Biopharmaceutical Sector

Weekly Update – August 21, 2023

© 2023. All rights reserved. Securities in the United States are offered through Stifel, Nicolas & Company, Member FINRA/SIPC. In Europe such services are offered through Stifel Nicolas Europe Limited, which is authorized and regulated by the UK Financial Conduct Authority.

STIFEL | Healthcare

Table of Contents

STIFEL | Healthcare

555 Madison Ave, Suite 1201, New York NY 10022, +1-(212) 257-5801
Web: www.stifel.com

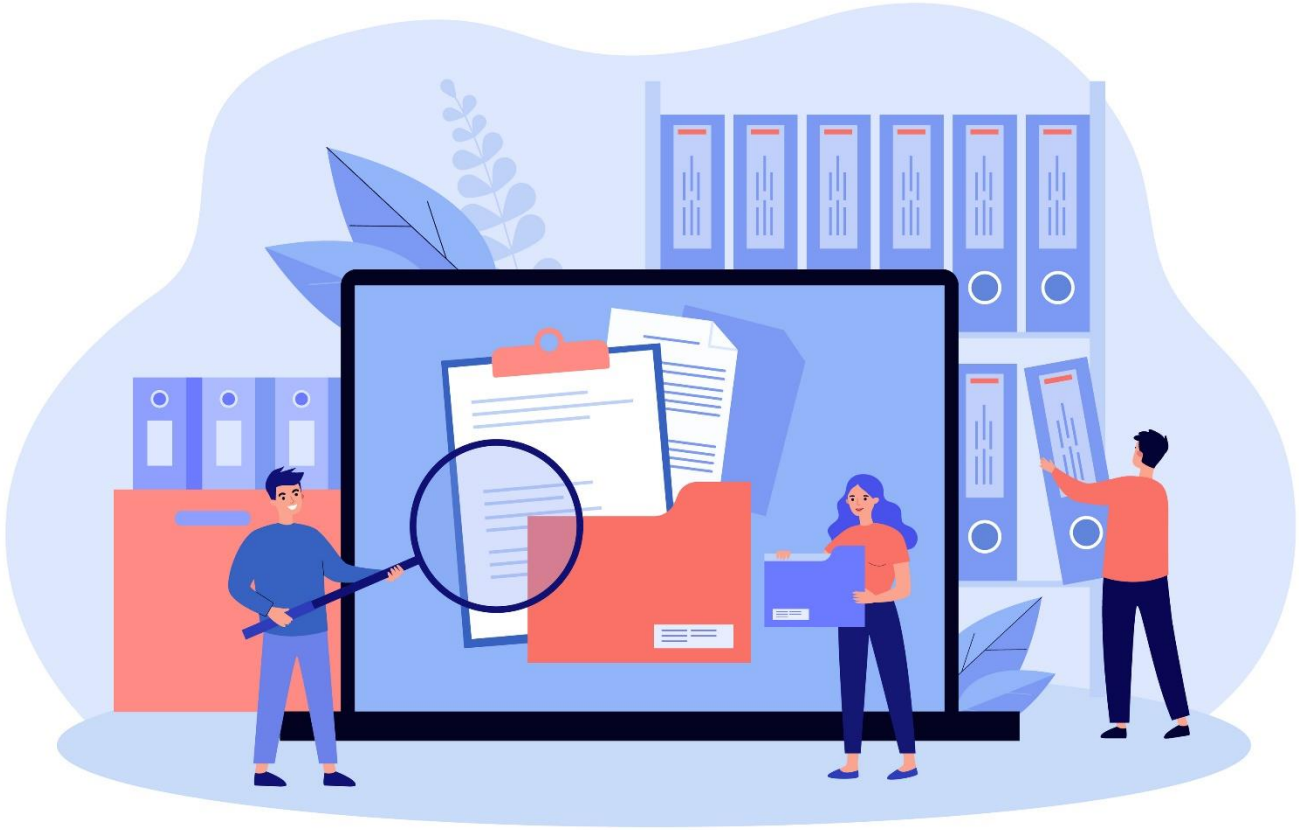
Publication Note

Our publishing schedule has shifted for the Summer to once every two weeks.

We will be publishing our next update on September 5th.

If you are not on the mailing list for this publication and wish to be added, please notify Natasha Yeung (yeungn@stifel.com).

For those based in Europe, please notify Jade Atkinson (jade.atkinson@stifel.com) to be added to the mailing list.



Join Us at These Upcoming Events

1

Biotech Hangout held its latest event on August 19th.

The next event will be on August 26, 2023.

Please join us.

August 19th Replay
https://twitter.com/i/spaces/1RDGlalkYOdJL

To Learn More
https://www.biotechhangout.com/

2

SACHS ASSOCIATES

Basel | September 20-21, 2023 (Movenpick Hotel)

23RD ANNUAL BIOTECH IN EUROPE FORUM

The conference will feature more than 15 hours of high-level keynotes and panel discussions. In addition, there will be a global company showcase of 60+ presentations by established public, private, emerging and seed companies, offering innovative solutions and seeking investment and partnering opportunities.

To Learn More
https://www.sachsforum.com/23bef-about.html

3

biofuture™

New York City | October 4-6, 2023

Innovators & Investors Come Together to Shape the Future of Healthcare

At this year's summit, BioFuture attendees will be exploring the exciting mashup between rapidly evolving fields including biopharma, digital medicine, big data, AI, healthcare systems, payors, and more. The coming decade will dramatically accelerate the transformation of the healthcare ecosystem. Be part of the discussions that will shape and transform the future of healthcare.

To Learn More
https://biofuture.com/

Macro Update

Stock Markets Face a ‘Perfect Storm’ as High Rates And China Fears Bite

CNBC, August 18, 2023

Stock markets were hit with a “perfect storm” this week, as concerns over a Chinese economic slowdown and persistently high U.S. interest rates rattled global sentiment.

Hong Kong’s Hang Seng index closed Friday’s trade in bear market territory, down 2.1% on the day and almost 21% from its January highs, after embattled Chinese real estate giant Evergrande filed for bankruptcy protection in a U.S. court. This led to broad declines for shares across Asia-Pacific.

The Dow Jones Industrial Average was on track for its worst week since March, and the S&P 500 and Nasdaq 100 were both heading for a third consecutive week of losses.

Source: https://www.cnbc.com/2023/08/18/stock-markets-face-a-perfect-storm-as-high-rates-and-china-fears-bite-analysts-warn.html

FOMC Minutes of July 2023 Meeting Not Bright

It's quite clear that the Fed is not convinced that its job of rate tightening is done.

August 6, 2023: Excerpt of FOMC minutes (July 2023 meeting): In their discussion of current economic conditions, participants noted that economic activity had been expanding at a moderate pace. Job gains had been robust in recent months, and the unemployment rate remained low. Inflation remained elevated. Participants agreed that the U.S. banking system was sound and resilient. They commented that tighter credit conditions for households and businesses were likely to weigh on economic activity, hiring, and inflation. However, participants agreed that the extent of these effects remained uncertain. Against this background, the Committee remained highly attentive to inflation risks.

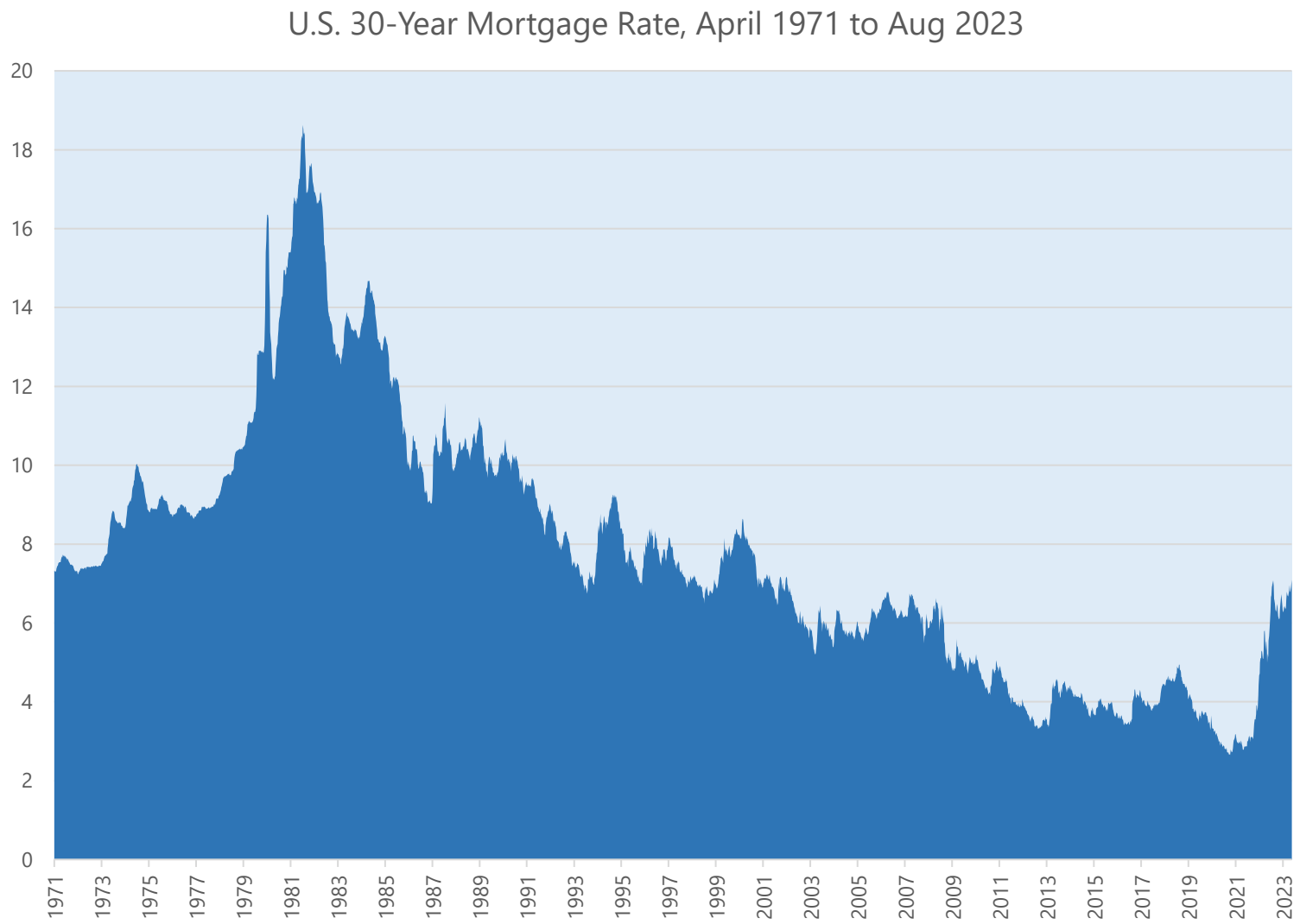
Participants noted the recent reduction in total and core inflation rates. However, they stressed that inflation remained unacceptably high and that further evidence would be required for them to be confident that inflation was clearly on a path toward the Committee's 2 percent objective. Participants continued to view a period of below-trend growth in real GDP and some softening in labor market conditions as needed to bring aggregate supply and aggregate demand into better balance and reduce inflation pressures sufficiently to return inflation to 2 percent over time.

Participants generally noted a high degree of uncertainty regarding the cumulative effects on the economy of past monetary policy tightening. Participants cited upside risks to inflation, including those associated with scenarios in which recent supply chain improvements and favorable commodity price trends did not continue or in which aggregate demand failed to slow by an amount sufficient to restore price stability over time, possibly leading to more persistent elevated inflation or an unanchoring of inflation expectations. In discussing downside risks to economic activity and inflation, participants considered the possibility that the cumulative tightening of monetary policy could lead to a sharper slowdown in the economy than expected, as well as the possibility that the effects of the tightening of bank credit conditions could prove more substantial than anticipated.

In discussing the policy outlook, participants continued to judge that it was critical that the stance of monetary policy be sufficiently restrictive to return inflation to the Committee's 2 percent objective over time. They noted that uncertainty about the economic outlook remained elevated and agreed that policy decisions at future meetings should depend on the totality of the incoming information and its implications for the economic outlook and inflation as well as for the balance of risks. Participants expected that the data arriving in coming months would help clarify the extent to which the disinflation process was continuing and product and labor markets were reaching a better balance between demand and supply. This information would be valuable in determining the extent of additional policy firming that may be appropriate to return inflation to 2 percent over time. Participants also emphasized the importance of communicating as clearly as possible about the Committee's data-dependent approach to policy and its firm commitment to bring inflation down to its 2 percent objective.

Source: https://www.federalreserve.gov/monetarypolicy/fomcminutes20230726.htm

U.S. Mortgage Rates at their Highest Since 2002



New York Times, Aug 17, 2023

Mortgage rates surged to a 21-year high this week, a jump that will make it even harder for buyers to afford homes in a market hampered by high prices and low inventory.

The average 30-year fixed-rate mortgage — the most popular home loan in the United States — was 7.09 percent, up from 6.96 percent last week, Freddie Mac said on Thursday. A year earlier, the 30-year rate was 5.13 percent.

The current rate is the highest since April 2002. Since then, home buyers enjoyed years of falling rates, which even dipped below 3 percent at the beginning of the pandemic.

But as mortgage rates began abruptly rising last year, when the Federal Reserve started lifting interest rates to rein in rapid inflation, **the housing market has stagnated, as owners with low mortgage rates have been unwilling to put their homes up for sale.**

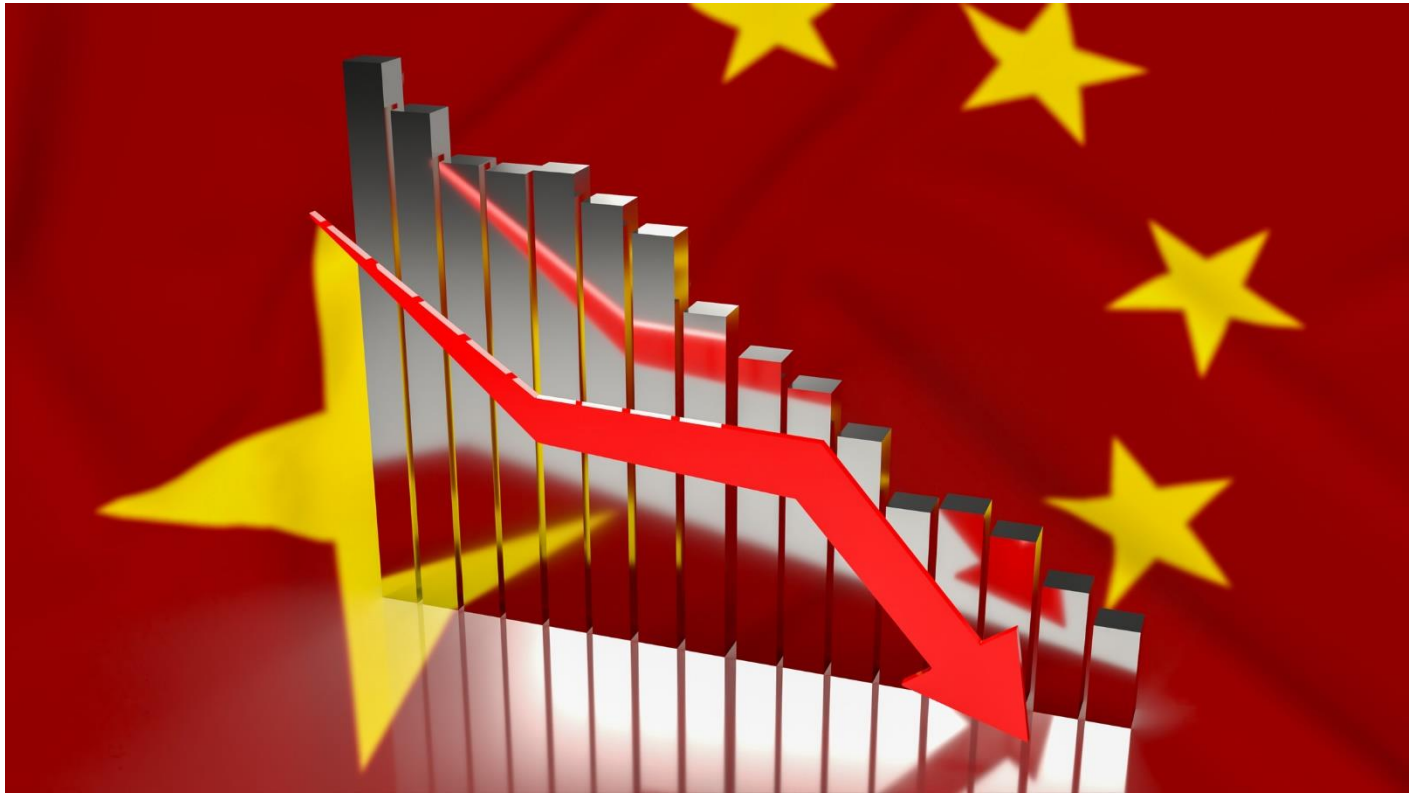
Sourced: Freddie Mac (data) and https://www.nytimes.com/2023/08/17/business/mortgage-rates-housing-market.html (story).

China Economic Situation Trending Negatively

Reuters, Aug 18, 2023

HONG KONG/NEW YORK, Aug 18 (Reuters) - Embattled developer China Evergrande Group has filed for U.S. bankruptcy protection as part of one of the world's biggest debt restructurings, as anxiety grows over China's worsening property crisis and its impact on the weakening economy.

China unexpectedly lowered several key interest rates earlier this week in a bid to shore up struggling activity and is expected to cut prime loan rates on Monday, but analysts say moves so far have been too little, too late, with much more forceful measures needed to stem the economy's downward spiral.



Source: https://www.reuters.com/world/china/china-evergrande-files-protection-us-court-part-32-bln-debt-overhaul-2023-08-18/

Biopharma Market Update

Alexandria Center for Life Sciences, South San Francisco, CA. Source: Stifel

Biotech Stocks Down Again Last Week

The XBI was down last week by 3% and is now down 6.6% for the year. The overall market, measured by the S&P 500, was soft last week in the wake of tough talk from the Fed on inflation and instability in the China economy. Treasury yields are up big.

Biotech Stocks Down Last Week

Return: August 11 to August 18, 2023

Nasdaq Biotech Index: -2.2%
Arca XBI ETF: -3.0%
Stifel Global Biotech (EV): -5.4%*
S&P 500: -2.1%

Return: Jan 1 to August 18, 2023

Nasdaq Biotech Index: -4.4%
Arca XBI ETF: -6.6%
Stifel Global Biotech: -13.5%*
Stifel Global Biotech (adjusted): -1.5%*
S&P 500: +13.8%

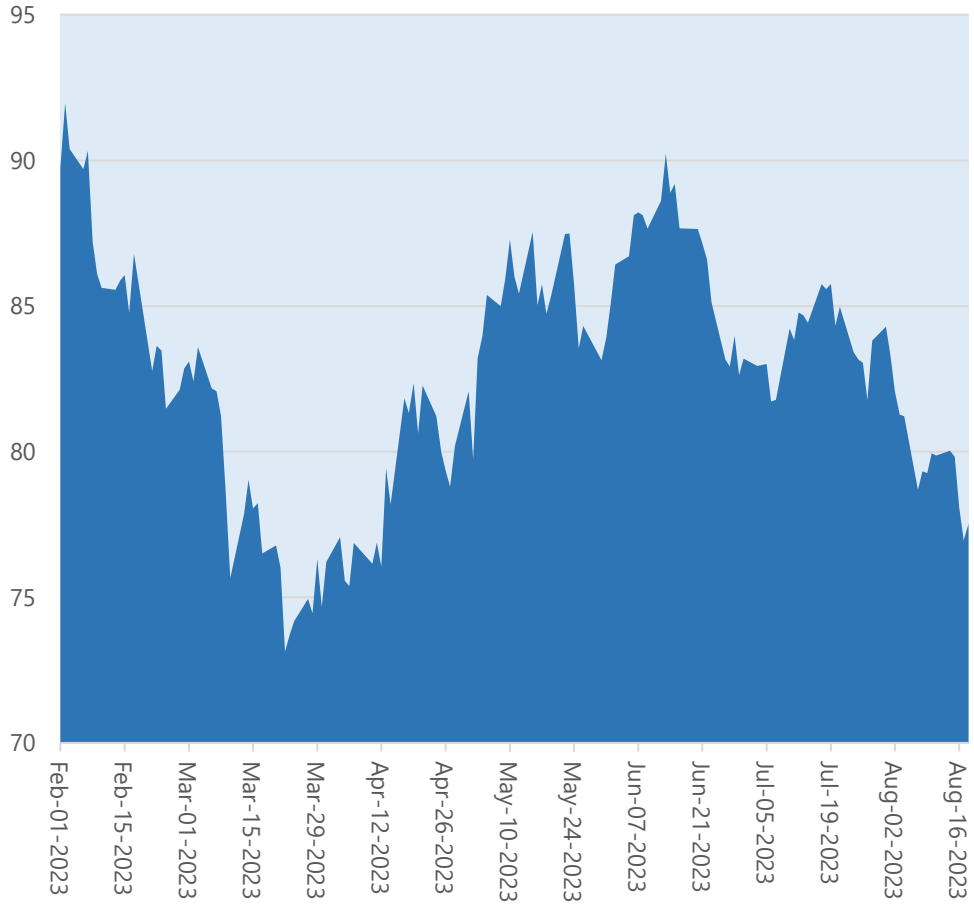
VIX Flat

Oct 21: 29.7%
Jan 20: 19.9%
Mar 17: 24.6%
May 26: 18.0%
July 21: 13.6%
Aug 3: 17.1%
Aug 18: 17.3%

10-Year Treasury Yield Up

Oct 21: 4.2%
Jan 20: 3.48%
Mar 17: 3.39%
May 26: 3.8%
July 21: 3.84%
Aug 3: 4.05%
Aug 18: 4.25%

XBI, Feb 1, 2023 to August 18, 2023

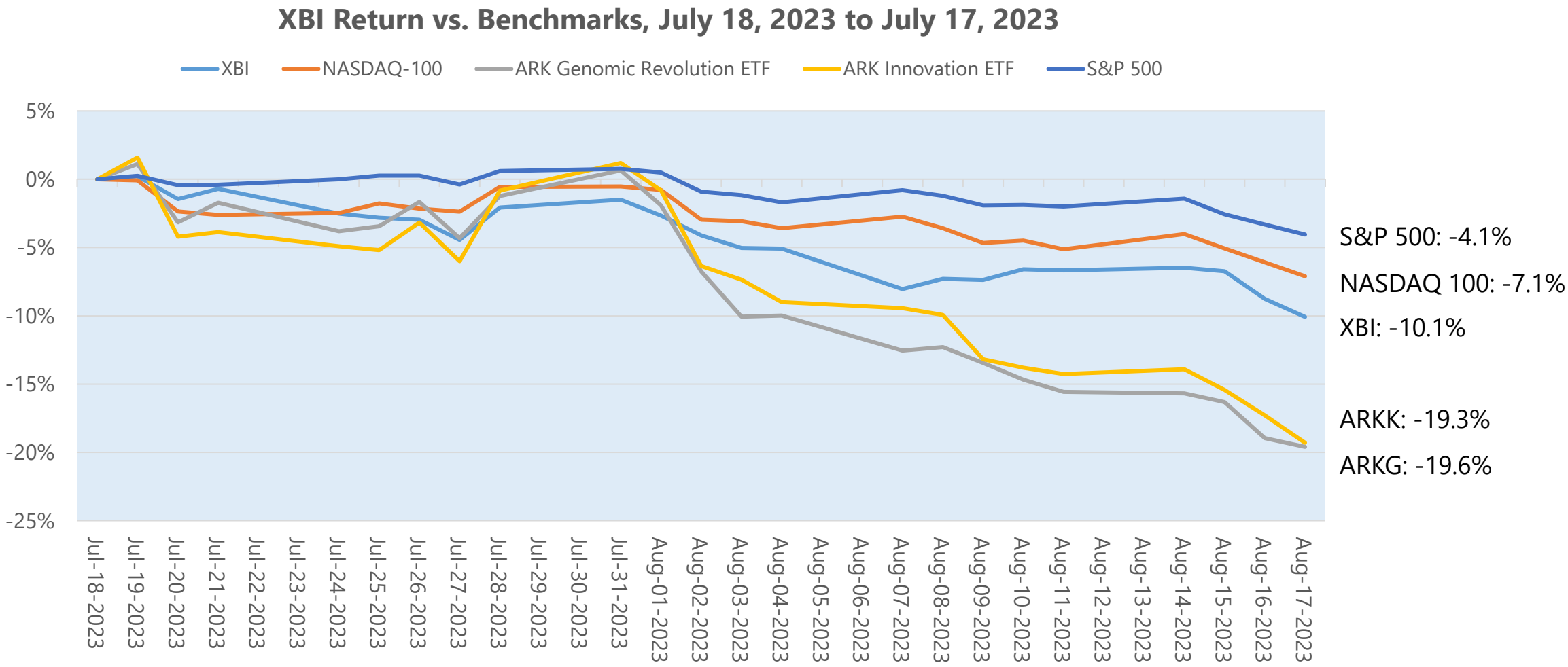


* Change by enterprise value. The adjusted number accounts for the effect of exits and additions via M&A, bankruptcies and IPOs.

Source: S&P Capital IQ and Stifel analysis

A Tough Month

As the Fed has ramped up its hawkish stance on inflation and rates relative to expectations, tech and biotech stocks are all down. The very high beta ARK funds are down the most as investors have fled to safer havens. ARKK is the ARK Innovation ETF managed by Cathie Wood while ARKG is the ARK Genomic Revolution ETF.



S&P 500: -4.1%

NASDAQ 100: -7.1%

XBI: -10.1%

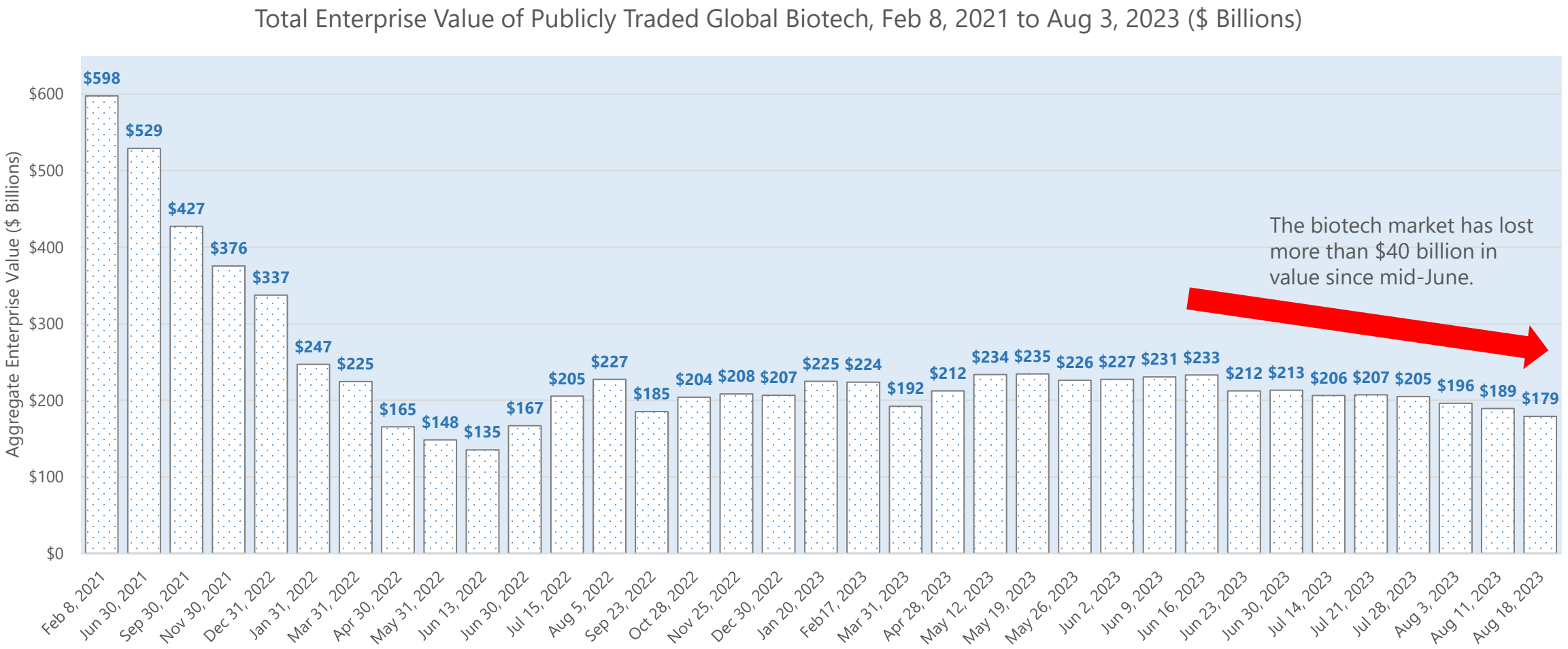
ARKK: -19.3%

ARKG: -19.6%

Source: S&P CapitalIQ

Total Global Biotech Sector Value Down 5.4% Last Week

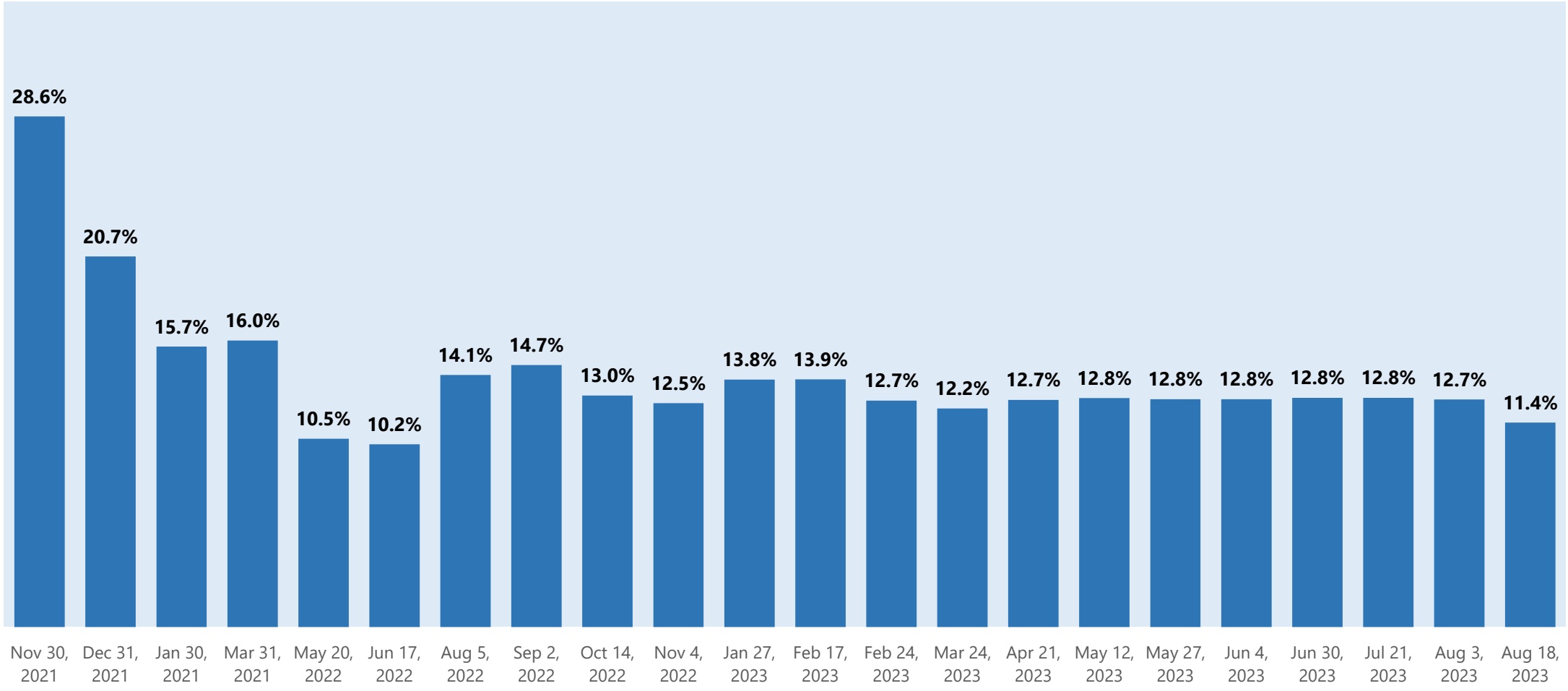
The total value of the global biotech sector dropped 5.4% (or $10bn last week) and is down 14% in the last month. There was one major exit with the closing of the Chinook sale. If added back the market would be down 13% for the month.



Source: CapitalIQ. Biotechs are defined as any therapeutics company without an approved product on any global stock exchange.

The “Nice” Biotech Neighborhood Keeps Shrinking

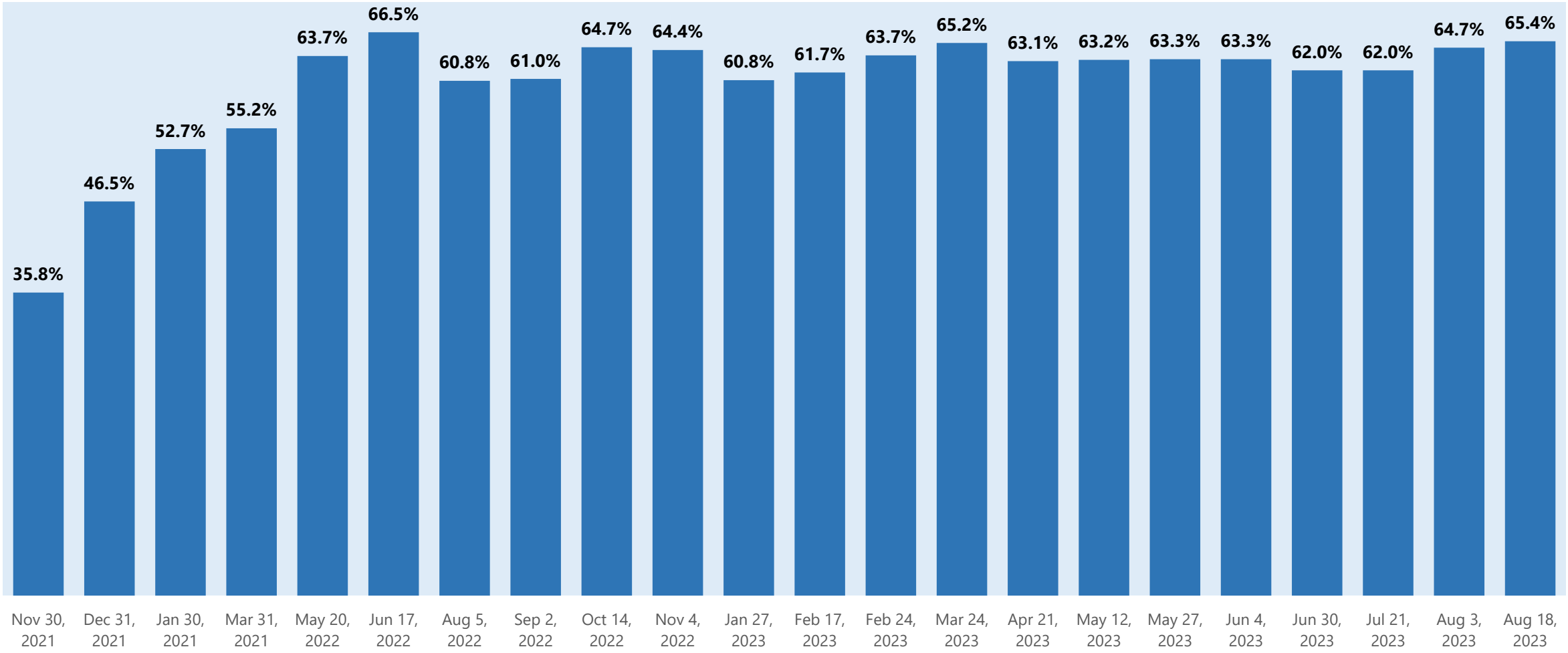
Percent of Global Biotechs with an Enterprise Value of $500mm or More, Nov 2021 to Aug 2023



Source: CapitalIQ. Biotechs are defined as any therapeutics company without an approved product on any global stock exchange.

Nearly Two Thirds of Public Biotechs Trading Under $100mm Enterprise Value

Percent of Global Biotechs with an Enterprise Value Under $100mm, Nov 2021 to Aug 2023



Source: CapitalIQ. Biotechs are defined as any therapeutics company without an approved product on any global stock exchange.

How Did Biotech Drop $28 Billion in Value in a Month?

Top 20 Value Decliners, Global Public Biotech Population, Jul 19 to Aug 18, 2023

Company	HQ Country	Market Cap ($mm, Aug 18, 2023)	Percent Drop in Market Cap	Dollar Drop in Market Cap ($mm)
Vir Biotechnology	United States	$1,649	-46.1%	-$1,439.6
Cerevel Tx	United States	$3,298	-28.1%	-$1,267.6
Recursion Pharma	United States	$1,850	-29.4%	-$1,201.1
Karuna Tx	United States	$6,523	-16.2%	-$1,192.3
Denali Tx	United States	$3,103	-23.7%	-$1,026.9
CRISPR Tx	Switzerland	$3,823	-20.6%	-$1,021.9
Intellia Tx	United States	$3,326	-14.6%	-$694.6
Arrowhead Pharma	United States	$3,029	-19.0%	-$666.3
Madrigal Pharma	United States	$3,320	-17.2%	-$644.3
Bavarian Nordic	Denmark	$1,616	-26.9%	-$605.1
Telix Pharma	Australia	$2,019	-21.5%	-$601.7
Zai Lab	China	$2,235	-21.4%	-$597.3
Mesoblast	Australia	$188	-75.3%	-$574.7
ImmunityBio	United States	$826	-36.2%	-$525.7
Beam Therapeutics	United States	$1,797	-19.9%	-$495.8
Prothena	Ireland	$3,038	-17.6%	-$470.9
Iovance Biovance	United States	$1,504	-25.4%	-$426.1
Oneness Biotech	Taiwan	$2,567	-11.6%	-$403.9
Akeso	China	$3,490	-11.7%	-$376.9
Verve Tx	United States	$895	-28.3%	-$365.6
			Sum	-14,630

It was quite a rough month for the public biotech sector.

The chart at left shows that the top 20 decliners dropped $14.6bn, led by a 38% drop in Vir on negative clinical data; a 60% drop in Cerevel on clinical delay and a 32% drop in Recursion after an AI-driven runup.

Over 75% of biotechs dropped in value last month.

Source: CapitalIQ. Biotechs are defined as any therapeutics company without an approved product on any global stock exchange.

Top 20 Gainers Picked Up Just $4.4Bn in Last Month

Top 20 Value Gainers, Global Public Biotech Population, Jul 19 to Aug 18, 2023

Company	HQ Country	Market Cap ($mm, Aug 18, 2023)	Percent Rise in Market Cap	Dollar Rise in Market Cap ($mm)
Kelun Biotech	China	$2,309	26.6%	$484.6
Belite Bio	United States	$852	111.2%	$448.7
Acelyrin	United States	$2,582	19.1%	$413.2
Revolution Meds	United States	$3,234	12.6%	$361.0
Vaxcyte	United States	$4,675	7.3%	$318.1
Tango Tx	United States	$614	97.9%	$303.7
Apogee Tx	United States	$1,228	26.1%	$254.6
IDEAYA Bio	United States	$1,514	19.3%	$244.5
Day One Bio	United States	$1,211	20.7%	$207.7
United Labs	Hong Kong	$1,594	11.2%	$160.3
Disc Medicine	United States	$1,185	13.8%	$144.1
Zealand Pharma	Denmark	$2,219	6.4%	$133.4
Arvinas	United States	$1,439	9.5%	$124.6
Morphic	United States	$2,598	5.0%	$123.3
Innovent	China	$6,187	2.0%	$119.3
ORIC Pharma	United States	$462	34.7%	$118.9
Akero Tx	United States	$2,578	4.2%	$103.3
Pharvaris	Netherlands	$746	16.0%	$103.1
Ascentage Pharma	China	$885	12.9%	$101.2
EqRx	United States	$1,087	9.4%	$93.0
			Sum	$4.36

The chart at left shows that the top 20 gainers over the last month picked up $4.36bn in value – not nearly enough to offset the deep losses seen among the decliners.

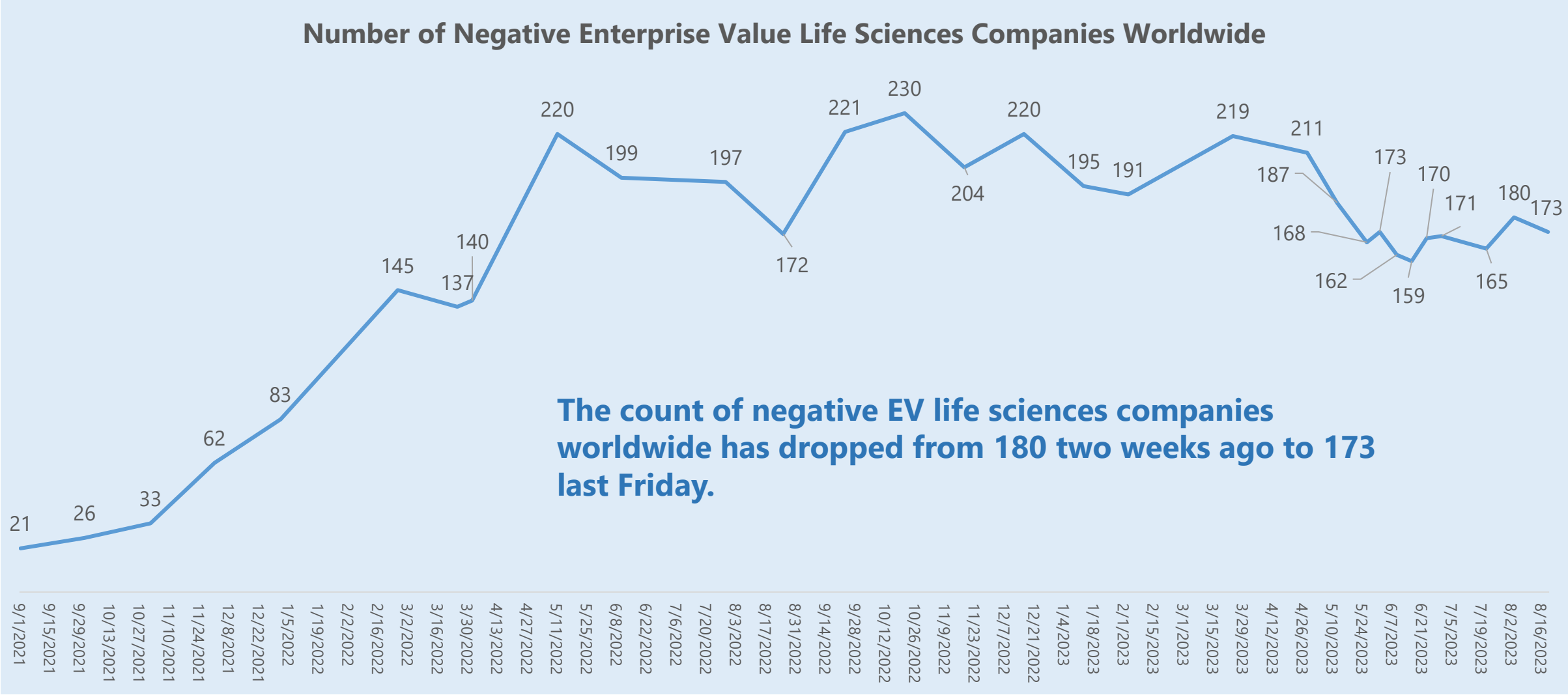
Kelun did quite well on the back of impressive TROP2 ADC data.

Belite Bio reported that it is in two advanced Phase 3 trials in ophthalmology.

Acelyrin reported additional detail on its hidradenitis supprative data results in its quarterly update. The detail was indeed impressive.

Source: CapitalIQ. Biotechs are defined as any therapeutics company without an approved product on any global stock exchange.

Number of Negative Enterprise Value Life Sciences Companies Dropped to 173 in Last Two Weeks



Source: CapitalIQ

Public Life Sciences Sector Value Dropped Last Week

The total enterprise value of the publicly traded life sciences sector dropped by 1.8% last week ($172 billion). The sectors that declined the most were HCIT, biotech, CDMO's, API and pharma services.

Sector	Firm Count	Enterprise Value (August 3, 2023, $millions)	Change in Last Week (percent)	Change in Last Month (percent)	Change in Last Year (percent)
API	81	$77,029	-3.5%	-1.7%	-11.4%
Biotech	818	$195,997	-5.4%	-13.0%	-5.1%
CDMO	40	$164,349	-4.4%	-4.9%	-20.6%
Diagnostics	83	$250,629	-3.7%	-11.3%	3.3%
OTC	32	$30,999	-3.2%	1.3%	6.6%
Pharma	725	$5,892,619	-1.0%	0.7%	6.5%
Services	41	$208,908	-3.3%	-0.5%	-11.5%
Tools	54	$697,892	-3.2%	-2.0%	-13.5%
Devices	182	$1,580,408	-2.9%	-8.4%	-3.7%
HCIT	11	$23,282	-11.3%	-14.3%	-16.9%
Total	**2067**	**$9,109,896**	**-1.8%**	**-2.1%**	**1.0%**

Source: CapitalIQ

Industry News

Amgen / Horizon Argument Last Week Regarding Their Constitutionality Challenge to FTC Administrative Hearing

Excerpt from Brief, Filed August 10, 2023 (accessed on Pacer system)

Though styled as a motion to strike affirmative defenses, the FTC's motion has broader aims. This suit seeks injunctive relief in aid of the FTC's administrative challenge to Amgen's acquisition of Horizon. Through its motion to strike, a disfavored procedural vehicle, the FTC asks the Court to foreclose any consideration, at the preliminary injunction phase, of whether the FTC's administrative process violates the U.S. Constitution.

Contrary to the FTC's argument, the question is not whether Defendants' constitutional defenses are well pleaded, or whether the FTC has fair notice of the nature of those defenses. They are sufficiently alleged under any applicable standard, and the FTC has ample notice of their nature, through this action and other proceedings where the same issues currently are being litigated.

Rather, the question is whether the constitutional defenses are relevant to the issues in this action, including the FTC's burden under section 13(b) to demonstrate a likelihood of success on the "ultimate" merits and to establish that the equities weigh in favor of injunctive relief. To be clear, the Court does not *need* to reach the Defendants' constitutional defenses to rule on the FTC's request for a preliminary injunction. The Court can and should deny the preliminary injunction because the FTC's speculative future bundling theory lacks any basis in modern legal standards or real world facts—including, among many others, the fact that Amgen has repeatedly committed not to engage in the exact hypothesized bundling conduct described in the Amended Complaint. (Dkt. 66.) But because the unconstitutionality of the FTC's administrative process provides additional and alternative bases for denying the preliminary injunction, these defenses are plainly relevant and the motion to strike should be denied.

Last week's memo, filed by Amgen/Horizon counsel, suggests that they are making progress in a novel constitutional challenge to the FTC's administrative approach in challenging the Horizon merger.

This is an aggressive legal move by the defendants and puts the FTC on the defensive in a case where they already are taking a weak position.

US FDA Approves Regeneron's Ultra-Rare Blood Disease Drug

Aug 18 (Reuters) - Regeneron Pharmaceuticals (REGN.O) said on Friday the U.S. health regulator approved its drug to treat a rare blood disease.

The drug pozelimab, branded as Veopoz, would treat CHAPLE disease in adult and pediatric patients 1 year of age and older.

Veopoz — the first treatment to be approved by the U.S. Food and Drug Administration for the life-threatening disease — will be sold in the U.S. at a list price of $34,615.38 per single-use vial, the company told Reuters in an emailed response.

Regeneron Headquarters

Source: https://www.reuters.com/business/healthcare-pharmaceuticals/us-fda-approves-regenerons-ultra-rare-blood-disease-drug-2023-08-18/

REGENERON®

August 18, 2023 at 6:35 PM EDT

« Back

EYLEA HD (AFLIBERCEPT) INJECTION 8 MG APPROVED BY FDA FOR TREATMENT OF WET AGE-RELATED MACULAR DEGENERATION (WAMD), DIABETIC MACULAR EDEMA (DME) AND DIABETIC RETINOPATHY (DR)

Approval based on the pivotal PULSAR and PHOTON trials in which EYLEA® HD demonstrated clinically equivalent vision gains to EYLEA (aflibercept) Injection 2 mg that were maintained with fewer injections

First and only treatment approved in wAMD and DME for immediate dosing at 8-week and up to 16-week intervals following three initial monthly doses

TARRYTOWN, N.Y., Aug. 18, 2023 (GLOBE NEWSWIRE) -- Regeneron Pharmaceuticals, Inc. (NASDAQ: REGN) today announced that the U.S. Food and Drug Administration (FDA) has approved EYLEA HD (aflibercept) Injection 8 mg for the treatment of patients with wet age-related macular degeneration (wAMD), diabetic macular edema (DME) and diabetic retinopathy (DR). The recommended dose for EYLEA HD is 8 mg (0.07 mL of 114.3 mg/mL solution) every 4 weeks (monthly) for the first 3 months across all indications, followed by 8 mg every 8 to 16 weeks (2 to 4 months) in wAMD and DME and every 8 to 12 weeks (2 to 3 months) for DR.

“The FDA approval of EYLEA HD is an important advancement in retinal care,” said Peter Kaiser, M.D., Chaney Family Endowed Chair in Ophthalmology Research at the Cole Eye Institute and Professor of Ophthalmology at Cleveland Clinic Lerner College of Medicine. “With EYLEA HD, patients with wet age-related macular degeneration or diabetic retinal disease can now receive less frequent injections after their initial monthly doses and still experience the similar visual gains, anatomic improvements and safety profile of EYLEA.”

Source: https://investor.regeneron.com/news-releases/news-release-details/eylea-hd-aflibercept-injection-8-mg-approved-fda-treatment-wet

US FDA Approves Ipsen's Sohonos™ (palovarotene) Capsules, the First and Only Treatment for People with Fibrodysplasia Ossificans Progressiva

PARIS, FRANCE, 16 August 2023 – Ipsen (Euronext: IPN; ADR: IPSEY) announced today approval by the U.S. Food and Drug Administration (FDA) of Sohonos™ (palovarotene) capsules as a retinoid indicated for the reduction in volume of new heterotopic ossification in adults and pediatric patients aged 8 years and older for females and 10 years and older for males with fibrodysplasia ossificans progressiva (FOP).

"The FDA approval of Sohonos is a breakthrough for the U.S. FOP community. For the first time doctors have an approved medicine available to them, shown to reduce the formation of new, abnormal bone growth, known as heterotopic ossification (HO), which causes debilitating mobility challenges and has a devastating impact on the lives of people with FOP," said Howard Mayer, Head of Research and Development, Ipsen. "Development of medicines for rare diseases takes commitment and belief from everyone involved. We at Ipsen are sincerely grateful to the FOP community of patients and medical experts, as the first-ever treatment in the U.S. for managing FOP would not be possible without their participation in the clinical trials and ongoing support."

FOP impacts the lives of an estimated 400 people in the U.S. and 900 people globally. As the disease continuously progresses with flare-up episodes causing rapid bone growth, HO severely restricts mobility and function. Most people living with FOP inevitably lose the ability to eat and drink on their own, cannot provide selfcare or use the restroom themselves, and are unable to maintain employment. By the age of 30 years old, the majority of people with FOP require a wheelchair and full-time caregiver assistance. The management of FOP has previously been limited to palliative care and ultimately, FOP shortens the median life expectancy to 56 years, untimely death is often caused by bone formation around the ribcage leading to breathing problems and cardiorespiratory failure, or falls resulting in fractures or head injuries because joint ankylosis prevents bracing from a fall.

It's great to see Ipsen get a good result from its 2019 acquisition of Clementia Pharmaceuticals.

The road to this approval was not a short one and it is a credit to the hard-working teams at both Ipsen and Clementia who brought this drug to patients.

Source: https://www.ipsen.com/press-releases/us-fda-approves-ipsens-sohonostm-palovarotene-capsules-the-first-and-only-treatment-for-people-with-fibrodysplasia-ossificans-progressiva/

Delcath Systems, Inc. Announces FDA Approval of HEPZATO KIT™ for the Treatment of Adult Patients with Unresectable Hepatic-Dominant Metastatic Uveal Melanoma

NEW YORK, Aug. 14, 2023 /PRNewswire/ -- Delcath Systems, Inc. (Nasdaq: DCTH), an interventional oncology company focused on the treatment of primary and metastatic cancers of the liver, announced that today the US Food and Drug Administration (FDA) approved HEPZATO KIT (melphalan/Hepatic Delivery System) as a liver-directed treatment for adult patients with metastatic uveal melanoma (mUM) with unresectable hepatic metastases affecting less than 50% of the liver and no extrahepatic disease, or extrahepatic disease limited to the bone, lymph nodes, subcutaneous tissues, or lung that is amenable to resection or radiation.

mUM is a rare and aggressive form of metastatic cancer with a US incidence of approximately 1,000 cases per year. Ninety percent of mUM involves the liver, and liver failure is often the cause of death. National Comprehensive Cancer Network (NCCN) guidelines recommend liver-directed therapies for mUM patients with liver metastases. HEPZATO KIT is the only liver-directed therapy approved by the FDA for the treatment of mUM and percutaneous hepatic perfusion (PHP), the procedure enabled by HEPZATO KIT, is already included in the NCCN guidelines.

"FDA approval of HEPZATO KIT marks the beginning of a new chapter for Delcath and the culmination of the Company's commitment to bring this treatment option to patients suffering from metastatic uveal melanoma," said Gerard Michel, Delcath's Chief Executive Officer. "We look forward to partnering with cancer centers across the country to build a network of treatment sites trained in the use of this novel therapy."

The Company plans to have commercial product available in the fourth quarter, and patients will continue to be enrolled and treated at Expanded Access Program (EAP) sites.

Source: https://www.prnewswire.com/news-releases/delcath-systems-inc-announces-fda-approval-of-hepzato-kit-for-the-treatment-of-adult-patients-with-unresectable-hepatic-dominant-metastatic-uveal-melanoma-301900346.html

Pfizer's ELREXFIO™ Receives U.S. FDA Accelerated Approval for Relapsed or Refractory Multiple Myeloma

August 14, 2023: NEW YORK--(BUSINESS WIRE)-- Pfizer Inc. (NYSE:PFE) today announced the U.S. Food and Drug Administration (FDA) has granted accelerated approval to ELREXFIO™ (elranatamab-bcmm) for the treatment of adult patients with relapsed or refractory multiple myeloma (RRMM) who have received at least four prior lines of therapy, including a proteasome inhibitor, an immunomodulatory agent, and an anti-CD38 monoclonal antibody. Approval was based on the results of the single-arm Phase 2 MagnetisMM-3 trial, and continued approval for this indication is contingent upon verification of clinical benefit in a confirmatory trial(s). ELREXFIO is a subcutaneously delivered B-cell maturation antigen (BCMA)-CD3-directed bispecific antibody (BsAb) immunotherapy that binds to BCMA on myeloma cells and CD3 on T-cells, bringing them together and activating the T-cells to kill myeloma cells.

The approval of ELREXFIO is based on data from response rates and duration of response. Data from cohort A (n=123) of the Phase 2 MagnetisMM-3 study (NCT04649359) showed meaningful responses among heavily pretreated RRMM patients who received ELREXFIO as their first BCMA-directed therapy. Among the patients in this study who received four or more lines of therapy prior to ELREXFIO (n=97), the overall response rate was 58%, with an estimated 82% maintaining the response for at least nine months. The median time to first response was 1.2 months. This study also established ELREXFIO as the first BCMA-directed therapy in the U.S. with once-every-other-week dosing for responding patients after 24 weeks of weekly therapy, which means less time at the clinic and potentially greater long-term treatment tolerability. The label also includes data from MagnetisMM-3 cohort B (n=64). Among the 63 patients in this cohort who received at least four prior lines of therapy, including a BCMA-directed therapy (CAR-T or antibody-drug conjugate), the overall response rate was 33% after a median follow-up of 10.2 months, with an estimated 84% maintaining the response for at least nine months.

Pfizer's BCMA x CD3 bispecific achieved a 58% ORR in patients that had seen four or more lines of prior therapy.

Importantly, 82% of the responders maintained a response for 9 months.

These are quite impressive data.

Getting a single arm study approval from FDA is no easy feat and Pfizer's result here reflects a smart clinical study design and great results.

Source: https://www.pfizer.com/news/press-release/press-release-detail/pfizers-elrexfiotm-receives-us-fda-accelerated-approval

HEALTH AND SCIENCE

CVS stock plunges after Blue Shield of California drops retailer's pharmacy services to save on drug costs

CNBC, August 17, 2023

Shares of CVS Health plunged 8% on Thursday after Blue Shield of California said it will drop the company's pharmacy benefit management services and instead partner with Mark Cuban's Cost Plus Drugs company and Amazon Pharmacy to save on drug costs for its nearly 5 million members.

The announcement hints at the potential for health insurers to abandon the traditional pharmacy benefit manager, or PBM, system and sent shares of other companies that offer PBM services lower.

PBMs maintain lists of drugs covered by health insurance plans and negotiate drug discounts with manufacturers. But they have recently come under scrutiny from lawmakers for their role in inflating drug prices and causing health-care costs to skyrocket.

CVS Health's Caremark has been Blue Shield's PBM partner for more than 15 years. Blue Shield will now work with five different companies to provide "convenient, transparent access to medications while lowering costs."

Blue Shield CEO Paul Markovich said the plan, which is scheduled to fully launch in 2025, could save the company up to $500 million annually.

Source: https://www.cnbc.com/2023/08/17/cvs-stock-blue-shield-of-california-drops-pbm-services.html

CVS 8-K's BSC News

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 OR 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): August 17, 2023

CVSHealth.

Item 7.01 Regulation FD Disclosure.

CVS Health Corporation ("CVS Health," the "Company," "we" or "our") understands that Blue Shield of California has announced today, as part of a new pharmacy care model, that it will use a number of pharmacy service providers beginning in 2024. CVS Caremark will continue to provide specialty pharmacy services. The financial impact associated with the partial termination of the Blue Shield of California contract is not expected to have an impact to our previously issued 2023 guidance and is expected to have an immaterial impact on our longer-term outlook. CVS Caremark remains the leading pharmacy benefit manager in the United States, serving more Americans and more health plans today than any of our competitors. CVS Health believes customers choose CVS Caremark because of its ability to seamlessly administer complex pharmacy and specialty pharmacy benefits with high levels of customer service and satisfaction, as well as our leading cost position. We are pleased to continue to serve Blue Shield of California customers for their specialty pharmaceutical needs. Specialty pharmacy spend now represents over 50% of pharmacy benefit spend in the marketplace. We remain confident in the value that CVS Caremark provides to our customers and that our integrated solutions will continue to resonate in the marketplace as we deliver our leading cost position and service excellence to our customers.

CVS Health reaffirms its 2023 full year GAAP diluted earnings per share ("EPS") guidance range of $6.53 to $6.75, adjusted EPS range of $8.50 to $8.70 and cash flow from operations range of $12.5 billion to $13.5 billion.

Source: https://www.sec.gov/ix?doc=/Archives/edgar/data/64803/000094787123000871/ss2400841_8k.htm

What is the Effect of Branded Competition on Pharma Prices?

Previous research has demonstrated that the introduction of a new brand-name pharmaceutical competitor does not lower list prices for existing competitive therapies. However, no study has systematically evaluated the impact of new therapeutic competition on net prices of pharmaceutical products. We identified new therapies approved during the period 2013–17 that were competitors for existing treatments. We used a novel peer-reviewed algorithm to estimate the net prices of existing therapies. We implemented regression models to estimate changes in these net prices after the approval of the new therapeutic competition during the period 2011–19. **Across twelve therapeutic classes with new drug entrants in 2013–17, the introduction of new therapeutic competition was associated with a 4.2 percent decrease in annual net price growth.** The introduction of new brand-name therapies in twelve therapeutic classes reduced net commercial spending on existing therapies by $10.4 billion—an 18.5 percent reduction in projected spending absent therapeutic competition. Our findings demonstrate that new therapeutic competition allows pharmacy benefit managers to use formulary management to decrease net prices and reduce drug spending, contrary to observed trends in list price increases.


RESEARCH ARTICLE | PHARMACEUTICALS & MEDICAL TECHNOLOGY

HEALTH AFFAIRS > VOL. 42, NO. 8 : | PRESCRIPTION DRUGS, HOSPITALS & MORE

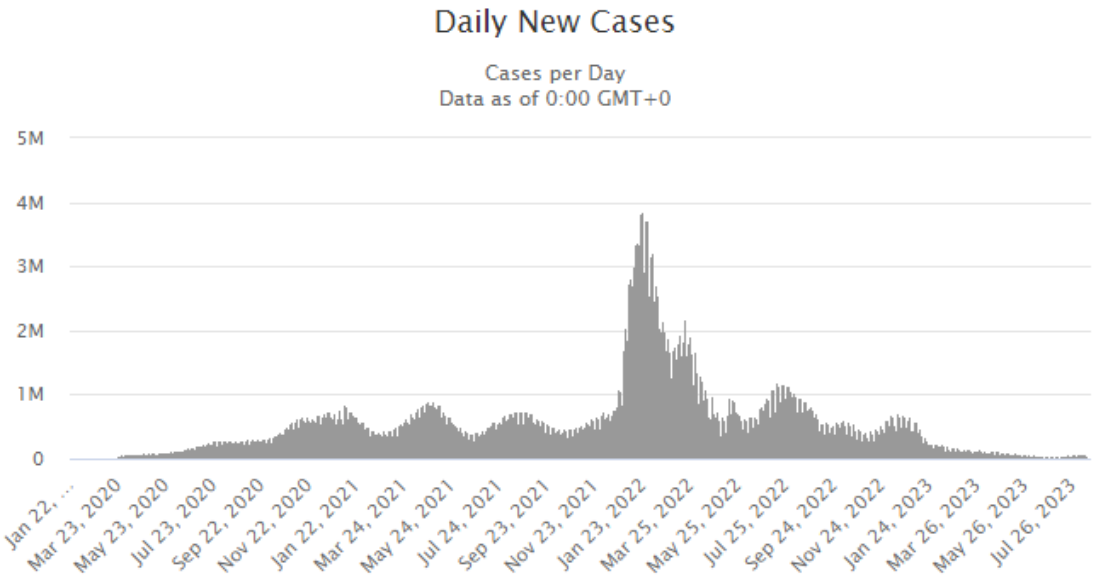
Changes In Net Prices And Spending For Pharmaceuticals After The Introduction Of New Therapeutic Competition, 2011–19

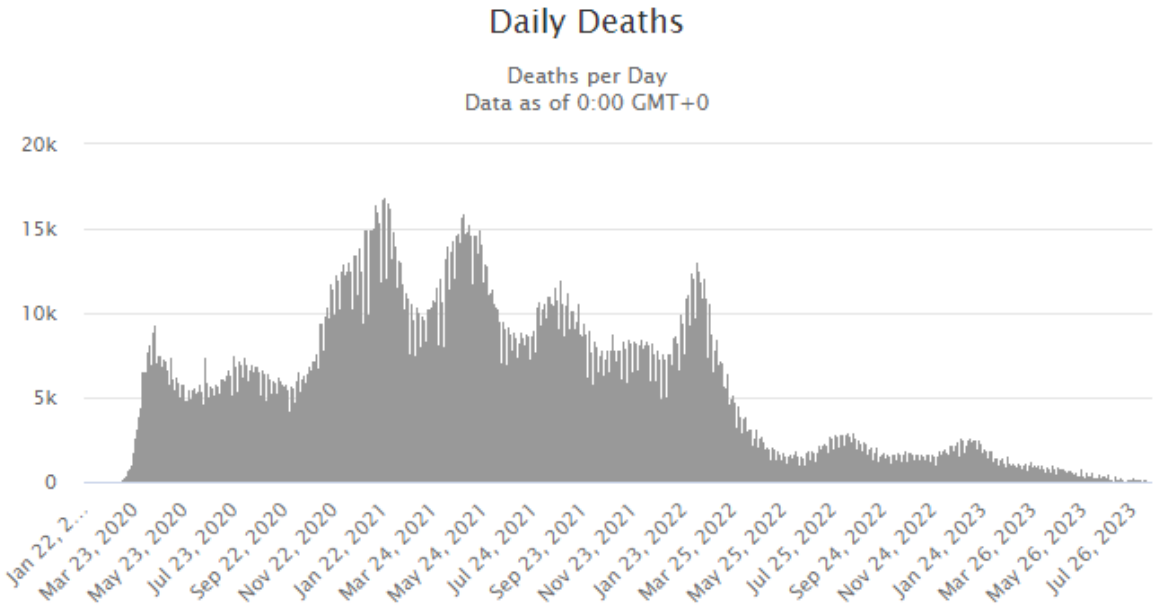
Sean Dickson, Nico Gabriel, and Inmaculada Hernandez

Health Affairs, August 2023

Source: https://www.healthaffairs.org/doi/epdf/10.1377/hlthaff.2023.00250

Global Covid Cases Rising But Deaths are Negligible

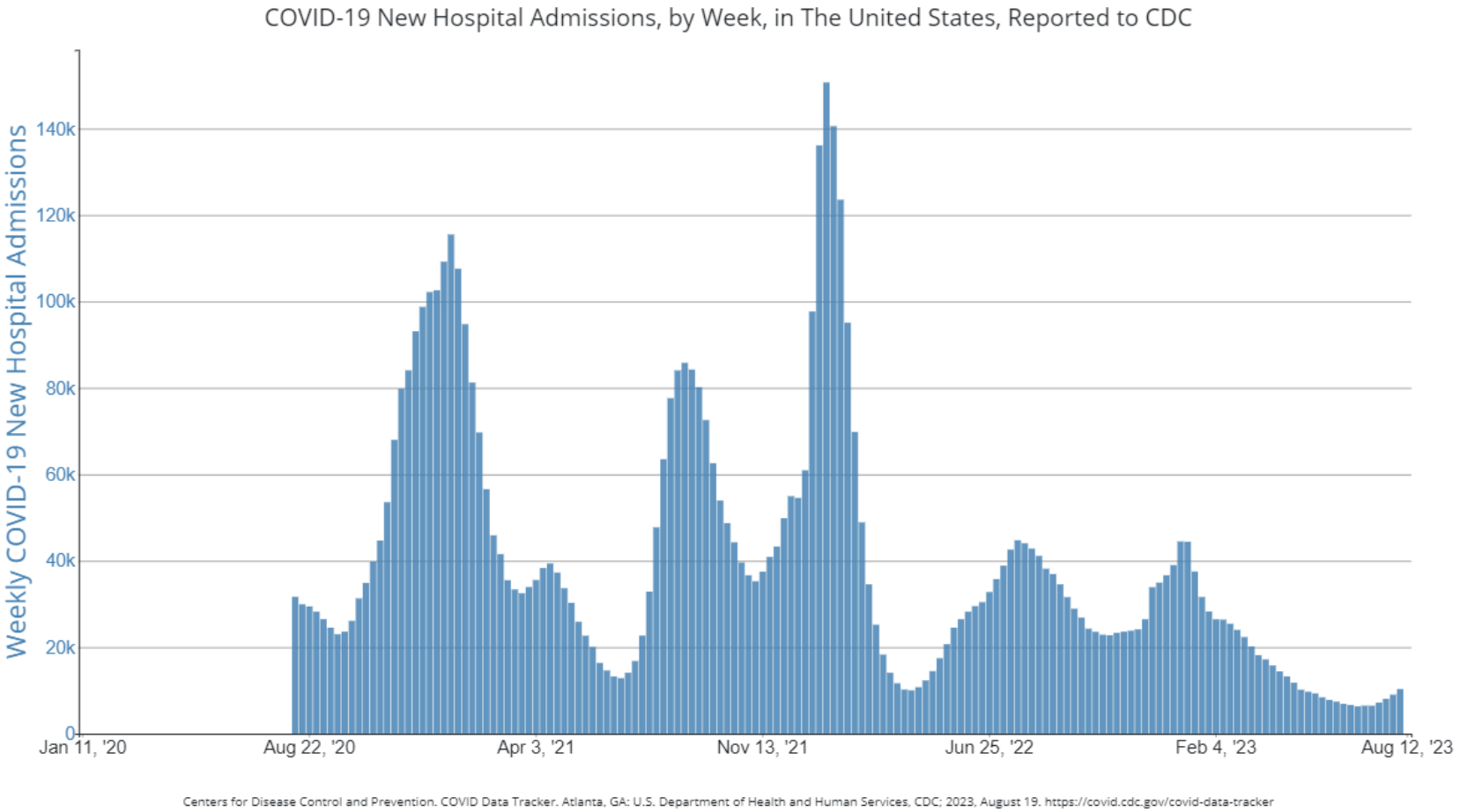




It's not exactly the news one wants to hear in mid-August but we are suddenly seeing masks reappearing in the U.S. and hearing of many friends/family coming down again with Covid. Symptoms have not been severe / life-threatening.

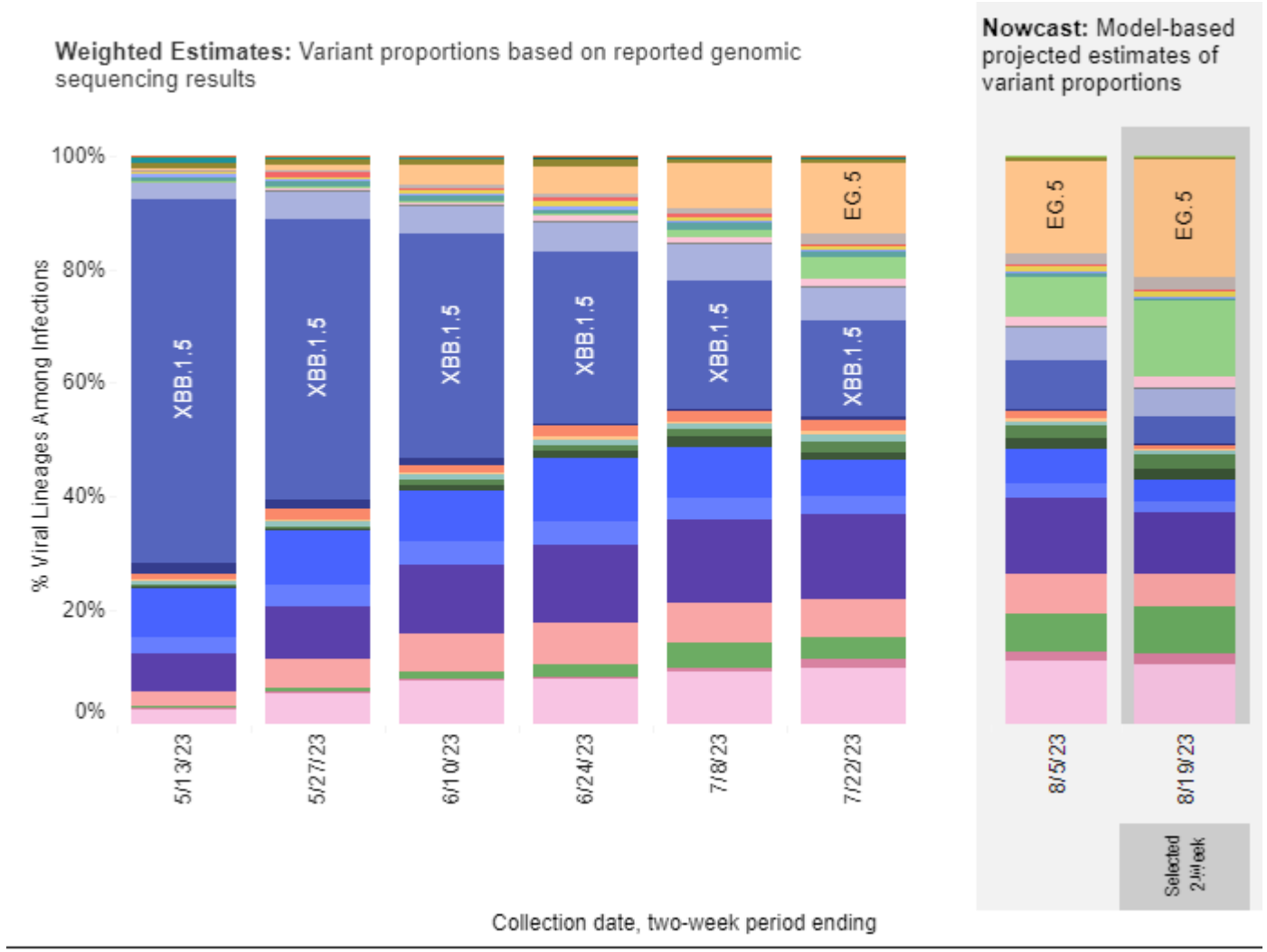
Source: https://www.worldometers.info/coronavirus/

U.S. Covid Hospitalizations Going in the Wrong Direction



Source: https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_select_00

EG.5 Covid Variant (“Eris Strain”) Taking Over in U.S. (Wastewater Data from CDC).



Source: https://covid.cdc.gov/covid-data-tracker/#variants-genomic-surveillance

What to Know About EG.5, the Latest SARS-CoV-2 "Variant of Interest"

Jennifer Abbasi, *JAMA*, August 18, 2023

The WHO risk evaluation determined that EG.5 has a moderate growth advantage. The variant was first reported to the WHO in February, and its share of reported sequences has increased steadily since then. Its global prevalence more than doubled this summer, from about 8% the week ending June 25 to about 17% the week ending July 23.

But EG.5.1, a subvariant that represents most EG.5 sequences, has a higher effective reproduction number than those XBB variants, according to a study posted to the preprint server bioRxiv, which has not yet been peer-reviewed. This finding suggests that EG.5 and its sublineages could predominant "in the near future," virologist Kei Sato, PhD, senior author of the study and a professor at the Institute of Medical Science at the University of Tokyo in Japan, wrote in an email to JAMA.

EG.5 is already the fastest growing variant in several areas of the world. In the US, it and its sublineages likely overtook both XBB.1.16 and XBB.1.5 by early August, per projections from the Centers for Disease Control and Prevention (CDC).

Based on the current data, the WHO has classified EG.5's antibody escape risk as moderate. The report cautioned, however, that the immune escape results are based on studies from a single laboratory using pseudotyped, not wild-type, viruses, and that additional experiments are needed to further assess how well EG.5 thwarts existing antibodies.

So far there are no reports that EG.5 causes more severe COVID-19 cases, leading the WHO to classify its level of risk for severe disease as low.

Source: https://jamanetwork.com/journals/jama/fullarticle/2808762

Moderna Confirms its Covid Vaccine Protects Against EG.5 Covid Variant

CAMBRIDGE, MA / ACCESSWIRE / August 17, 2023 / Moderna, Inc. (NASDAQ:MRNA) today announced that preliminary clinical trial data confirm its updated COVID-19 vaccine for the fall 2023 vaccination season showed a significant boost in neutralizing antibodies against EG.5 and FL.1.5.1 variants. These results suggest that Moderna's updated COVID-19 vaccine may effectively target the expected circulating variants of COVID-19 during the upcoming vaccination season.

The World Health Organization (WHO) recently classified the EG.5, or "Eris," strain as a variant of interest. EG.5 is now the dominant variant in the U.S. according to the Centers for Disease Control and Prevention (CDC),[1] while also accounting for a growing proportion of cases across the globe. The FL 1.5.1, or "Fornax," variant is also beginning to surge in parts of the U.S.

"These new results, which show that our updated COVID-19 vaccine generates a robust immune response against the rapidly spreading EG.5 and FL 1.5.1 strains and reflects our updated vaccine's ability to address emerging COVID-19 threats," said Stephen Hoge, M.D., President of Moderna. "Moderna is committed to leveraging our mRNA technology to provide health security around the world."

In addition to demonstrating a human immune response against the EG.5 and FL 1.5.1 strains, Moderna previously presented the only clinical trial data confirming that its updated COVID-19 vaccine showed robust human immune responses across the key circulating XBB strains at the June 2023 FDA VRBPAC. With this new trial data, Moderna has now confirmed an antibody response against current strains of concern.

Source: https://investors.modernatx.com/news/news-details/2023/Moderna-Clinical-Trial-Data-Confirm-Its-Updated-COVID-19-Vaccine-Generates-Robust-Immune-Response-in-Humans-Against-Widely-Circulating-Variants/default.aspx

Yet Another Variant Identified Last Week (BA.2.86)

Voice of America, August 18, 2023

The World Health Organization and U.S. health authorities said Friday they are closely monitoring a new variant of COVID-19, although the potential impact of BA.2.86 is currently unknown. The WHO classified the new variant as one under surveillance "due to the large number (more than 30) of spike gene mutations it carries," it wrote in a bulletin about the pandemic late Thursday.

So far, the variant has been detected in Israel, Denmark and the United States.

There are four known sequences of the variant, the WHO has said. "The potential impact of the BA.2.86 mutations are presently unknown and undergoing careful assessment," the WHO said.

Francois Balloux, professor of computational systems biology at University College London, said the attention attracted by the new variant was warranted.

"BA.2.86 is the most striking SARS-CoV-2 strain the world has witnessed since the emergence of Omicron," he said in a comment published Friday, referring to the variant that exploded onto the global stage in the winter of 2022, causing a surge in COVID cases.

"Over the coming weeks we will see how well BA.2.86 will be faring relative to other Omicron subvariants," he said.

He stressed, though, that even if BA.2.86 caused a major spike in infections, "we are not expecting to witness comparable levels of severe disease and death than we did earlier in the pandemic when the Alpha, Delta or Omicron variants spread."

Source: https://www.voanews.com/a/who-us-health-authorities-tracking-new-covid-19-variant/7231295.html

Seagen Posts Breast Cancer Win Ahead of Pfizer Takeover

Phil Taylor, Pharmaphorum, Aug 17, 2023

The combination of two HER2-targeting drugs – Seagen's oral Tukysa and Roche's intravenous antibody-drug conjugate (ADC) Kadcyla – has shown a benefit over Kadcyla alone as a second-line therapy for breast cancer.

While good news for patients, the results of the HER2CLIMB-02 trial are also a bonus for Pfizer, which recently agreed a $43 billion deal to acquire Seagen, focused principally on the latter company's expertise in developed ADC-based therapies.

In the study, Tukysa (tucatinib) given with Kadcyla (trastuzumab emtansine) improved progression-free survival (PFS) compared to Kadcyla plus placebo, and Seagen plans to submit the data to regulators to try to extend the approved indications for its drug. Overall survival (OS) data, a secondary endpoint, are not yet mature, according to the company.

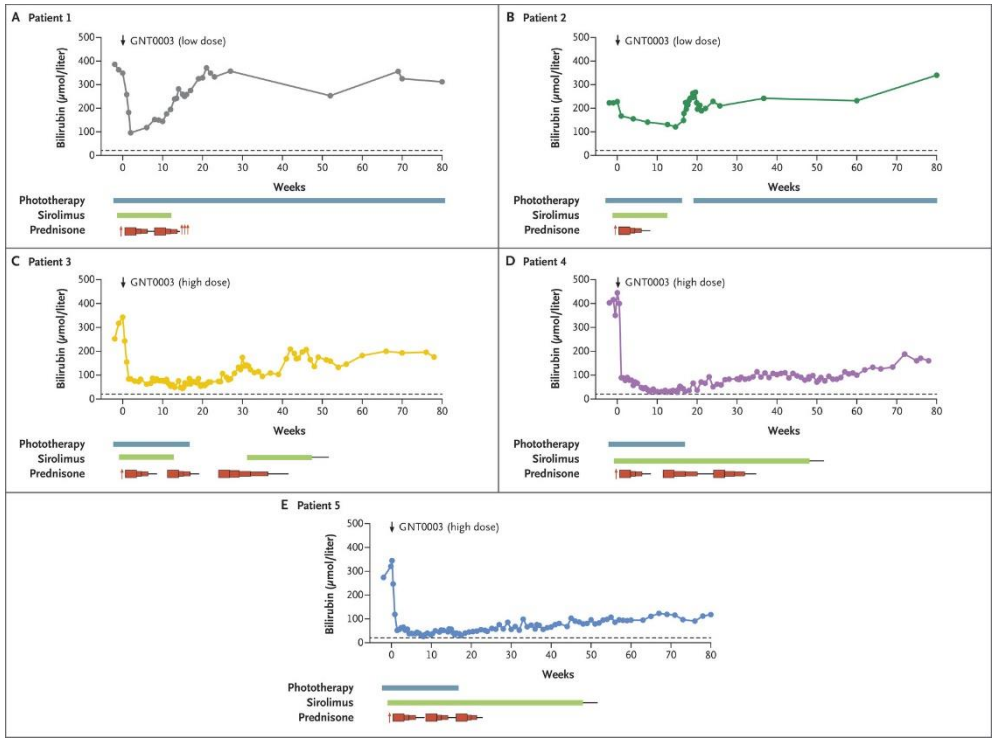
Source: https://pharmaphorum.com/news/seagen-posts-breast-cancer-win-ahead-pfizer-takeover

Genethon's GNT0003 Performs Well in Correcting Crigler-Najjar Syndrome

New England Journal of Medicine, August 16, 2023

Few liver-based diseases have been targeted by gene therapy in clinical studies, and attempts at treatment have met with variable success. Gene therapy has been effective in the treatment of hemophilia, in which the rate of bleeding episodes is durably decreased after receipt of AAV-mediated gene transfer. The Crigler–Najjar syndrome is a candidate disease for gene-replacement therapies because it is a well-characterized monogenic disease and has a uniquely hepatic origin and because end points of efficacy are easy to measure.

Our findings provide preliminary evidence that liver-directed gene transfer with GNT0003 is not associated with serious adverse events and can correct bilirubin levels, allowing for discontinuation of phototherapy. More generally, our findings support the possibility of long-term correction of a genetic disease caused by inactive variants in a gene that encodes a nonsecreted liver protein (UGT1A1 is a membrane-bound protein residing in the endoplasmic reticulum of hepatocytes).



Source: https://www.nejm.org/doi/full/10.1056/NEJMoa2214084

China Pitching for Investment in Biotech

Angus Liu, FiercePharma, Aug 18, 2023

The Chinese government released a 24-point list of guidelines to "improve the business environment for foreign investors and boost foreign direct investment." The new document highlights biotech as "an area of major focus." It calls for more biotech R&D projects in the country and promised more efficient clinical trials and product registrations for drugs already approved elsewhere.

South China Morning Post, Aug 14, 2023

Michael Hart, president of the American Chamber of Commerce in China, said that while he is "heartened" to see the government has publicly recognised the importance of foreign investment, there is still a lack of acknowledgement in addressing the general tone of sentiment towards the US, which he said tends to be fully blamed in Chinese media against the backdrop of geopolitical tensions.

"This shouldn't be discounted, as our members continue to list poor [US-China] relations as their main concern, and no one wants to invest in a market where they are seen in a poor light," Hart said.

Source: https://www.fiercepharma.com/pharma/carvyktis-momentum-novos-funding-sangon-chinas-call-foreign-investment, https://www.scmp.com/economy/china-economy/article/3231056/china-investment-beijing-hones-biotech-fresh-pitch-woo-foreign-business

Novo Holdings Participates in $290mm Strategic Financing of Sangon Biotech

生工® Sangon Biotech

Novo Holdings, a leading international life science investor, today announced it has participated in a $290 million (USD) strategic financing round of Sangon Biotech. Sangon is a leading provider of life science tools and services, enabling scientists across China to perform state-of-the-art research in hospitals, universities and commercial settings.

Based in China, and with close to 30 years in operation, Sangon Biotech is a leading provider of life science tools in China. The Company offers products and services within four main categories: 1) DNA synthesis, 2) R&D reagents and consumables, 3) genetic sequencing and 4) protein- and antibodies-related products, making the Company a one-stop provider of life science tools.

With 47 manufacturing facilities across China, and a customer base comprising more than 7,000 academic institutions and over 40,000 biotech/biopharma and IVD companies across the country, Sangon ranges as the number one provider of DNA synthesis in China. Overall, the Company is among the leading life science tool providers in China, where the life science tool market segment continues to grow by 15% annually, excluding the effects of COVID-19.

Source: https://novoholdings.dk/news/novo-holdings-participates-in-290m-strategic-financing-of-sangon-biotech/

ECONOMY | CENTRAL BANKING

America's Obsession With Weight-Loss Drugs Is Affecting the Economy of Denmark

Novo Nordisk's market capitalization has matched the GDP of its home country

Joseph Walker, Dominic Chopping and Sune Engel Rasmussen, Wall Street Journal, August 17, 2023

Ozempic and Wegovy are tilting the scales of Denmark's economy.

Their Danish manufacturer, Novo Nordisk, has generated billions of dollars of revenue and supercharged the company's market capitalization. That has led to lower interest rates in the country, according to a bank report and economists.

The market value of Denmark's biggest company has risen by more than a third so far this year to about $419 billion, bigger than the country's gross domestic product of about $406 billion. The measures aren't synonymous: market capitalization is the value of all Novo Nordisk shares, while GDP measures goods and services produced in a year. But the comparison demonstrates how Novo Nordisk has surged past companies such as Lego and Carlsberg to sway the economy of its nordic homeland.

Novo Nordisk's U.S. sales of Ozempic and Wegovy have been so strong that it has had to convert dollars into kroner in unusually large quantities, raising the krone's value relative to the euro, said Danske Bank director Jens Naervig Pedersen.

Source: https://www.wsj.com/economy/central-banking/americas-obsession-with-weight-loss-drugs-is-affecting-the-economy-of-denmark-22797e5c

The Aging Brain: Is Misplaced DNA to Blame?

Derek Lowe, Science, Aug 17, 2023

What is "aging", anyway? Everyone immediately knows what you mean when you refer to a person's body getting old, but what's really happening? That question has occupied a lot of researchers over the years, and things are slowly starting to become a bit more clear. And as we learn the details, there's a key shift in attitude that tends to come over you. Without thinking about it much, aging seems like it's inevitable, just something that happens, all the time to everyone, always has and always will.

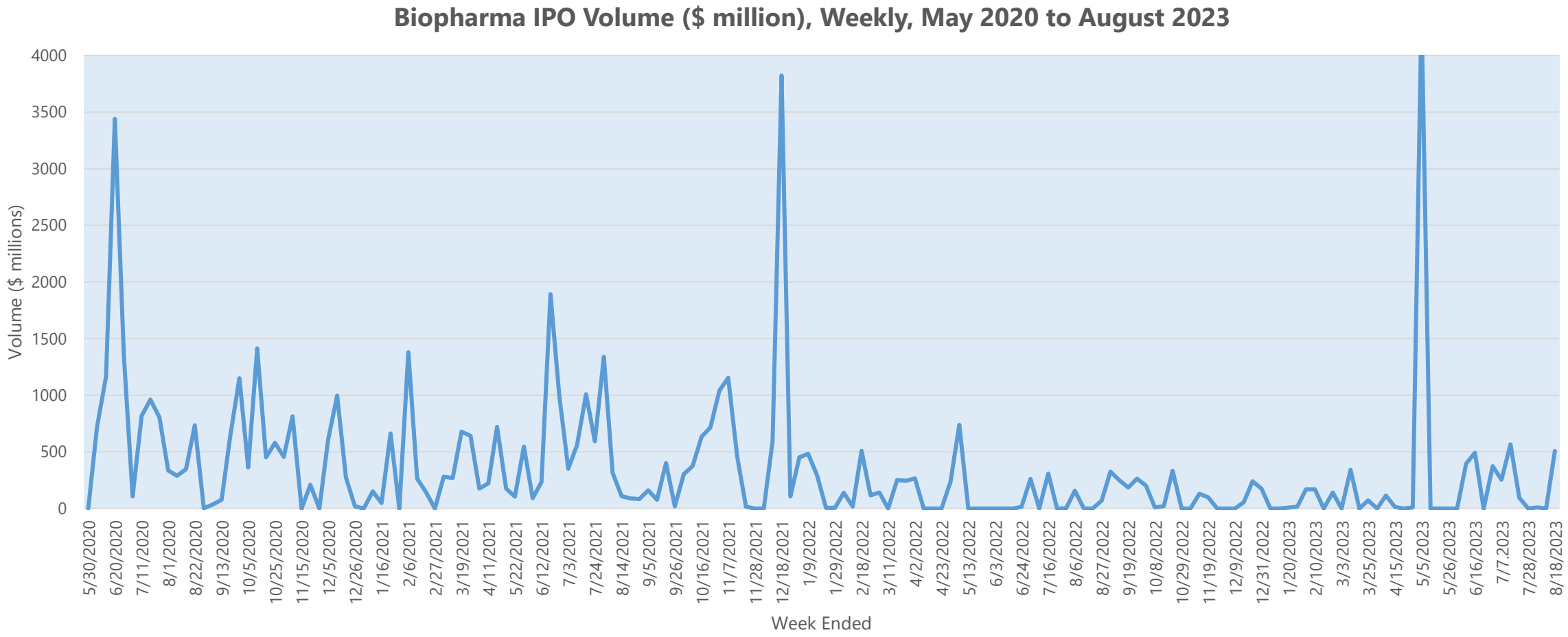
Well, another condition that is characterized by a constant inflammatory response (apparently in the absence of infection as well) is. . .aging. It's a clear source of trouble in a number of different tissues - this has been recognized for some time now, and a great deal of work has gone into figuring out why this happens and what might be done about it. Several years ago it was recognized that the cGAS-STING system was a key part of the inflammation seen in microglial cells in the aging brain (and in the brains of people with neurodegenerative diseases). And this new paper has tracked down further details: the reason this inflammatory pathway has been set off is the leakage of DNA from damaged mitochondria in those microglial cells.

Source: https://www.science.org/content/blog-post/aging-brain-misplaced-dna-blame

Capital Markets Environment

Concord Biotech IPO Priced Last Week

Last week saw Concord Biotech price and IPO in India. This was the strongest IPO in the country in years.



Source: Data from CapitalIQ and Stifel research.

Concord Biotech Raises $507 Million in India IPO

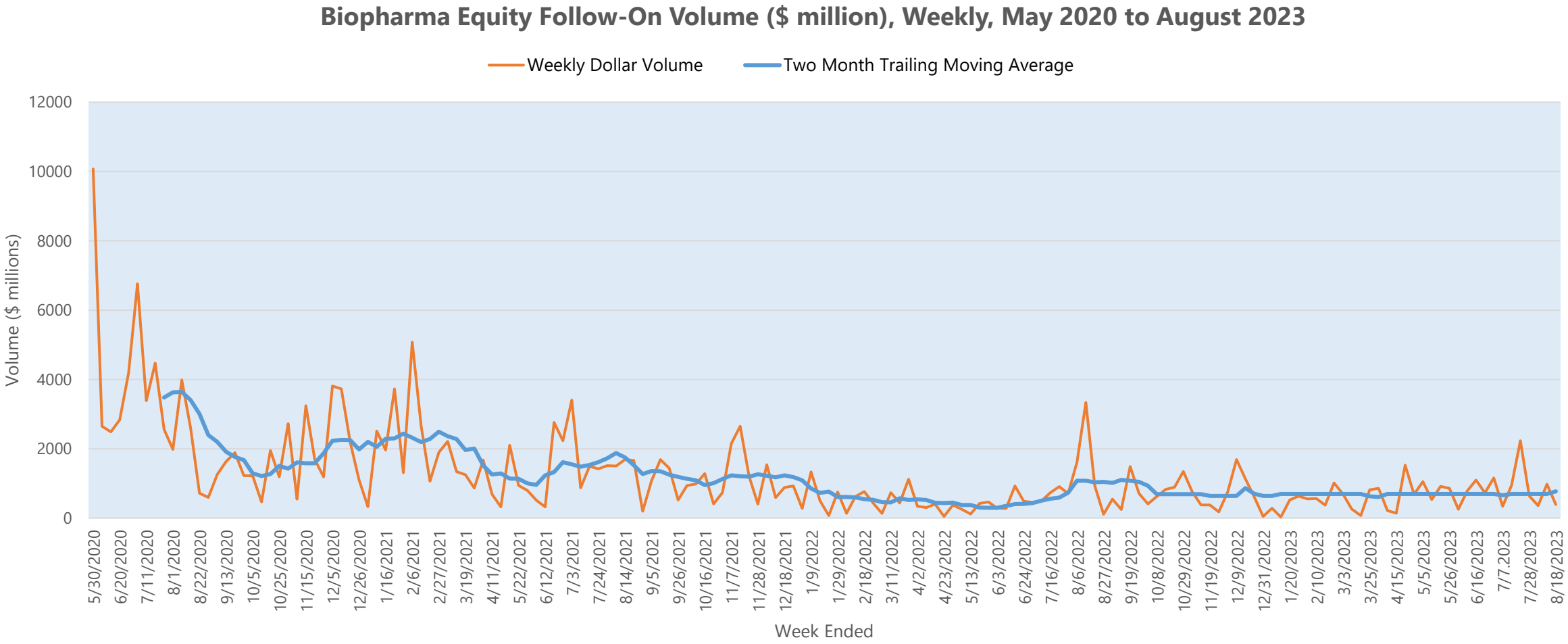
BENGALURU, Aug 18 (Reuters) - Shares of Indian biopharma company Concord Biotech climbed as much as 23.7% in their market debut on Friday, valuing it at 95.92 billion rupees ($1.15 billion).

The company, which makes active pharmaceutical ingredients, the key biologically active elements in a drug, opened at 900.05 rupees compared with its initial public offer (IPO) price of 741 rupees.

Source: https://www.nasdaq.com/articles/indias-concord-biotech-up-23-in-debut-valuing-it-at-over-$1-bln

Last Week Was Slow for Follow-On Offerings

Last week saw $389mm of follow-on equity financings complete across 19 transactions. The largest deal was a $150 million PIPE done by Taysha Gene Therapies.



Source: Data from CapitalIQ and Stifel research.

Dallas biotech snags $150 million lifeline for gene therapy pipeline

Taysha Gene Therapies credits the investment to encouraging treatment results in the first adult patient given its Rett syndrome gene therapy.

Dallas Morning News, August 16, 2023

Dallas-based Taysha Gene Therapies is reeling in a $150 million lifeline from investors to advance clinical studies of its gene therapy medicines for rare neurological diseases.

The new funding, led by RA Capital Management, extends Taysha's cash runway into late 2025 and provides a cushion to complete clinical trials on its gene therapy for Rett syndrome, a rare genetic disorder that occurs almost exclusively in girls and severely impairs their ability to speak, walk, eat and even breathe.

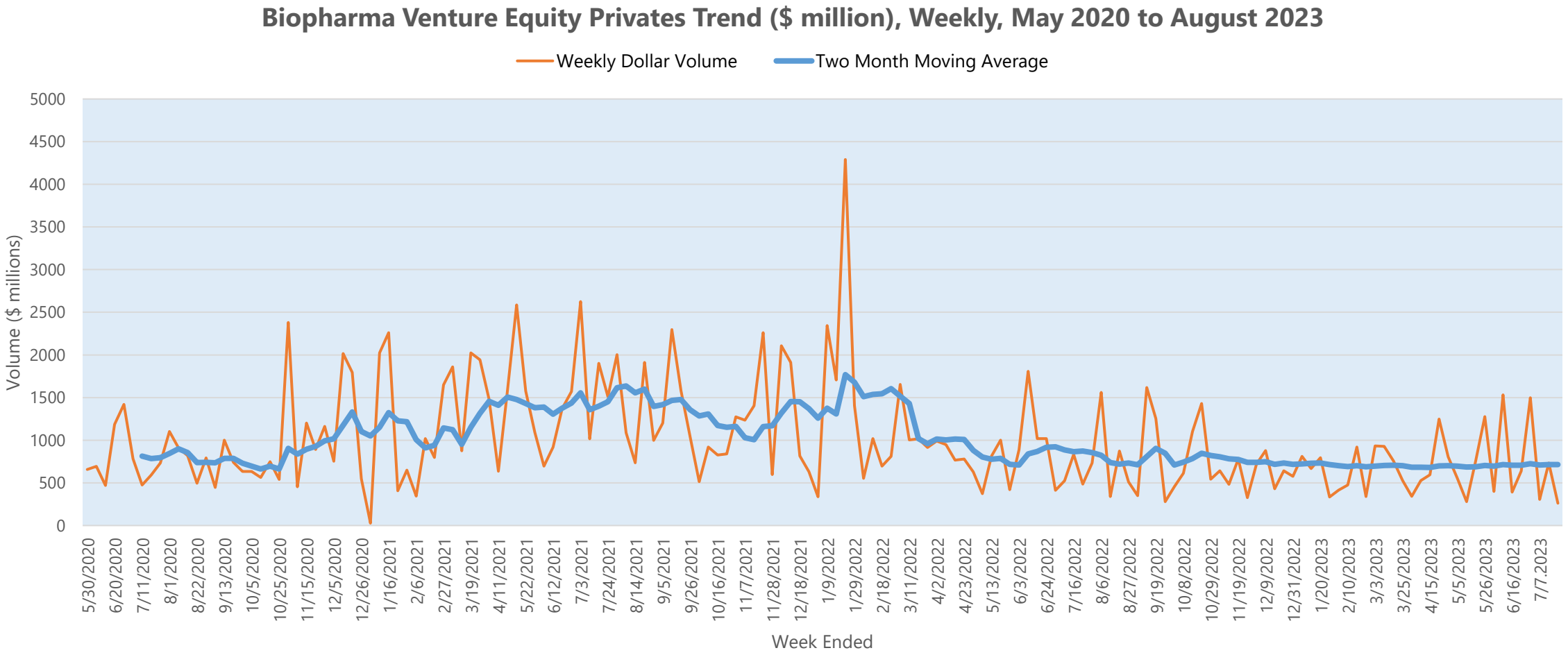
Along with announcing the investment, Taysha also reported encouraging treatment results from dosing its first Rett syndrome adult patient.

Elsa Rossignol, the clinical trial's principal investigator, said the patient was able to "sit unassisted for the first time in over a decade, and she demonstrated the ability to unclasp her hands and hold an object steadily for the first time since infancy." Prior to treatment with Taysha's drug known as TSHA-102, she said, the patient had limited body movement, required constant back support and lost motor function early in childhood.

Source: https://www.dallasnews.com/business/health-care/2023/08/16/dallas-biotech-snags-150-million-lifeline-for-gene-therapy-pipeline/

Venture Equity Market is Continuing to Slow Down

Last week saw 19 companies raise $261 million in the venture equity market. The week was quiet but the moving average line has held up.



Source: Data from CapitalIQ, Crunchbase.

Abcuro Announces $155 Million Series B Financing to Further Advance Autoimmune Pipeline

Newton, Massachusetts, August 17, 2023 – Abcuro, Inc., a clinical-stage biotechnology company developing therapies for the treatment of autoimmune diseases and cancer through precise modulation of cytotoxic T and NK cells, today announced the successful close of an oversubscribed $155 million Series B financing co-led by Redmile Group and Bain Capital Life Sciences.

New and existing investors also participated in the financing including RA Capital Management, Samsara BioCapital, Sanofi Ventures, New Leaf Ventures, Pontifax, funds managed by Tekla Capital Management, LLC, funds and accounts managed by BlackRock, Mass General Brigham Ventures, Eurofarma, and Soleus Capital.

Abcuro will use the proceeds from the financing to complete a Phase 2/3 registrational clinical trial evaluating ABC008, a first-in-class monoclonal antibody targeting killer cell lectin like receptor G1 (KLRG1), for the treatment of inclusion body myositis (IBM). The Company will also focus on completing a Phase 1/2 clinical trial of ABC008 in T cell large granular lymphocytic leukemia (T-LGLL), as well as initiating a Phase 1/2 clinical trial in T and NK cell lymphomas.

"IBM, like other autoimmune diseases, is progressive and devastating for patients. Targeting the depletion of cytotoxic T cells that express KLRG1 with ABC008 is a novel approach that has generated exciting early data in patients with IBM," said H. Jeffrey Wilkins, M.D., Chief Medical Officer of Abcuro. "These data are also supportive of using ABC008 in other diseases like T-LGLL in which cytotoxic T cells are pathogenic, and mature T and NK cell lymphomas in which KLRG1 expressing cells are malignant. We look forward to further advancing these programs in the clinic."

"Support from such a strong group of investors will allow us to complete our development programs in diseases where there are few to no treatment options available. We are very motivated by the patients we serve and are excited by the clinical data we've seen to date. We're committed to executing on our clinical trials including our registrational trial in inclusion body myositis."

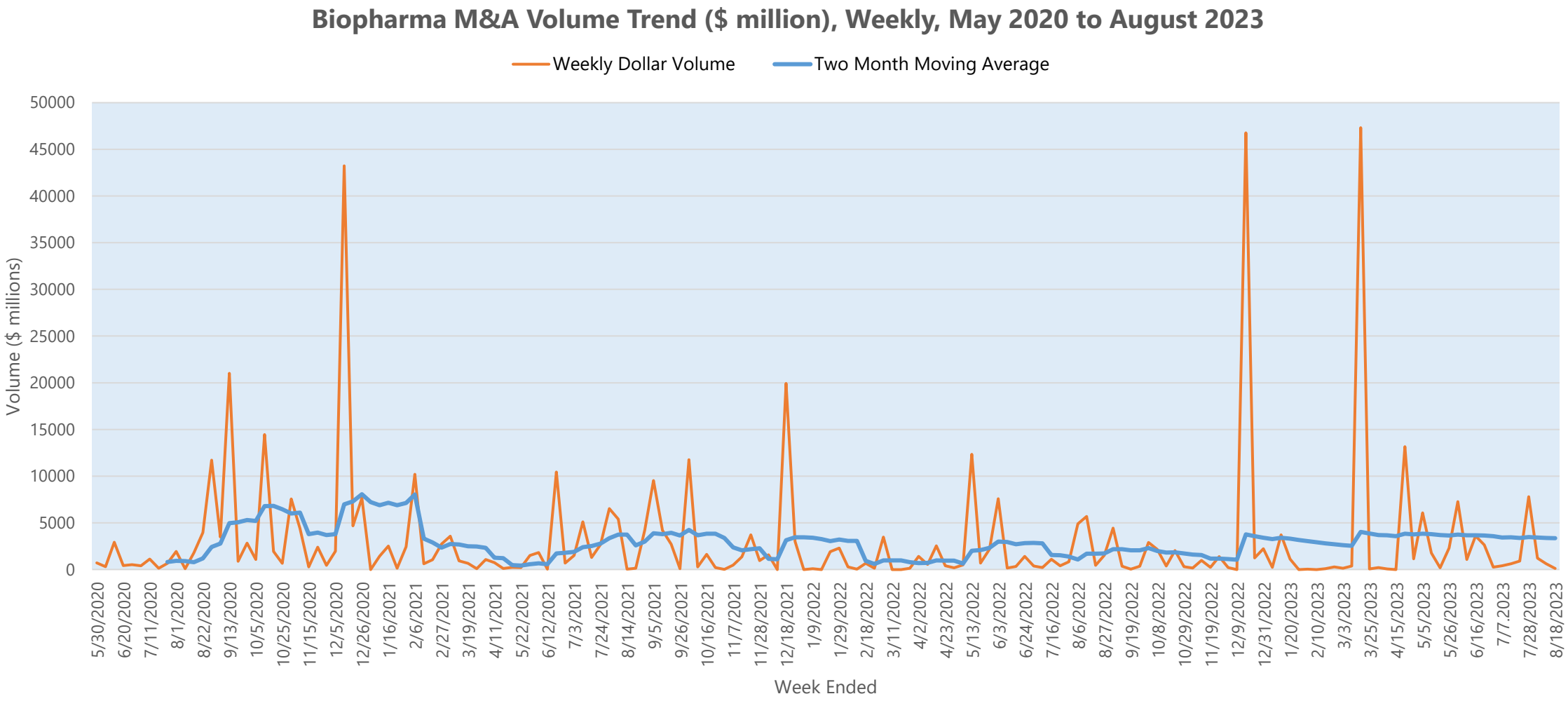
Alex Martin
Chief Executive Officer
AbCuro

Source: https://abcuro.com/uncategorized/abcuro-announces-155-million-oversubscribed-series-b-financing-to-further-advance-autoimmune-pipeline/

Deals Update

Last Week Saw $121 Million in M&A Volume

Last week saw very little biopharma M&A volume. The largest deal was Harmony's acquisition of Zynerba.



Source: S&P, CapitalIQ

Harmony to Acquire Zynerba for $60mm Upfront and a CVR

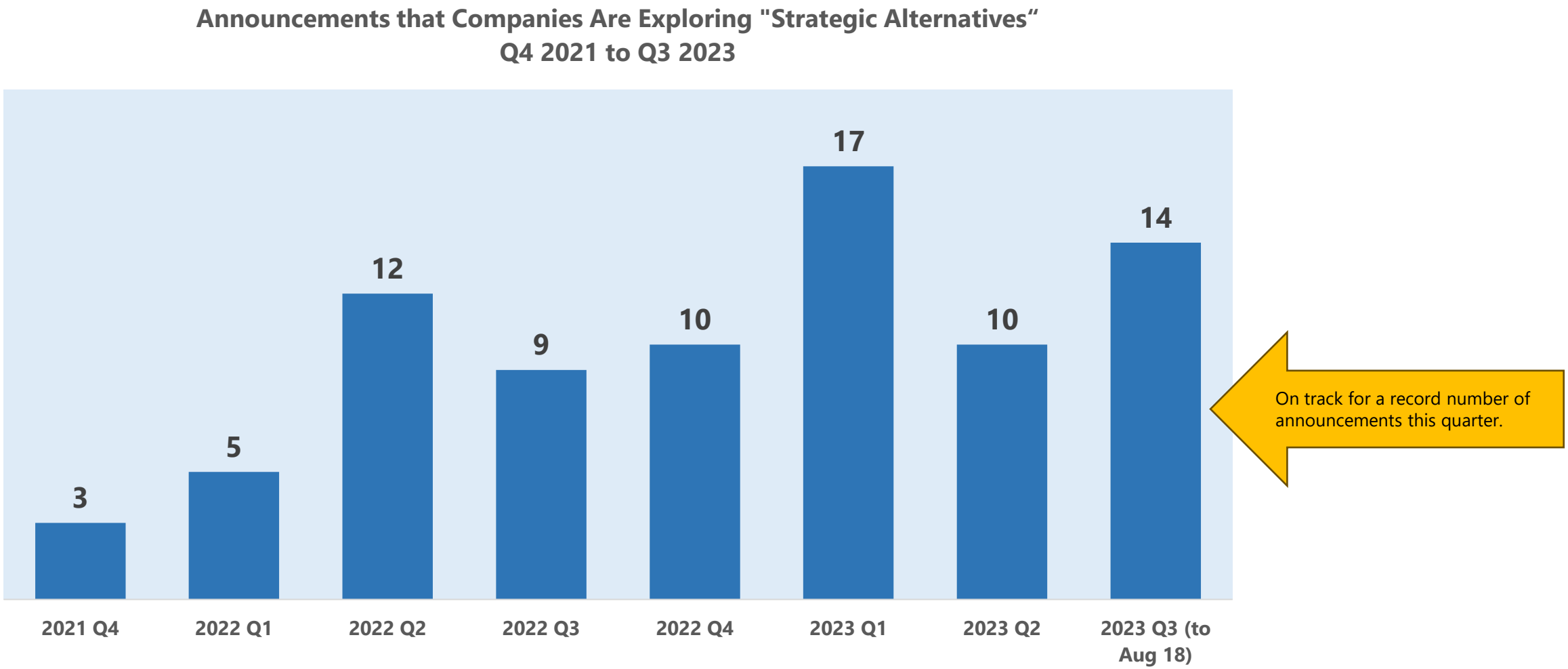
PLYMOUTH MEETING, Pa. and DEVON, Pa., Aug. 14, 2023 /PRNewswire/ -- Harmony Biosciences Holdings, Inc. ("Harmony") (Nasdaq: HRMY), a pharmaceutical company dedicated to developing and commercializing innovative therapies for patients with rare neurological diseases, today announced a definitive agreement to acquire Zynerba Pharmaceuticals, Inc. ("Zynerba") (Nasdaq: ZYNE), a leader in innovative pharmaceutically-produced transdermal cannabinoid therapies for orphan neuropsychiatric disorders, including Fragile X syndrome (FXS).

Under the terms of the definitive agreement, Harmony will commence a tender offer to acquire all outstanding shares of Zynerba for a purchase price of $1.1059 per share in cash, or $60 million in the aggregate, plus one non-tradeable contingent value right (CVR) per share, representing the right to receive potential additional payments of up to $140 million in the aggregate, subject to the achievement of certain clinical, regulatory and sales milestones…

"This is an important step in Harmony's strategy to build a diversified portfolio of innovative assets to address unmet medical needs and drive our long-term growth. This acquisition affords us the opportunity to advance the development and delivery of a potentially transformative treatment for the symptoms of Fragile X syndrome and other rare neuropsychiatric disorders," said Jeffrey M. Dayno, M.D., President and Chief Executive Officer at Harmony Biosciences. "In addition to the strength of our core business in narcolepsy and our current life cycle management programs, led by idiopathic hypersomnia, we are excited to continue to diversify our portfolio beyond sleep/wake by adding Zynerba's clinical development programs to our pipeline. The team at Zynerba has been dedicated to these programs and we are confident that our combined efforts could have a profound impact on individuals living with rare neuropsychiatric disorders and their families."

Source: https://www.prnewswire.com/news-releases/harmony-biosciences-to-acquire-zynerba-pharmaceuticals-inc-301899483.html

Unusually Large Number of Biopharma Companies Announcing Exploring "Strategic Options" This Quarter



Source: Stifel research of press releases and SEC filings.

Ongoing "Strategic Options" Processes

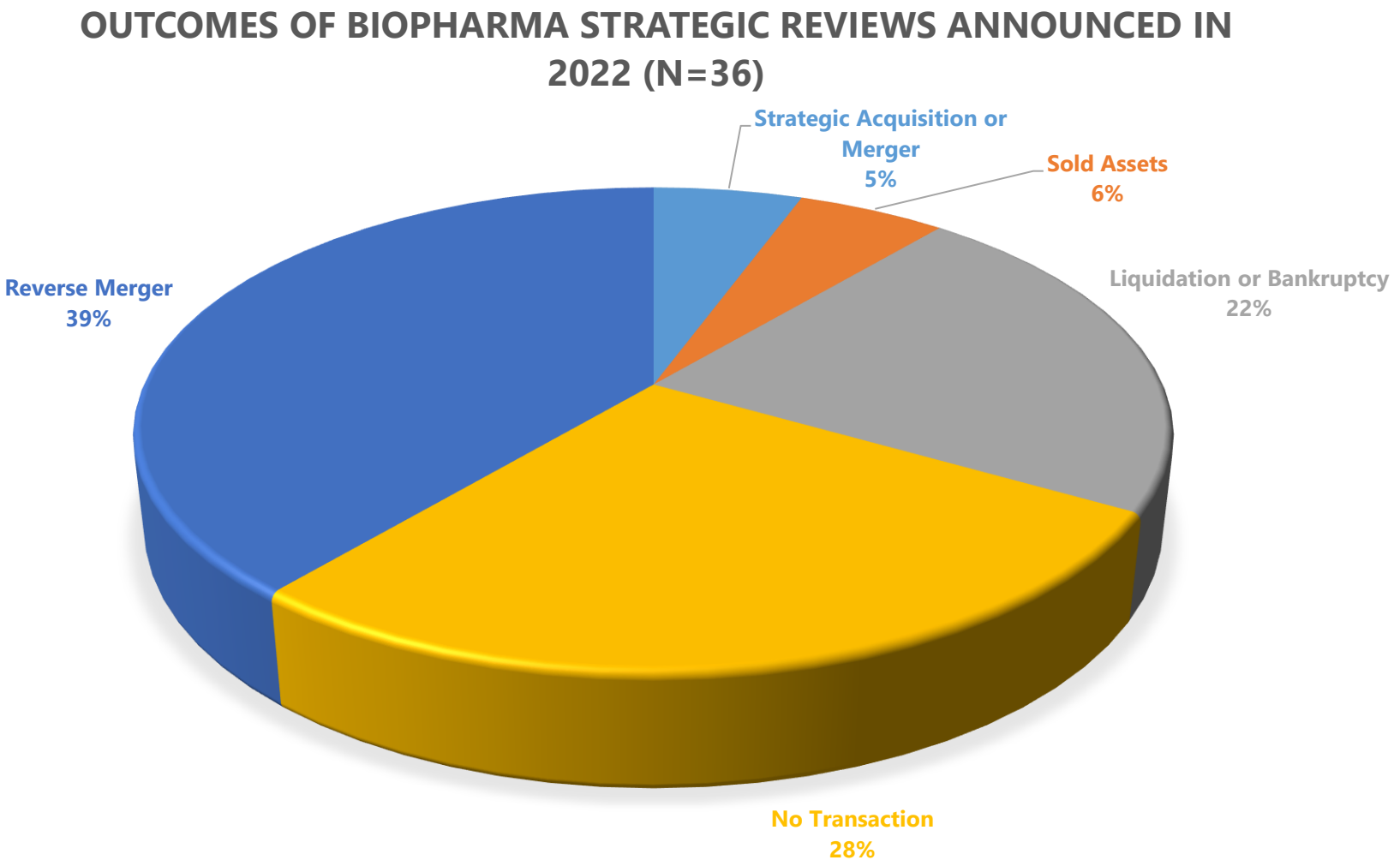
Ticker	Company	Announcement Date	Last Cash ($ millions)	Enterprise Value ($ millions)
GRTX	Galera Therapeutics	8/14/2023	$38.8	$120.5
TCRT	Alaunos Therapeutics	8/14/2023	$18.3	$12.9
SLRX	Salarius Pharmaceuticals	8/8/2023	$11.5	-$8.3
NBSE	Neubase	8/3/2023	$13.8	-$7.8
AVTX	Avalo Therapeutics	8/3/2023	$6.3	$12.3
VXL	Vaxil Bio	8/2/2023	$1.0	$0.5
FIXX	Homology Medicines	7/27/2023	$127.1	-$35.9
SQZB	SQZ Biotechnologies	7/25/2023	$24.7	$0.3
ELYM	Eliem Therapeutics	7/20/2023	$102.6	-$28.6
RKDA	Arcadia Biosciences	7/20/2023	$18.5	-$12.9
PIRS	Pieris Pharma	7/18/2023	$54.9	-$14.1
AVRO	AvroBio	7/12/2023	$124.7	-$55.1
HSTO	Histogen	7/5/2023	$7.3	-$0.7
RVLP	RVL Pharmaceuticals	7/5/2023	$19.2	$57.5
SPEX	Spexis	6/30/2023	$2.0	$28.0
AUPH	Aurinia Pharmaceuticals	6/29/2023	$350.4	$1,154.9
BLPH	Bellorophon Therapeutics	6/24/2023	$10.6	-$5.8
ONCR	Oncorus	6/1/2023	$45.0	$25.3
GMDA	Gamida Cell	5/15/2023	$54.1	$183.7
IMVI.Q	IMV	5/1/2023	$21.2	$8.0
BLCM	Bellicum Therapeutics	3/14/2023	$7.4	$23.7
FRTX	Fresh Tracks Therapeutics	3/7/2023	$8.9	-$5.3
GRPH	Graphite Bio	2/23/2023	$284.0	-$152.0
EVFM	Evofem Biosciences	2/23/2023	$7.7	$81.0
ALRN	Aileron	2/21/2023	$13.7	-$6.6
GTTX	Genetether	2/8/2023	$2.0	$1.0
AXLA	Axcella Therapeutics	12/14/2022	$8.9	$4.0
MEIP	MEI Pharma	12/6/2022	$112.0	-$56.8
SNGX	Soligenix	11/10/2022	$17.0	$4.0
HGEN	Humanigen	10/31/2022	$3.1	-$0.9
XCUR	Exicure	9/26/2022	$15.6	-$3.0
TENX	Tenax Therapeutics	9/14/2022	$13.4	-$4.3
GLMD	Galmed	6/15/2022	$22.4	-$12.0
ABIO	Arca Bio	4/18/2022	$43.9	-$12.0
CBIO	Catalyst Biosciences	2/17/2022	$6.9	$47.0
ADMA	ADMA Biologics	10/21/2021	$62.5	$1,011.1

Source: Stifel research of press releases and SEC filings.

We count 36 companies that have (or appear to have) an ongoing strategic review underway.

This is by far the highest number we have seen in the last two decades.

Results from Strategic Options Processes of 2022



The most likely outcome from a strategic review process in 2022 was a reverse merger. This happened 39% of the time. The second most likely outcome was no outcome – which happened 28% of the time.

Source: Stifel research of press releases and SEC filings.

Stada in Exploratory Sale Talks

Zeit Online, August 15, 2023 (translation)

The CEO of the pharmaceutical company Stada, Peter Goldschmidt, has commented for the first time on a possible multi-billion dollar sale of the company. "From my point of view, our owners are in an orientation phase in which the first exploratory talks are taking place," Goldschmidt told the German Press Agency on the occasion of the half-year figures. “Financial investors have no pressure to sell. I don't expect a decision before 2024.

The media had previously reported that the financial investors Bain Capital and Cinven, who took over Stada in 2017 for 5.3 billion, could exit in whole or in part. There was also speculation about an IPO. In a deal, Stada could be valued at ten billion euros or more. Stada, known for drugs like Grippostad and Ladival, employs 13,800 people worldwide, 1,530 of them in Germany. "Whether and when Stada is sold is solely the decision of our owners Bain Capital and Cinven," emphasized Goldschmidt. They had declined to comment on the rumours.

Peter Goldschmidt, CEO, Stada

Source: https://www.zeit.de/news/2023-08/15/stada-sondierungsgespraeche-fuer-verkauf-gewinn-waechst?utm_referrer=https%3A%2F%2Fwww.biospace.com%2F

Biotech M&A Driven by Pharma Pipeline Needs

Brian Gormley, *Wall Street Journal*, Aug 10, 2023

While these trends point up, some headwinds could slow the momentum. The Federal Trade Commission under the Biden administration has policed M&A aggressively, suing in May to block the merger of drugmakers Amgen and Horizon Therapeutics.

"This uncertainty is not good for deal planners, and may lead to delays in the completion of some deals, which may have some inhibitory effect on future deal-making, at least during this FTC administration," said Matthew Gardella, an M&A partner with law firm Mintz Levin Cohn Ferris Glovsky and Popeo.

Companies with drugs in clinical trials are better positioned to be acquired than earlier-stage biotechs because drugmakers must fill revenue gaps quickly, investors said. Some 55% of biotech M&As this year have been for clinical-stage companies, compared with an average of 47% from 2019 to 2022, according to Stifel.

"The urgency by pharma goes up each year as you approach patent expirations," said Dr. Roderick Wong, managing partner and chief investment officer of life-sciences investor RTW Investments.

Source: https://www.wsj.com/articles/biotech-m-a-rebound-bodes-well-for-venture-investors-8dbc0e86

License Activity So Far in August Modest

We count eight pharma industry announced license transactions of $20mm or more in total deal value thus far in August. Total upfronts paid thus far have been $211 million. Three of the transactions were for China rights and five for global rights.

Date	Licensor	Licensee	Total Deal Value ($mm)	Upfront Cash ($mm)	Transaction Description	Stage of Drug	Deal Type	Territory
8/15/2023	Precision BioSciences	Imugene Ltd.	$662.0	$21.0	Precision BioSciences development and commercialization deal with Imugene for Azer-Cel	Phase I	Dev and Commercial License	Global
8/10/2023	Antengene Corp.	Hansoh Pharma	$101.8	$27.7	Antengene commercialization deal with Hansoh Pharma for XPOVIO	Approved	Sales / Co-Promotion Only	China
8/10/2023	Arcutis Bio	Huadong Pharma	$94.3	$30.0	Arcutis development and commercialization deal with Zhongmei Huadong for topical roflumilast	Approved	Dev and Commercial License	China
8/07/2023	Ginkgo Bioworks	Merck & Co. Inc.	$490.0	NA	Merck research partnership with Ginkgo with an option to license biologics	Platform / Discovery	Option to License	Global
8/07/2023	Poseida Therapeutics	Astellas Pharma Inc.	$25.0	$25.0	Poseida development and commercialization deal with Astellas for P-MUC1C-ALLO1	Phase I	Dev and Commercial License	Global
8/03/2023	Alnylam Pharma	Agios Pharma	$147.5	$17.5	Alnylam development and commercialization deal with Agios for TMPRSS6	Preclinical / IND	Dev and Commercial License	Global
8/02/2023	Oramed Pharma	Tianhui (Sinopharm)	$70.0	$70.0	Oramed formed an undisclosed joint venture with Hefei Tianhui	Phase III	Joint Venture	Global
8/01/2023	ABVC BioPharma	Xinwen Biomedical	$20.0	$20.0	ABVC Biopharma development and commercialization deal with Xinnovation for ABV-1504 and ABV-1505	Phase II	Dev and Commercial License	China

Source: DealForma. Transactions with $20mm or more in total deal value listed.

Disclosure

STIFEL | Healthcare

Stifel collectively refers to Stifel, Nicolaus & Company, Incorporated and other affiliated broker-dealer subsidiaries of Stifel Financial Corp. The information and statistical data contained herein have been obtained from sources that Stifel believes are reliable, but Stifel makes no representation or warranty as to the accuracy or completeness of any such information or data and expressly disclaims any and all liability relating to or resulting from your use of these materials. The information and data contained herein are current only as of the date(s) indicated, and Stifel has no intention, obligation, or duty to update these materials after such date(s). These materials do not constitute an offer to sell or the solicitation of an offer to buy any securities, and Stifel is not soliciting any action based on this material. Stifel may be a market-maker in certain of these securities, and Stifel may have provided investment banking services to certain of the companies listed herein. Stifel and/or its respective officers, directors, employees, and affiliates may at any time hold a long or short position in any of these securities and may from time-to-time purchase or sell such securities. This material was prepared by Stifel Investment Banking and is not the product of the Stifel Research Department. It is not a research report and should not be construed as such. This material may not be distributed without Stifel's prior written consent.

Stifel, Nicolaus & Company, Incorporated | Member SIPC & NYSE | www.stifel.com