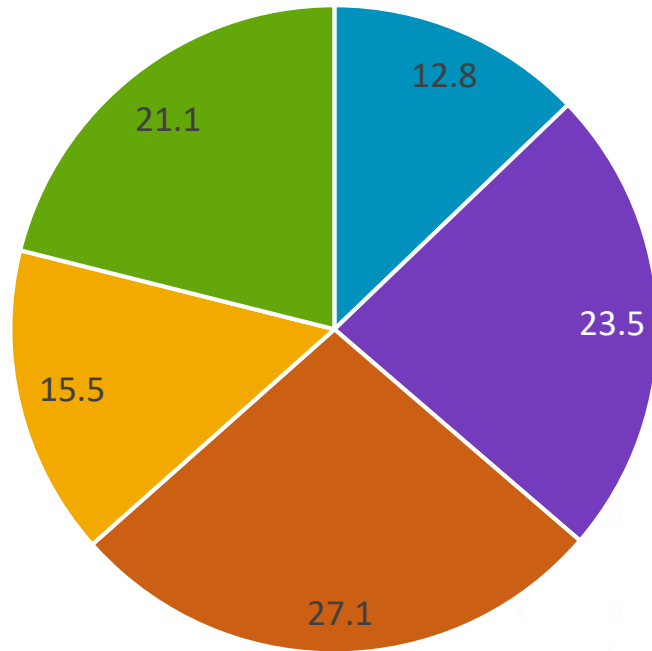
Top 10 Index % Weights as of May 14, 2021

Top 10 vs. Rest of Index



Market Cap/Subsector/Globality Profile

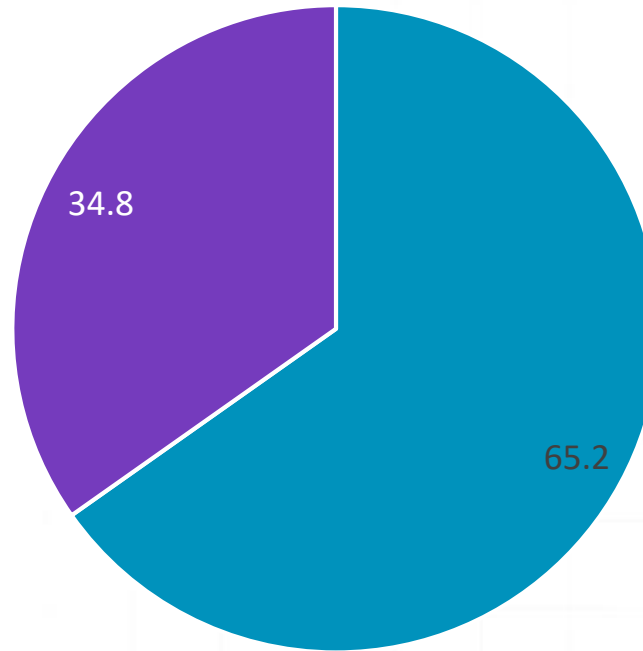
Index % Weight by Market Cap



■ \$100B+ ■ \$10-50B ■ \$50-100B
■ \$5-10B ■ <\$5B

of >\$5Bn Companies: 54
 # of <\$5Bn Companies: 220

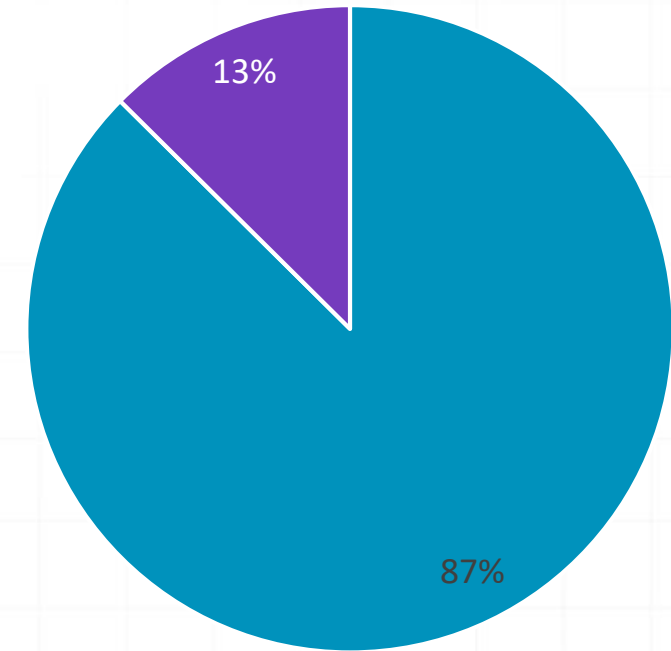
Index % Weight by ICB Subsector



■ Biotechnology ■ Pharmaceuticals

of Biotechnology: 230
 # of Pharmaceuticals: 44

Index % Weights by Domicile Country



■ US ■ International

of US-Domiciled: 231
 # of International: 43

Biotechnology vs. Pharmaceuticals

- 1) Biotechnology is a complex, hybrid industry comprised mainly of 2 types of companies:
 - R&D-intensive, often clinical trial-stage companies focused on intellectual property/patents
 - More mature companies with approved products already on the market, participating in all phases of Discovery / Development / Manufacture of treatments

- 2) Companies exist which blur the line between “pure-play Pharma” and “pure-play Biotech”
 - Amgen – largest NBI Index constituent – was reclassified by ICB in 2021 from Biotechnology to Pharmaceuticals
 - 41 companies representing 13% of NBI weight are classified as Biotechnology by ICB Subsector, but contain the word “Pharma” or “Pharmaceutical” in their Company Name
 - 140 companies classified as Biotechnology by ICB (38.5% of index weight) contain “Pharma” or “Pharmaceutical” in their Company Description, per Factset

- 3) Nasdaq-listed Pharmaceutical companies tend to be much younger than NYSE-listed (average time of 15 years since IPO vs. 37 years, respectively) based on Dow Jones US Select Pharmaceuticals Index
 - To construct the perfect benchmark for Biotechnology, ideally the index will capture all pure-play Biotechnology firms (most of which are Nasdaq-listed) + certain Pharmaceuticals that are “biotech-adjacent” or were originally founded as pure-play biotech (most of which are also Nasdaq-listed)

NBI vs. Competitor Benchmarks: Highlights

Index Name	Index Ticker	Weighting Description	Weighting Constraints	Industry Classification	Launch Year	Count	Listing Venue
Nasdaq Biotechnology Index	NBI	Modified Market Cap-Weighted	8% cap for Top 5; 4% cap for rest	ICB: Biotechnology or Pharmaceuticals Subsectors	1993	274	Nasdaq-Only
S&P Biotechnology Select Industry Index	SPSIBI	Modified Equal-Weighted	Each constituent has liquidity to allow 100% daily turnover of a \$2Bn tracking portfolio	GICS: Biotechnology Sub-Industry	2006	190	Nasdaq/NYSE/CBOE
ICE Biotechnology Index	ICEBIO	Modified Float Market Cap-Weighted	8% cap for Top 5; 4% cap for rest	ICE: Biotechnology Sub-Industry*	2021	273	Nasdaq/NYSE/CBOE

* Per ICEBIO index methodology: "This includes companies that are engaged in the research and development of therapeutic treatments but are not focused on the commercialization and mass production of pharmaceutical drugs."

NBI vs. Competitors: Methodology Details

Index Name	Index Ticker	Reconstitution Schedule	Rebalance Schedule	Minimum Market Cap Constraints	Minimum Liquidity Constraints	Minimum Float Constraints	Geography
Nasdaq Biotechnology Index	NBI	December	March June September	\$200MM (non-float adjusted)	100,000 Shares (10-month ADTV)	None	Global
S&P Biotechnology Select Industry Index	SPSIBI	March June September December	March June September December	\$300MM (float-adjusted); \$400MM/ \$500MM for new additions	12-month float-adjusted liquidity ratio (FALR) of 50%	None, but minimum FALR for new additions is 150%/90%	US
ICE Biotechnology Index	ICEBIO	December	March June September	\$200MM (non-float adjusted)	100,000 Shares (10-month ADTV)	5%	Unknown

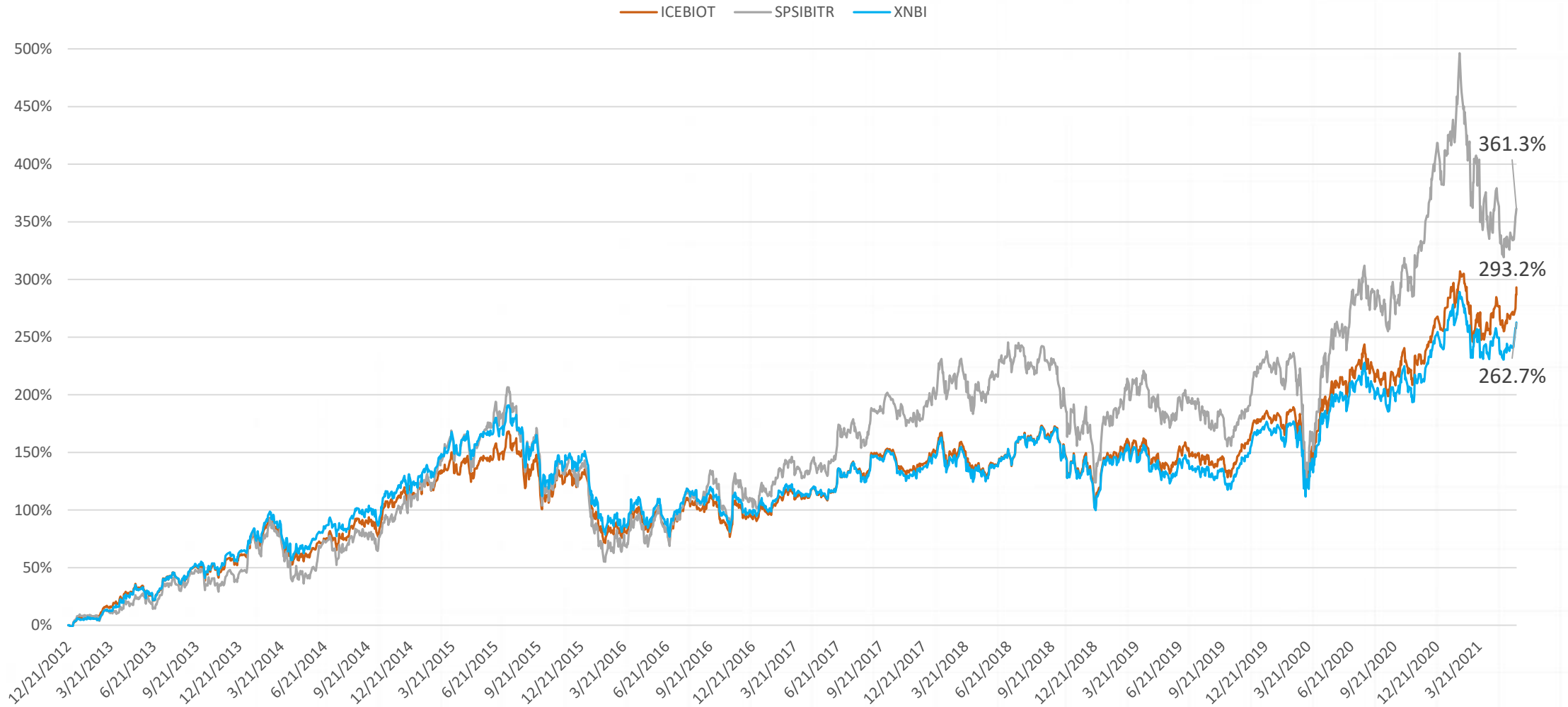
SPSIBI: Overlap by Subsector/Exchange

	ICB Subsector:	Biotechnology	Medical Services	Medical Supplies	Pharmaceuticals	Grand Total
Count of Constituents	NYSE-listed	5	0	0	1	6
	Nasdaq-listed	165	3	1	15	184
	Total	170	3	1	16	190
Sum of Index Weight	NYSE-listed	2.89%	0.00%	0.00%	0.79%	3.68%
	Nasdaq-listed	84.98%	1.83%	0.27%	9.11%	96.19%
	Total	87.88%	1.83%	0.27%	9.90%	99.87%*
Count of Constituents	SPSIBI-Only	35	3	1	1	40
	NBI Overlap	135	0	0	15	150
	Total	170	3	1	16	190
Sum of Index Weight	SPSIBI-Only	16.76%	1.83%	0.27%	0.79%	19.65%
	NBI Overlap	71.12%	0.00%	0.00%	9.11%	80.23%
	Total	87.88%	1.83%	0.27%	9.90%	99.87%

*SPSIBI constituent-level data based on XBI ETF holdings, which includes 0.13% allocated to Cash.

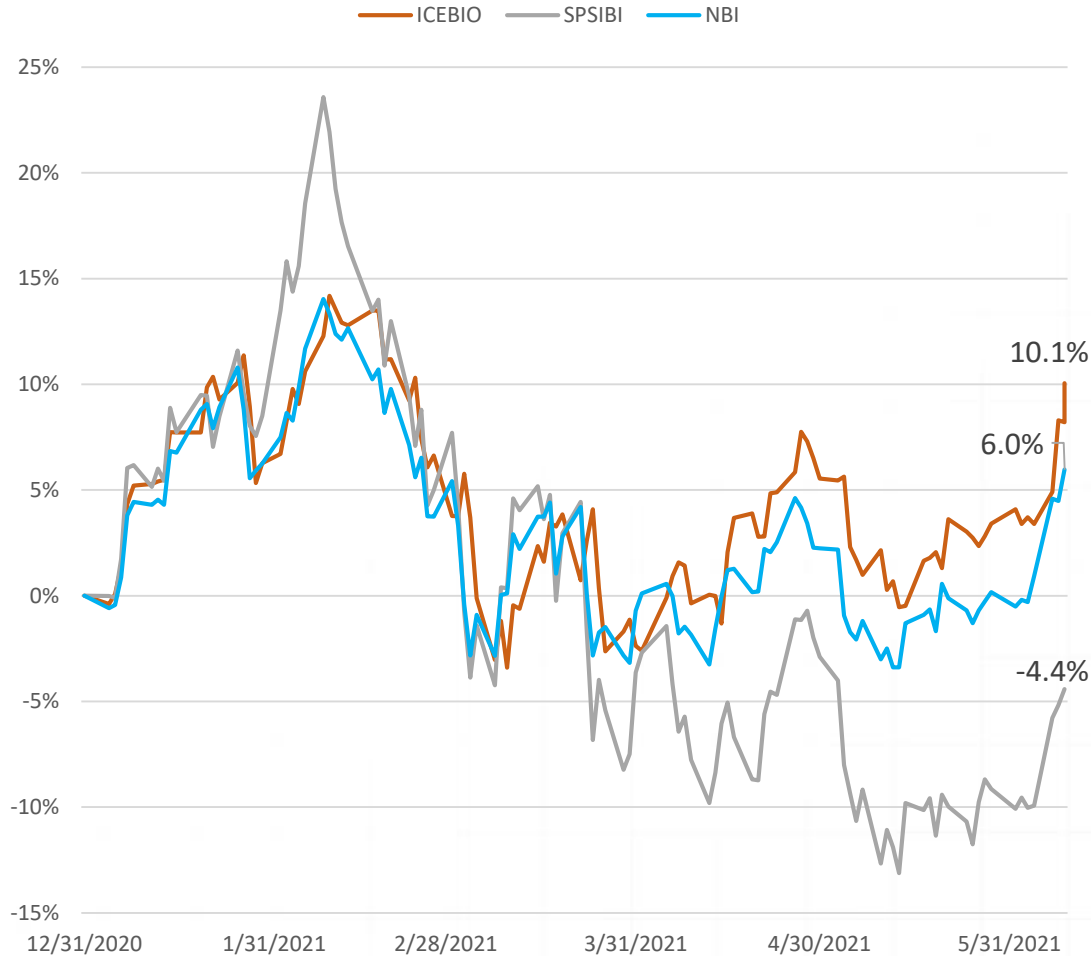
Performance Since Inception of ICE Biotech Backtest

Total Returns vs. Competitor Benchmarks as of June 9, 2021

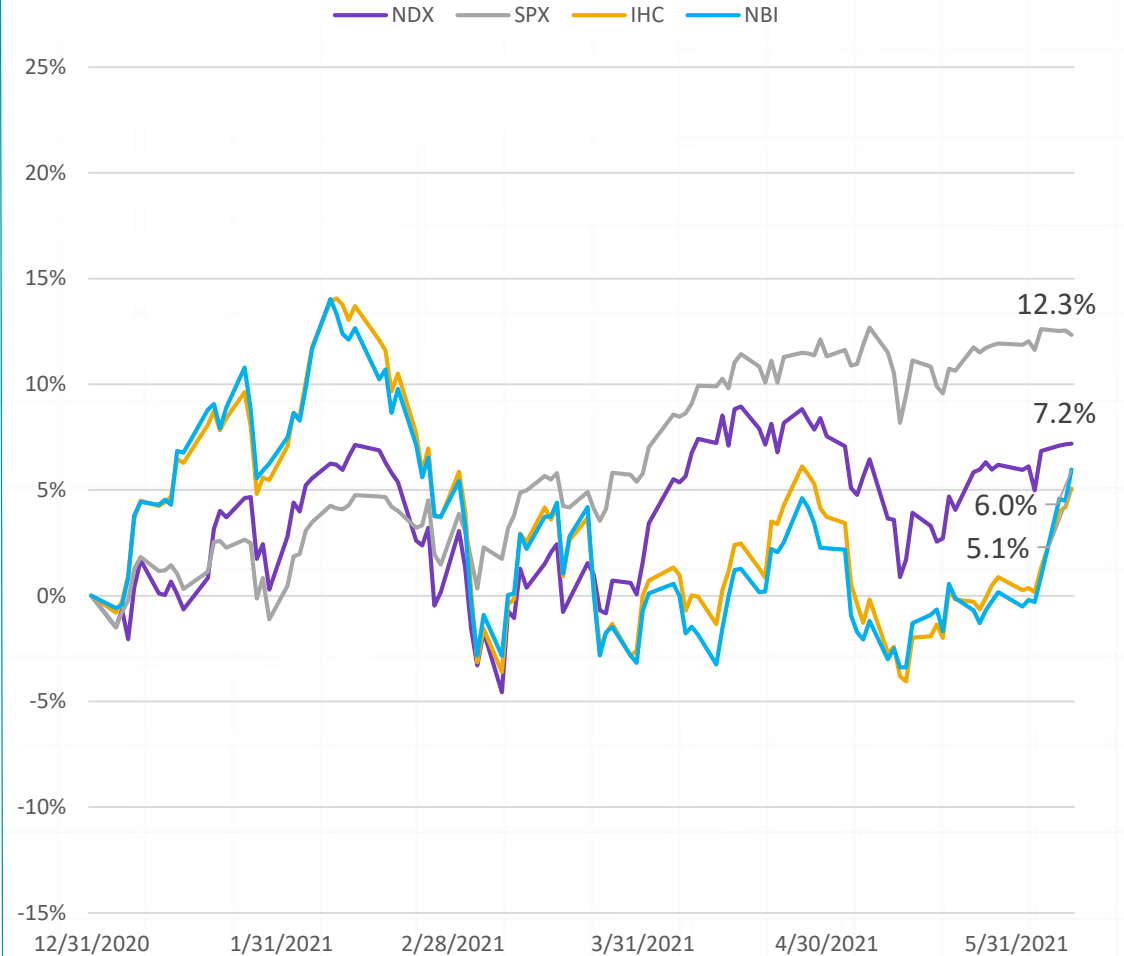


YTD 2021 Performance

Price Performance vs. Competitor Indexes as of June 9

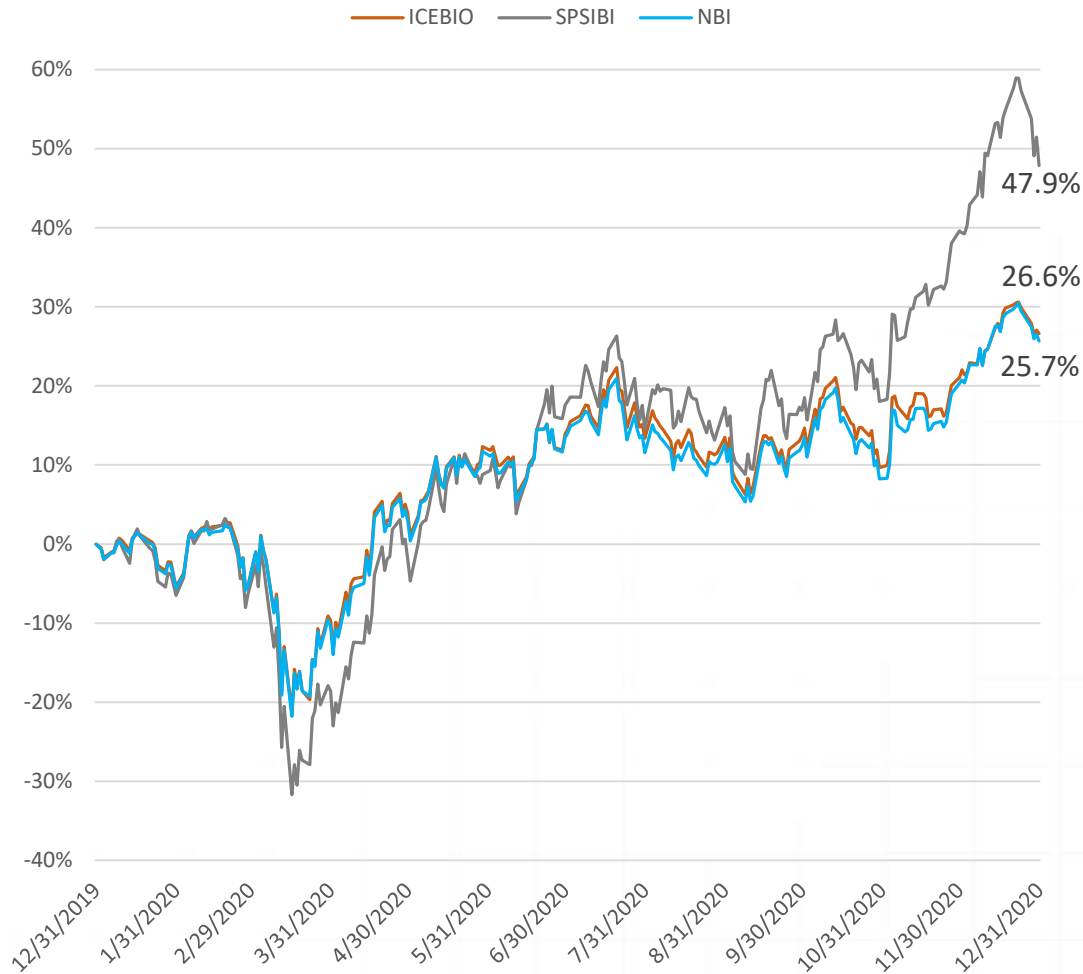


Price Performance vs. Market Benchmarks as of June 9

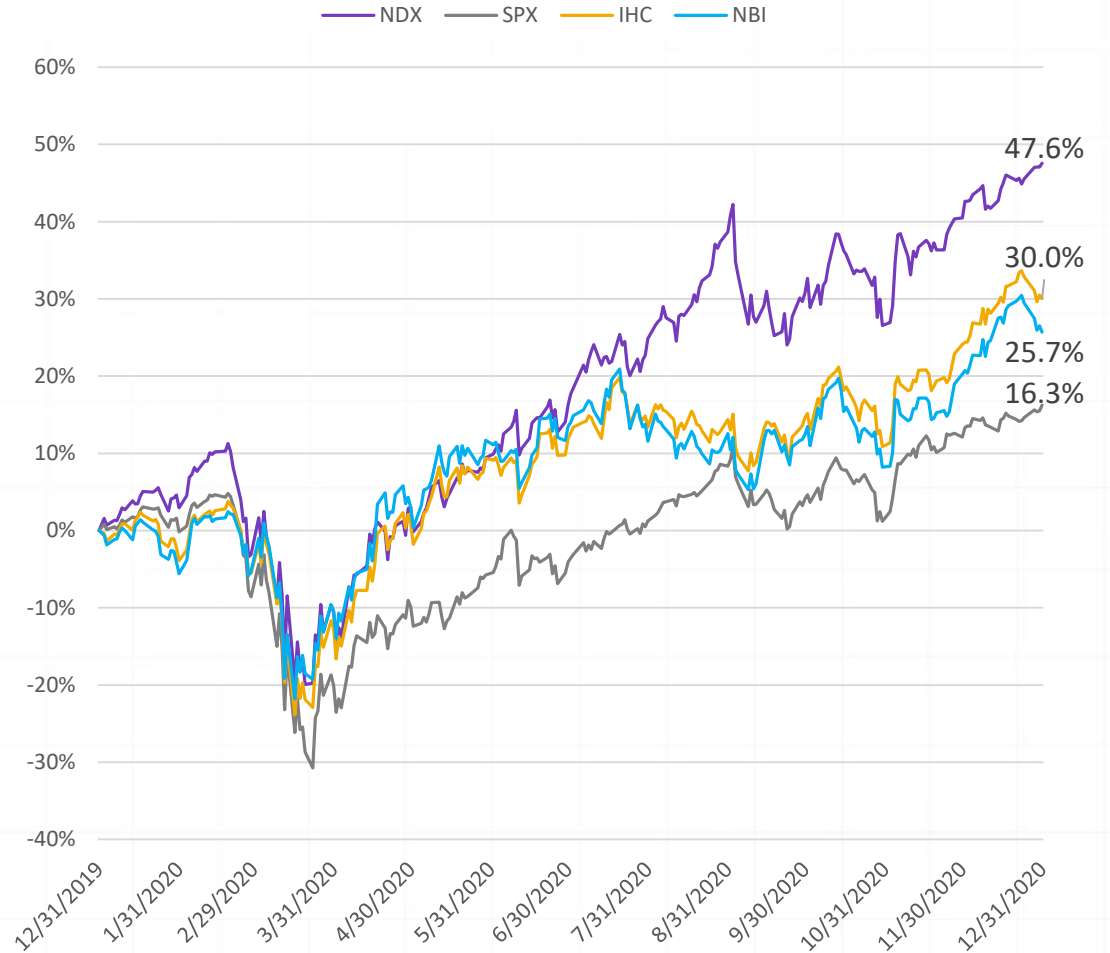


Full-Year 2020 Performance

Price Performance vs. Competitor Indexes

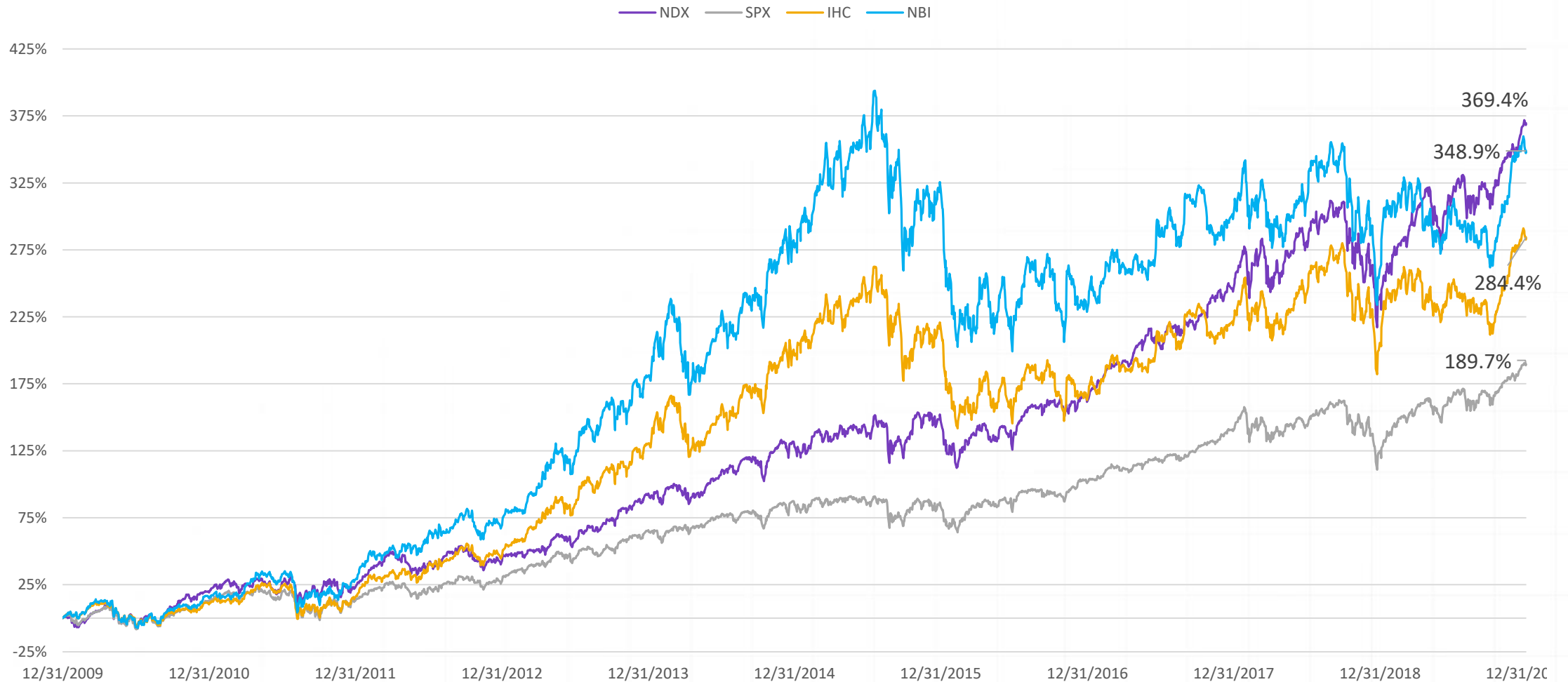


Price Performance vs. Market Benchmarks



Performance Throughout the 2010s

2010-2019 Performance vs. Market Benchmarks



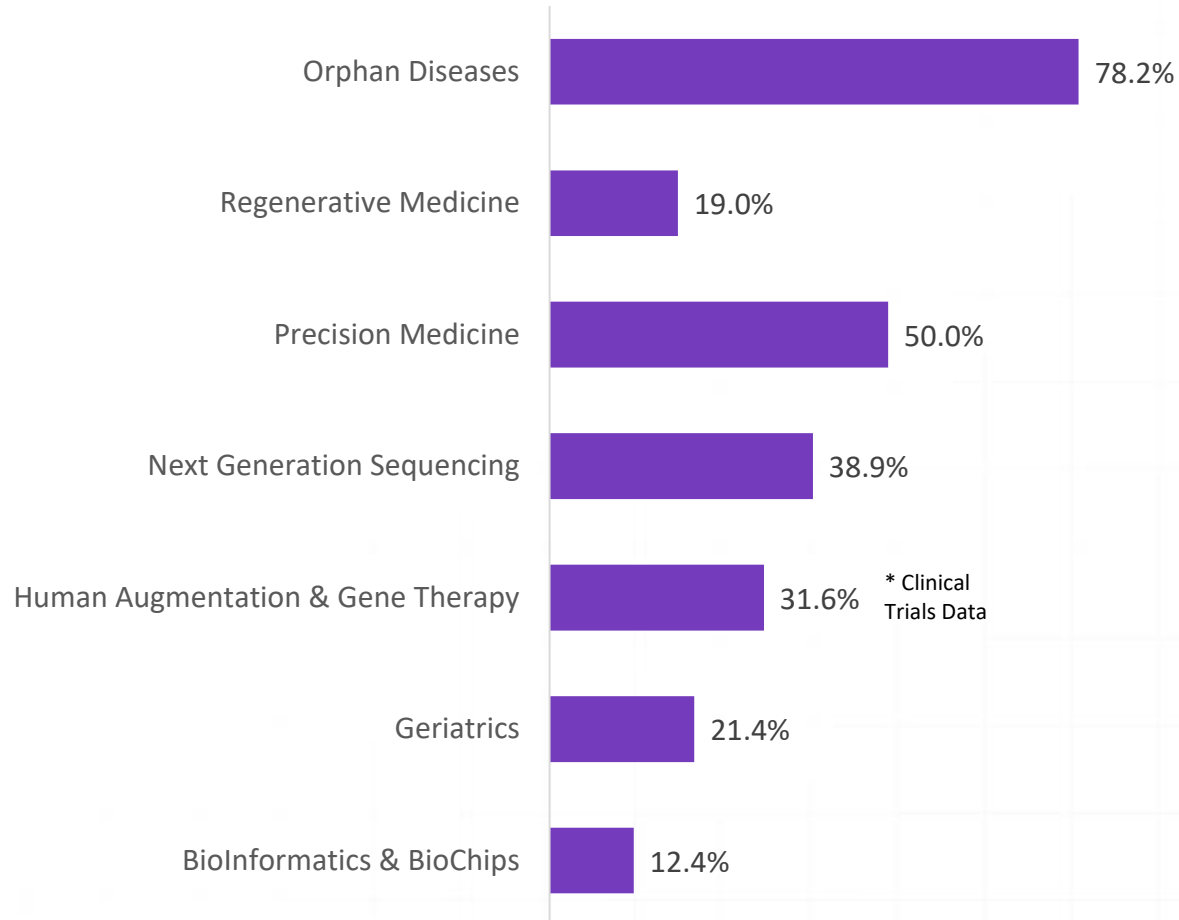
NBI ETF AUM: 3-Year Trend

3-Year Global ETF AUM thru April 30, 2021 (\$Bn)

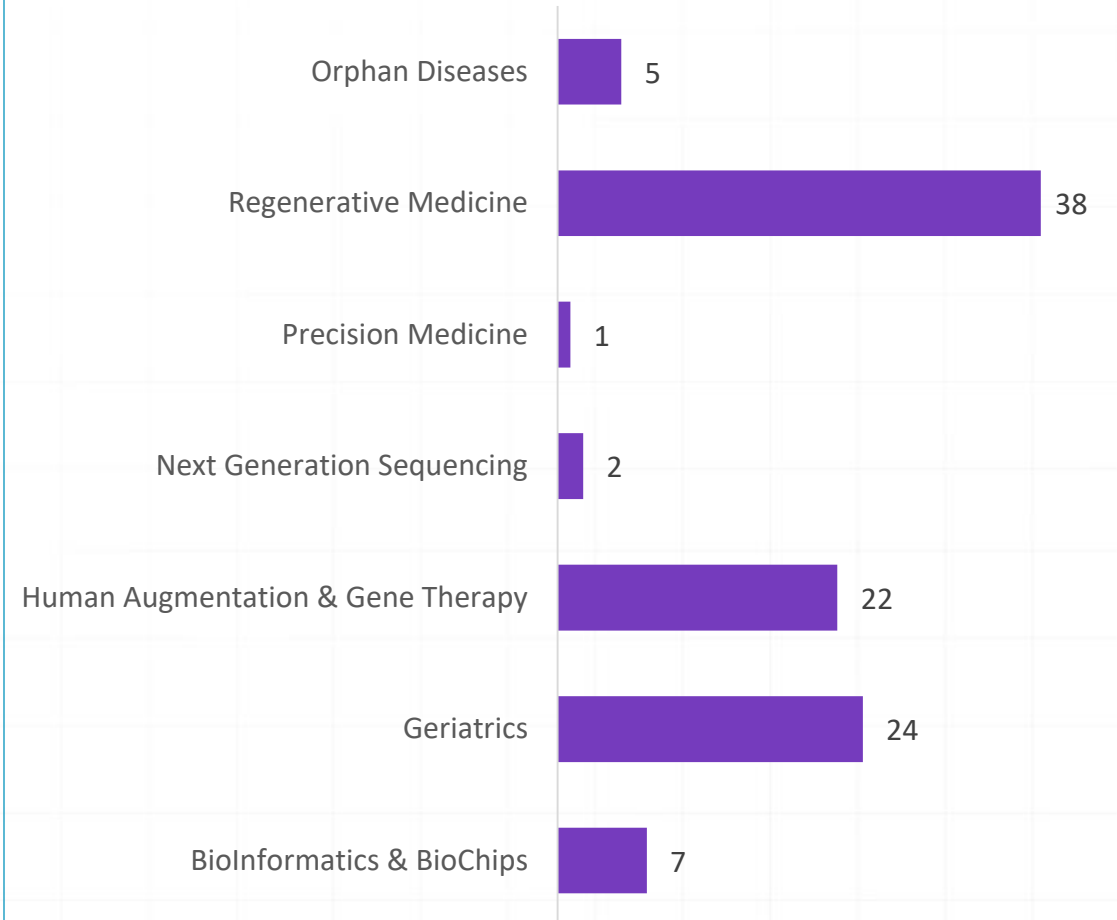


R&D Intensity Across Key Areas of Innovation

3-Year Patent Contribution by NBI Companies

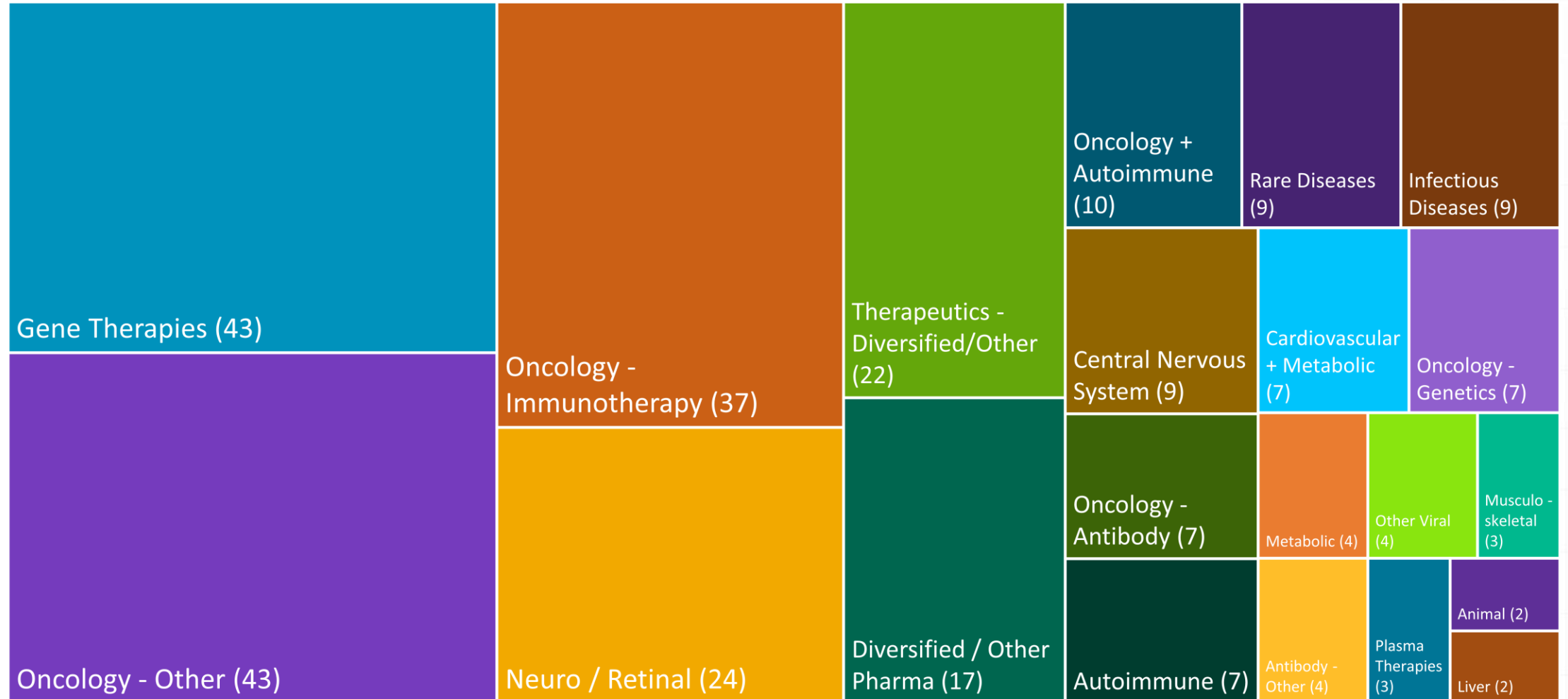


of NBI Companies with Patent Activity



Biotechnology & Pharmaceutical Diversity

Number of NBI Companies by Area of Focus



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