BRYAN, GARNIER & CO

# HEALTHCARE | 2022 Q2 Report

## Between a bottom and a hopeful place: 2Q in review


**Alex Cogut**
+31 6 8186 2631
acogut@bryangarnier.com

**Dylan Van Haaften**
+44 207 332 2545
dvanhaaften@bryangarnier.com

**Jean Jacques Le Fur, PharmD**
+33 1 70 36 57 45
jjlefur@bryangarnier.com

**Khalid Deojee**
+33 6 70 39 10 82
kzdeojee@bryangarnier.com

**Edward Hall**
+44 758 424 0168
ehall@bryangarnier.com

**Olga Smolentseva, PhD**
+33 156 68 75 57
osmolentseva@bryangarnier.com

**Eric Yoo, PharmD**
+44 782 351 2215
eyoo@bryangarnier.com

**Mark Hong**
+44 776 619 8496
mhong@bryangarnier.com

**Isobel Crabb**
+44 776 696 4018
icrabb@bryangarnier.com

# BIOTECH & PHARMA MARKET OVERVIEW

**Key readouts that developed in the last quarter**

## 1 Recent XBI rally suggests we might've reached a bottom

- Since the peak in the healthcare market, we have seen outperformance of big pharma players against the broader market with investors looking for non-cyclical, quality but most importantly, cash positive names. With the recent rebound of the XBI ~30% from drawdown lows in the last month, we could start to be on track for recovery
- We note that in H1-22 that 93% of all European biotechs ended in the red, with the noticeable exception of a few select names (Oncopeptides, Vicore, Acticor). We note a rapid increase in negative EV companies in recent months (45% since Q1-22), see page 8.

## 2 European financing environment favoring companies with late stage derisked assets

- With ~50% of the European biotech space with less than 12 months of cash left, we saw some financing getting through but selectively for derisked higher quality assets (argenx, Ascendis). See pages 9 and 11.
- Biotechs are looking at rationalizing their business plans by i) focusing commercial/near commercial assets, ii) prioritising internal projects, and iii) divesting non-core assets. As we have seen with MorphoSys' recent deal, licensing out the company's two mid-stage assets for a $15m upfront and equity, and Basilea's decision to halt their oncology development to reduce the cash burn. See page 15

## 3 Big pharma driven M&A in H2 not a given

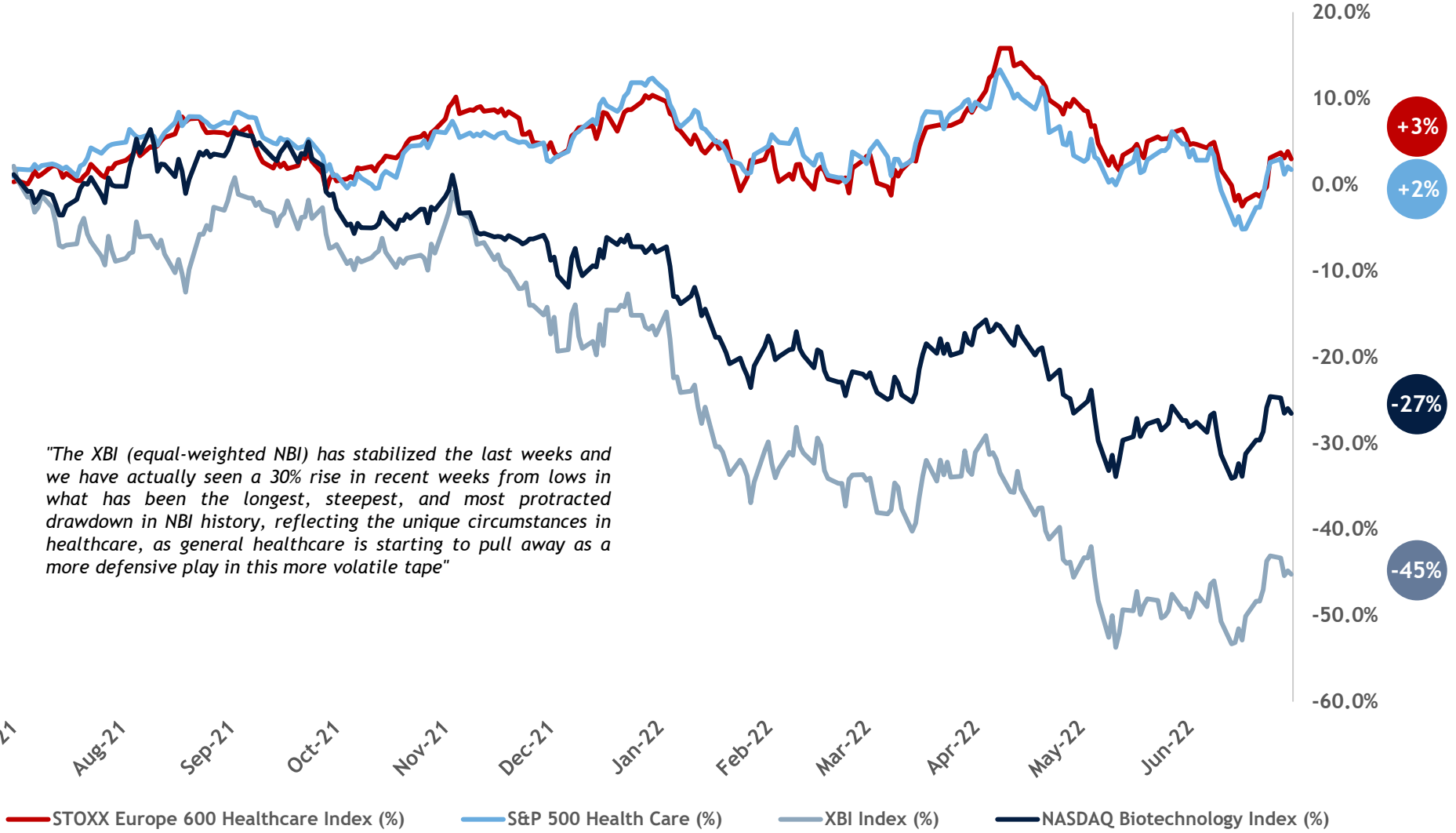
- We have seen a fairly muted period of M&A activity despite evidence of record levels of dry powder from big pharma, see page 10. In our view, valuations don't necessarily govern Big pharma's decision on acquisitions rathe the focus is the quality and fit of the asset.
- Buyers so far have rather been VC/PEs as well as mid-caps (such as Ipsen) focusing on struggling commercial stage biotech. See page 22

## 4 Consolidation and fresh fund flowing into the European VCs

- We have seen two recent acquisitions made this quarter namely Carlyle/ Abingworth and Apollo/ Sofinnova (minority) following the EQT/ LSP acquisition in addition to new funds from Forbion, ARCH, Omega Funds and Cambridge innovation capital.
- This injection of capital is sending a signal to many European companies that companies can be well funded and stay private for longer, with greater infrastructure in place that therefore trickles down to the public markets that can better support these companies and ultimately, with more capital allocated to healthcare in Europe, we envisage more retention of European companies.
- That said, we expect valuations on the private to come down as well and otherwise VC funds might be deployed on the public side in a reversal of the financial arbitrage we saw in recent years

# STANDARD INDICES OVERVIEW

**Healthcare is showing defensive growth even during the unprecedented macroeconomic backdrop and geopolitical tensions, but the biotech sector has suffered greatly during the last year**




*"The XBI (equal-weighted NBI) has stabilized the last weeks and we have actually seen a 30% rise in recent weeks from lows in what has been the longest, steepest, and most protracted drawdown in NBI history, reflecting the unique circumstances in healthcare, as general healthcare is starting to pull away as a more defensive play in this more volatile tape"*

*Source: Capital IQ, Bryan, Garnier & Co Equity Research*

# BG INDEX OVERVIEW

**BG curated indexes of the public European biotech, (bio)pharma and life sciences companies and their stock performance**



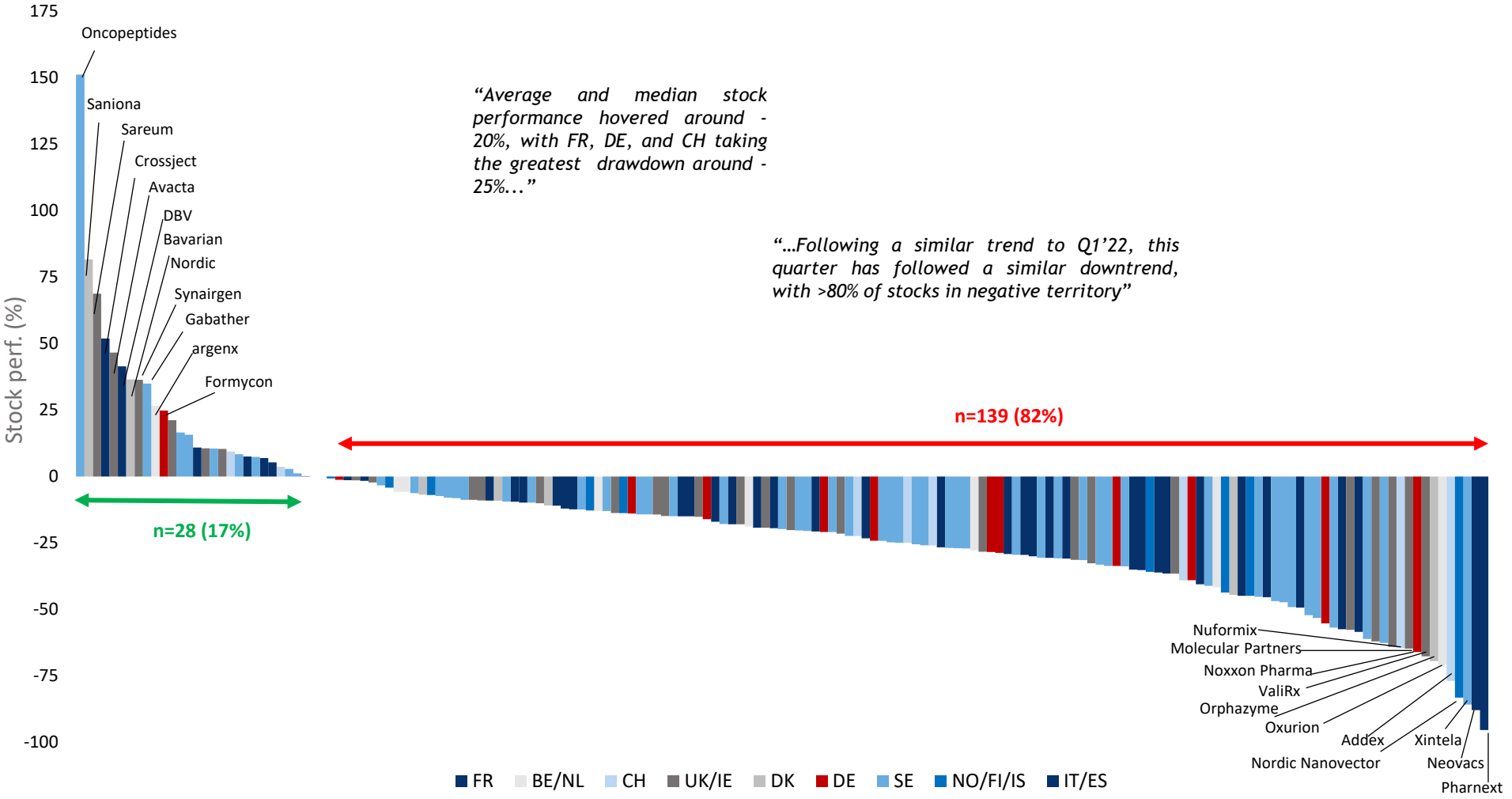

Source: Capital IQ, Bryan, Garnier & Co Equity Research

# EUROPEAN BIOTECH PERFORMANCE IN Q2'22

**The plot says it all! Less than 20% of stocks ending the second quarter in positive territory**

*"Average and median stock performance hovered around -20%, with FR, DE, and CH taking the greatest drawdown around -25%..."*

*"...Following a similar trend to Q1'22, this quarter has followed a similar downtrend, with >80% of stocks in negative territory"*





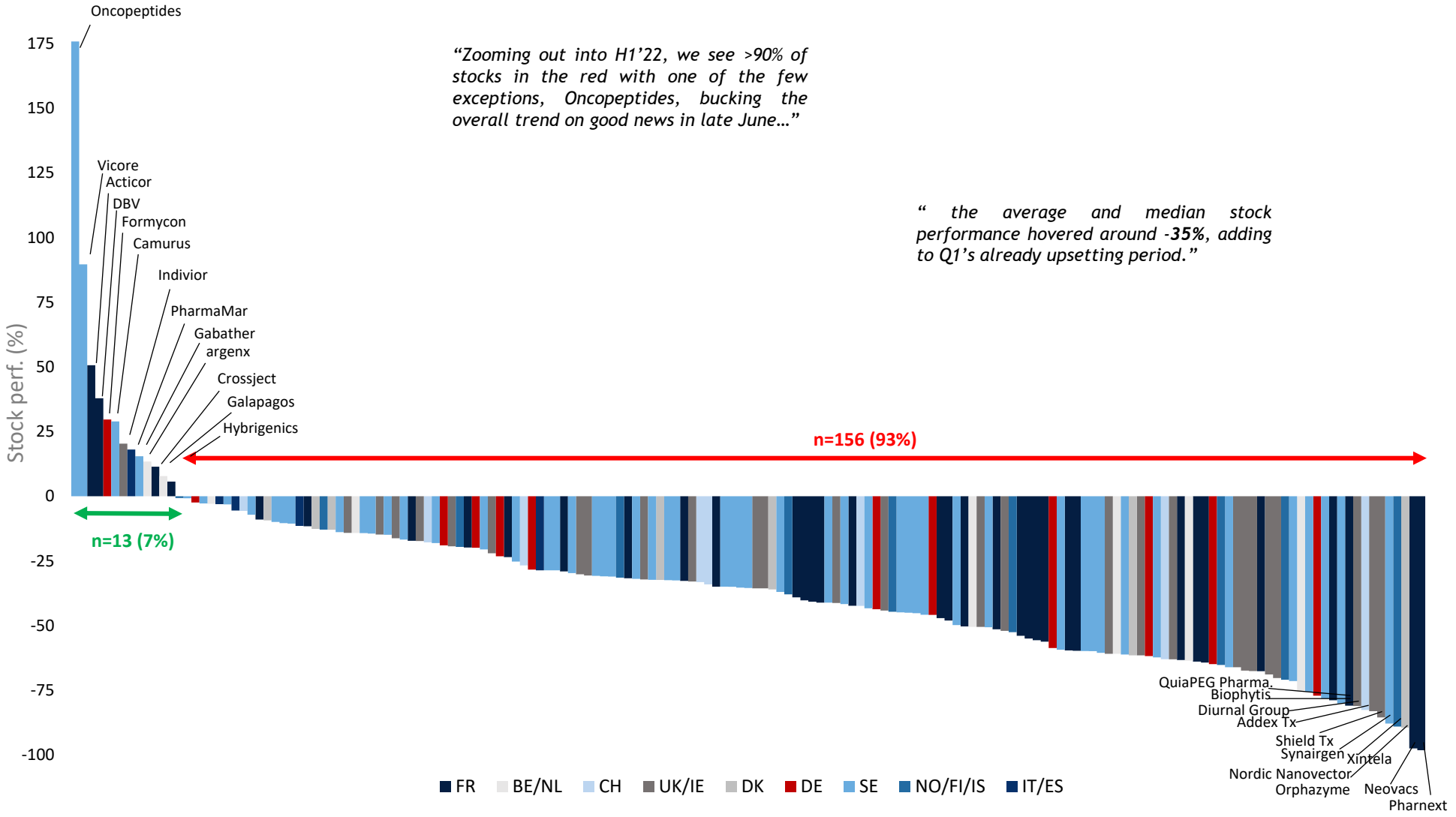

Source: Biotellytics, Bryan, Garnier & Co Equity Research

# EUROPEAN BIOTECH PERFORMANCE IN H1'22

**The plot says it all! Less than 10% of stocks ending the first half in positive territory**

*"Zooming out into H1'22, we see >90% of stocks in the red with one of the few exceptions, Oncopeptides, bucking the overall trend on good news in late June…"*

*" the average and median stock performance hovered around -**35%**, adding to Q1's already upsetting period."*






Source: Biotellytics, Bryan, Garnier & Co Equity Research

# DARK TIMES COULD STAY ACCORDING TO DRAWDOWN HISTORY

**Performance of NBI over the past 25 years highlighting major corrections and their time to recovery**

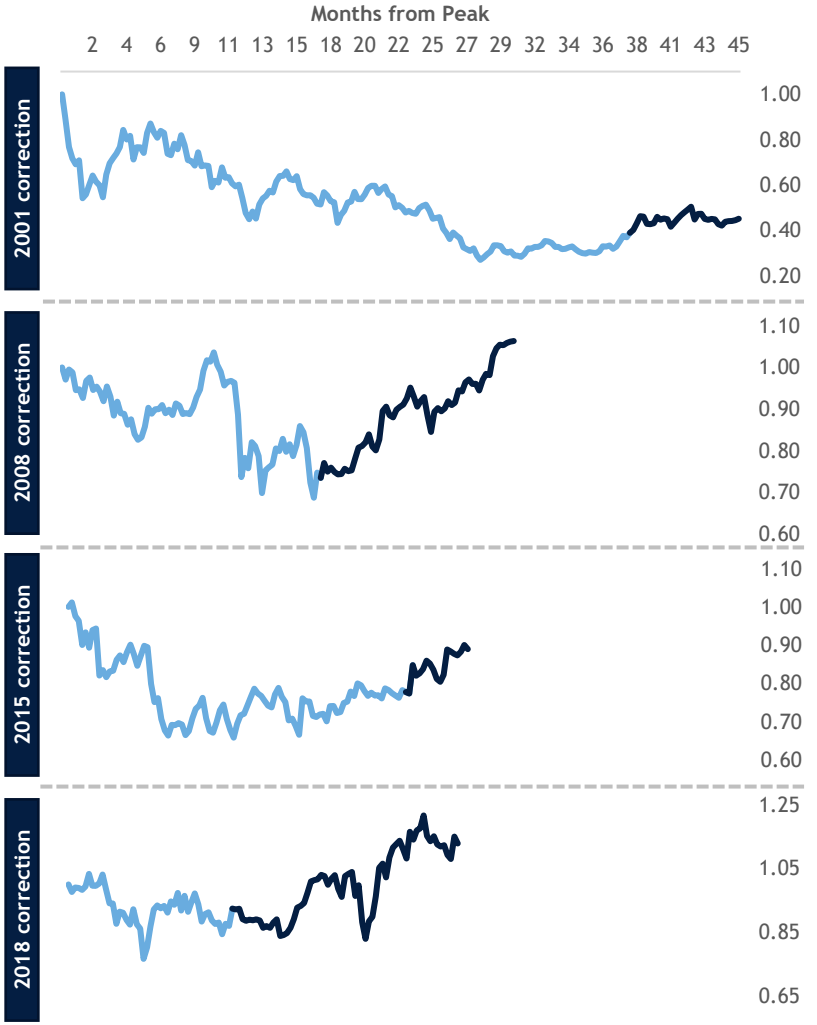
## Performance of Drawdowns from Prior Peaks

*"With one of the largest drawdowns in biotech space in recent memory, it is poignant to look back to recent corrections and the time taken to recovery…"*

*"… in recent corrections, getting "out of the woods" has been relatively quick, but with the major macro upsets, we could be in a downturn for many months to come …"*

*"… with the median time to correction over the last 4 corrections being **20 months**, the logic applied to the quick drawdown and quick bounce back may not be applicable in this case."*



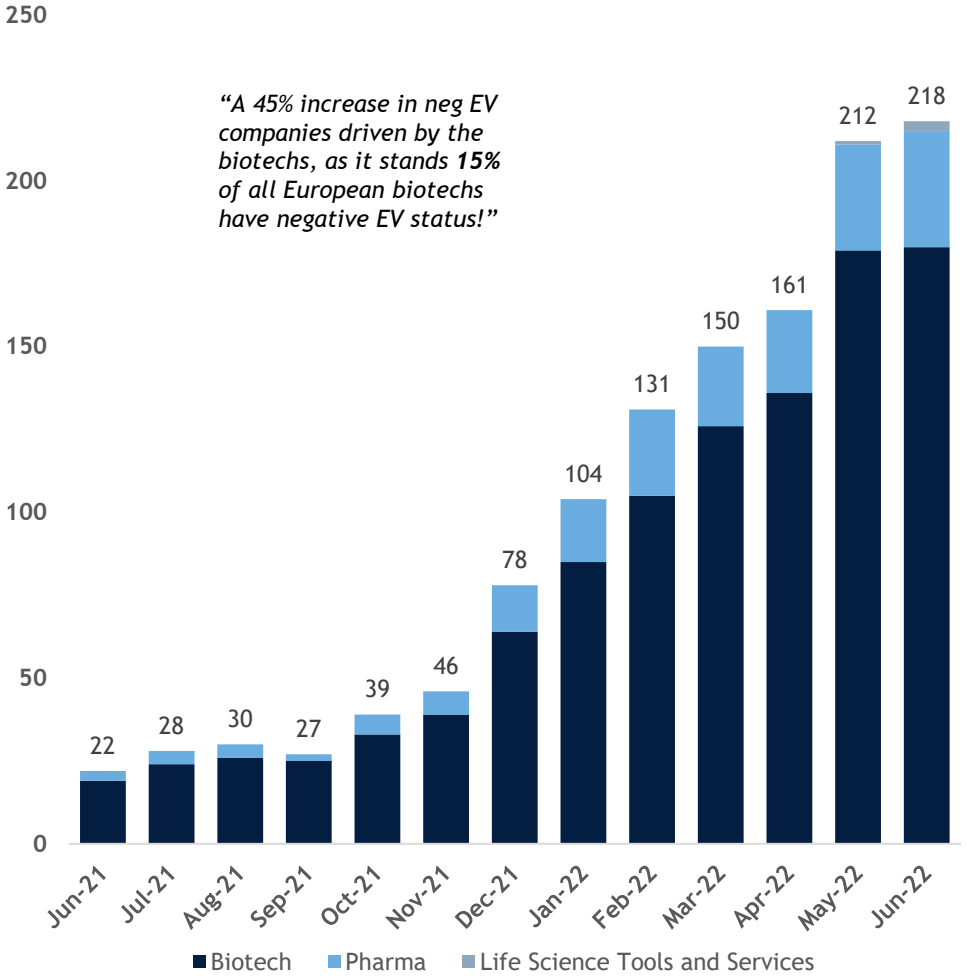



Source: Bloomberg, Bryan, Garnier & Co Equity Research

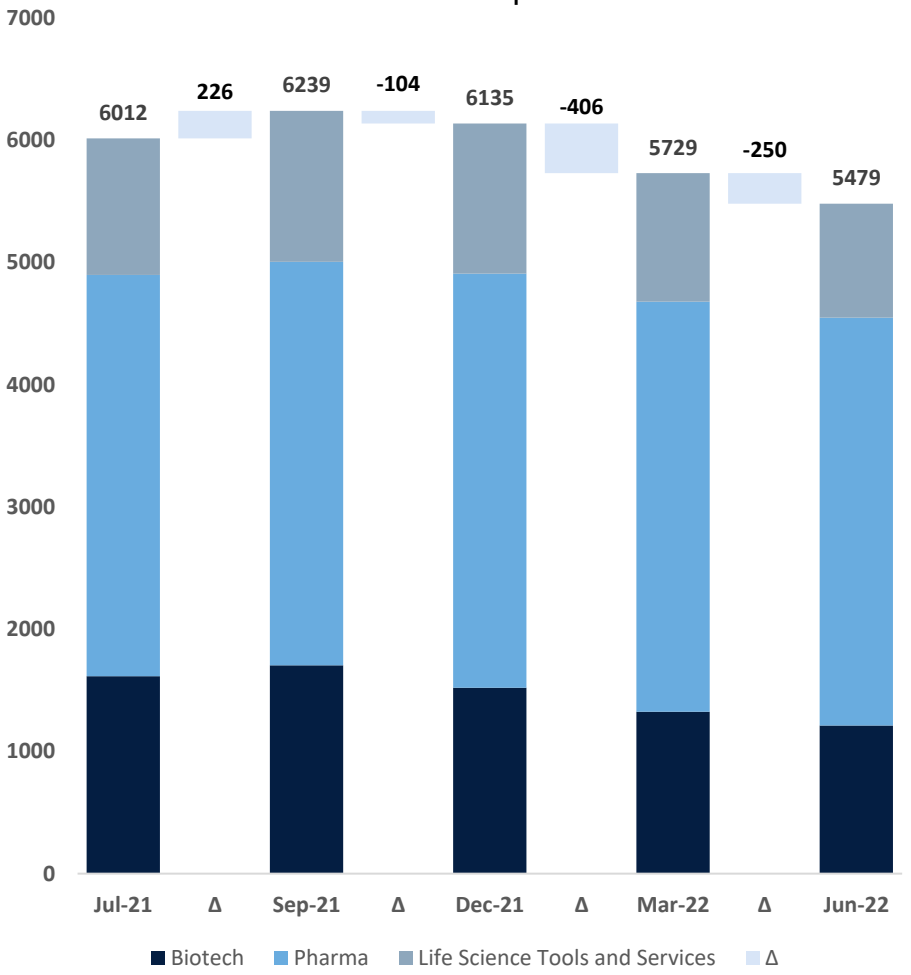
# BUST OR BOOM, TIME WILL TELL

**Negative EV Life Science Companies US/ Europe and total EV of the sector**

**Number of EU/ US negative EV biotech, pharma and life sciences companies per month**




**Total EV (in USDbn) of the EU/US biotech, pharma and life sciences sector at 12 month lows 13% down from 12 month peak**






*Note: Enterprise value is defined as market cap less cash plus debt. A company with negative enterprise value is trading at less than cash.*
*Source: CapitalIQ, Bryan, Garnier & Co Equity Research*

# 50% OF EU BIOTECHS HAVE LESS THAN A YEAR'S CASH LEFT

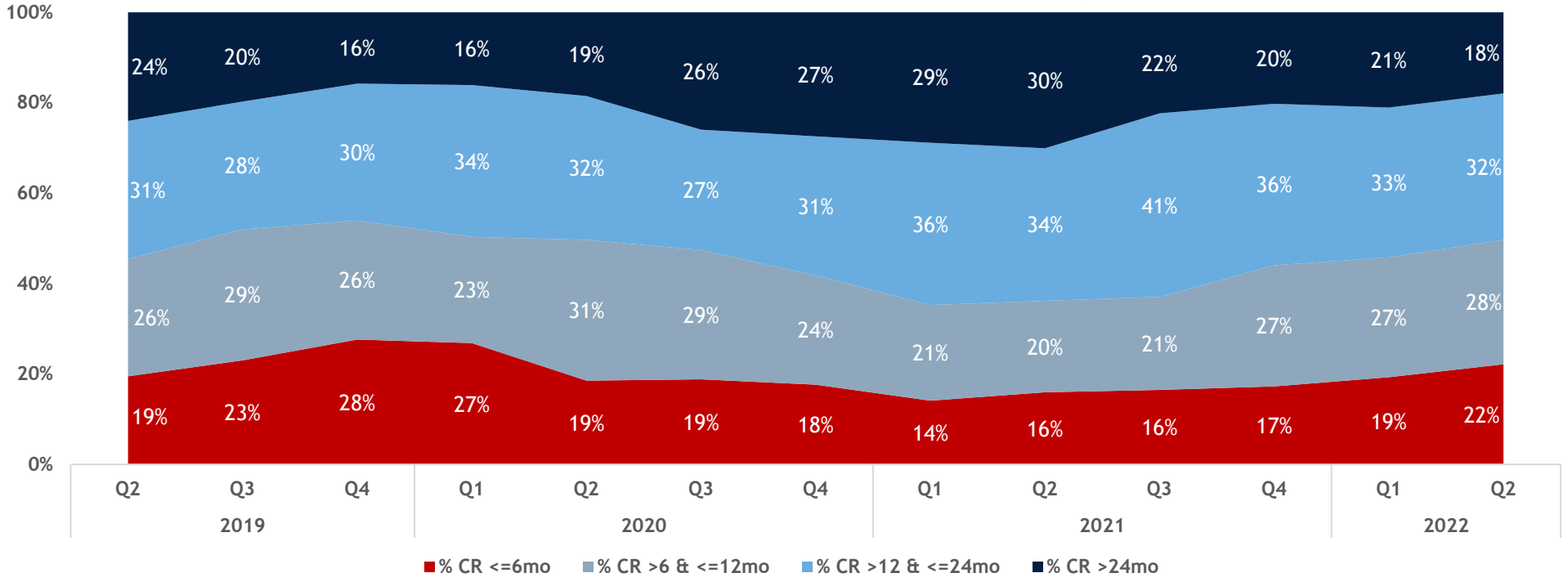
**Almost mute in Q2-22, cash is king as financing conditions have deteriorated**

## Biotechs in survive mode

1. The state of financing sparked by the COVID-19 bubble boom allowed biotech companies to raise funds with relative ease, adding to the already large amount of cash they burn by increased opex
   - When we look to the booming Q2'20-Q4'21 period, financing for public EU biotechs averaged EUR 82M/Q, a massive ~52% increase per Q when compared with the previous 7 quarters from Q3'18-Q1'20. A rather abrupt decline in financing can be seen in H1'22; notably, secondary offerings have dwindled to the lowest levels in years, a stark contrast to '20/'21

2. The present environment has made it increasingly more difficult to raise cash through equity, etc., leading to re-structuring and organizational changes in efforts to curb cash burn; management teams must be particularly reactive

**Distribution of cash runway (CR) estimates (C&CE incl. interim proceeds since last financial report & possible cash from extra lines of financing)**






Source: Biotellytics, Bryan, Garnier & Co Equity Research

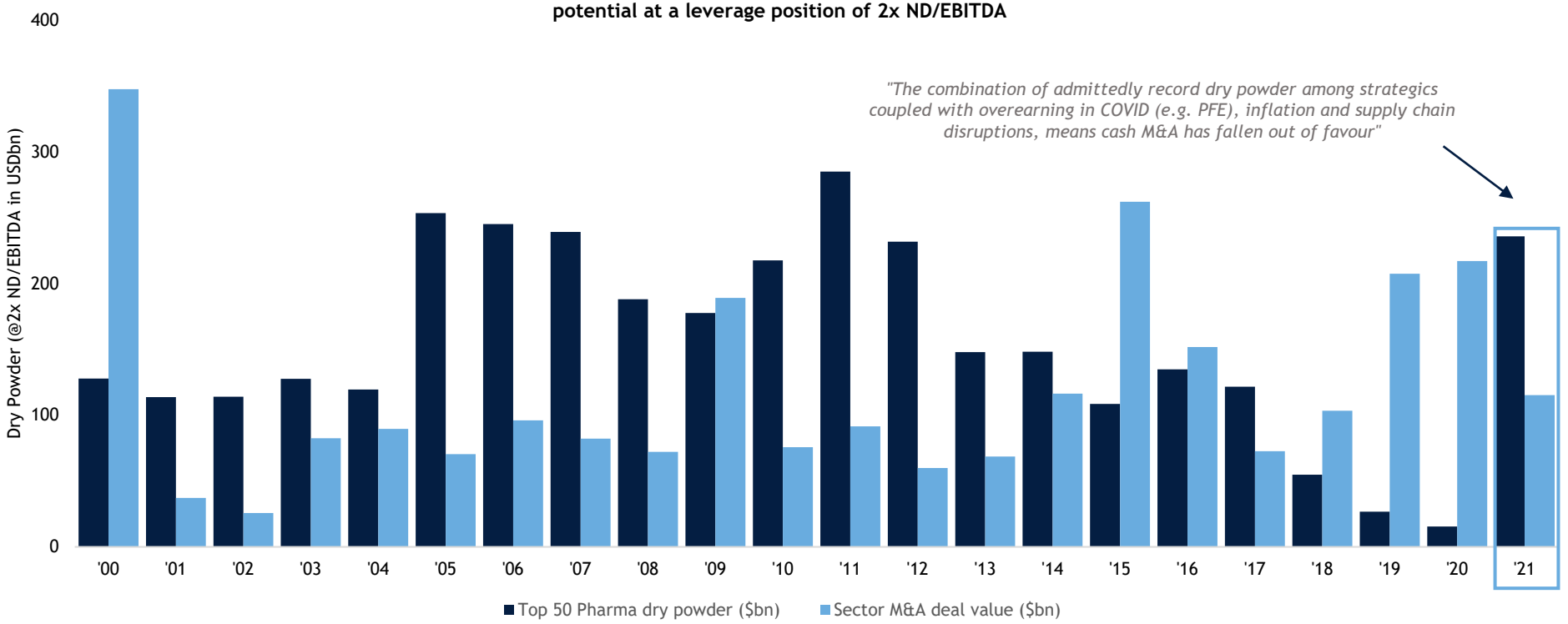
# BIG PHARMA DRIVEN M&A NOT A GIVEN IN H2 2022

**Despite high levels of dry powder, we see muted M&A activity**

## We do not necessarily expect a slew of acquisitions by big pharma but PE driven activity is ramping up

- Big pharma generally looks to replenish topline growth where targets are relatively limited and valuations not cheap per se (e.g. Merck -> Seagen)
- However, big pharma is now facing a higher cost of capital due to recent interest rate hike and macro uncertainty.
- We note that big pharma up to this point was/is quite levered (In '21 BP was 57% above median sector leverage for last 20 years).
- We have seen a growing trend of large increases in organic R&D, share buybacks and as a result less incrementally to M&A.
- Furthermore, investors should not forget the current average Biotech is earlier stage today than 7 years ago at the start of the last true bear market ('15-'16), whereas risk appetite at BD has not changed per se.
- Additionally, if we look at struggling rug launches today, we rather see PE/VCs stepping in (e.g. Radius Health, TherapeuticsMD) as well as midcaps (e.g. Epizyme)

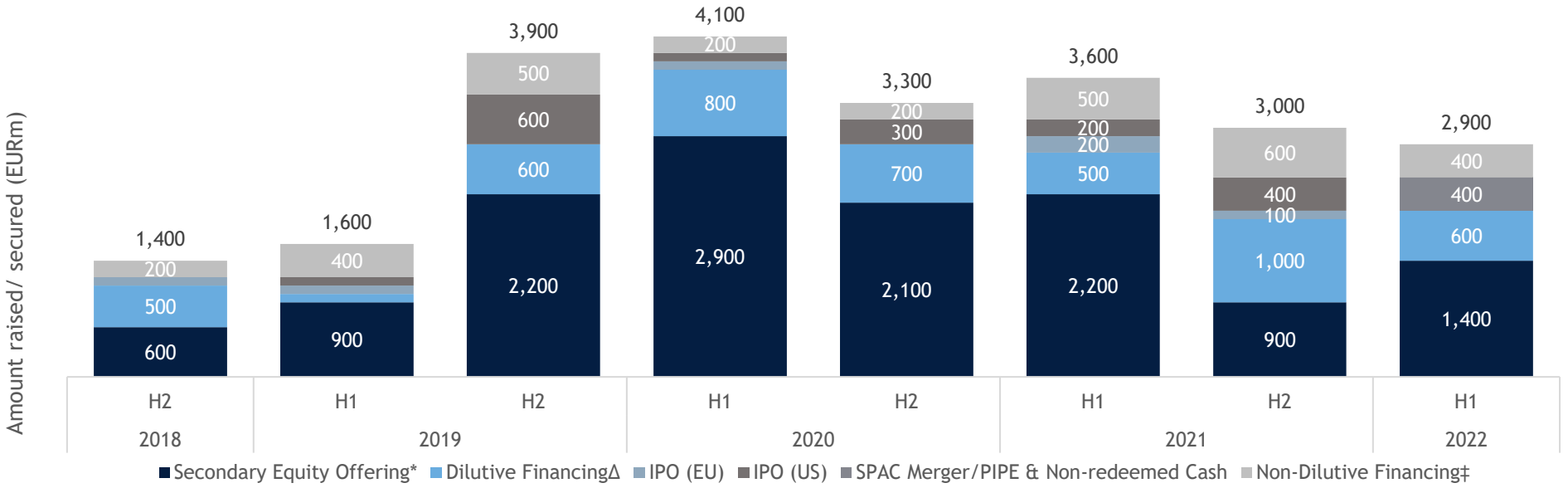
**Dry Powder analysis of top 50 companies by market cap showing dry powder potential at a leverage position of 2x ND/EBITDA**




Source: CapitalIQ, Bryan, Garnier & Co Equity Research

# EUROPEAN BIOTECH PUBLIC FINANCING STABLE

**Driven by large raises from argenx, Ascendis and SPAC mergers closing**




## Summary of last quarter

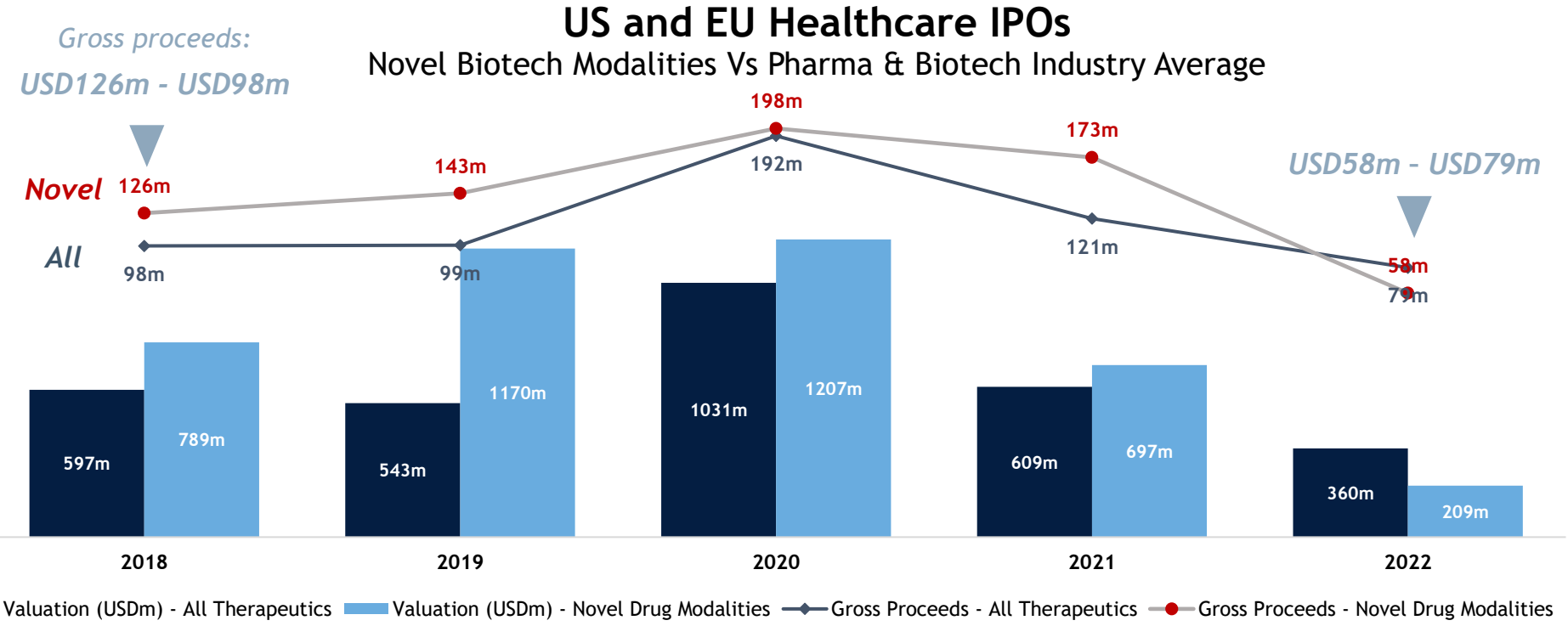
- From Q2'20 to early'21, the ease to raise funds made biotech companies to increase their opex (this industry burns everything you give to it)
- Therefore the increasing difficulty to raise cash, notably through equity, must lead companies to push the brake on their burn rates, whereas they were accelerating expenses. Managements have to be reactive & nimble.
- For some, the challenge will be quite simple: "just live another quarter", while trying to finance value-creating operations (like generating clinical data) might become secondary for some.
- Few secondary offerings in April & May, with 8/17 (47%) of the "sub-€20m" equity offerings (our key metric, with 75% of these raises over the past 4y amounting ≤ €20m) done in June
- Low to very low number of sub-€20m's since Q2'21, below the rolling avg over the last 4Q's until Q1'22, underlining a lack of financing at sector level
- On top of the 5 companies highlighted in Q1'22 for their actions to cope with or anticipate financing issues, the picture of the pain for Q2 includes:
  - Saniona : terminated lead program, unveiled plan to reduce cash burn
  - Addex Tx: terminated lead program phase 2/3, plan to extend cash runway
  - co.don: discussions with historal shareholder regarding further commitment for financing "concluded without success", company seeking alternatives, cash reach to end of July
  - Pharnext: had previously planned to stop using ever-dilutive convertibles with cash reach to Q3, not realistic anymore
  - 4D Pharma: in administration following a default to repay debt to a creditor, clinical operations stopped



*Note: * Follow-on Offerings, Capital Increases w/ Preferential Right, Private Placements/Directed Issues, Equity Investments from Partners, ΔEquity Lines, Conv. Bonds, Warrants, Options, ‡Straight Debts, Loans, Grants. Source: Biotellytics, Bryan, Garnier & Co Equity Research*

# IPO WINDOW - FIRMLY CLOSED & DOUBLE LOCKED

**50% decrease in valutions**




## Summary of last quarter:

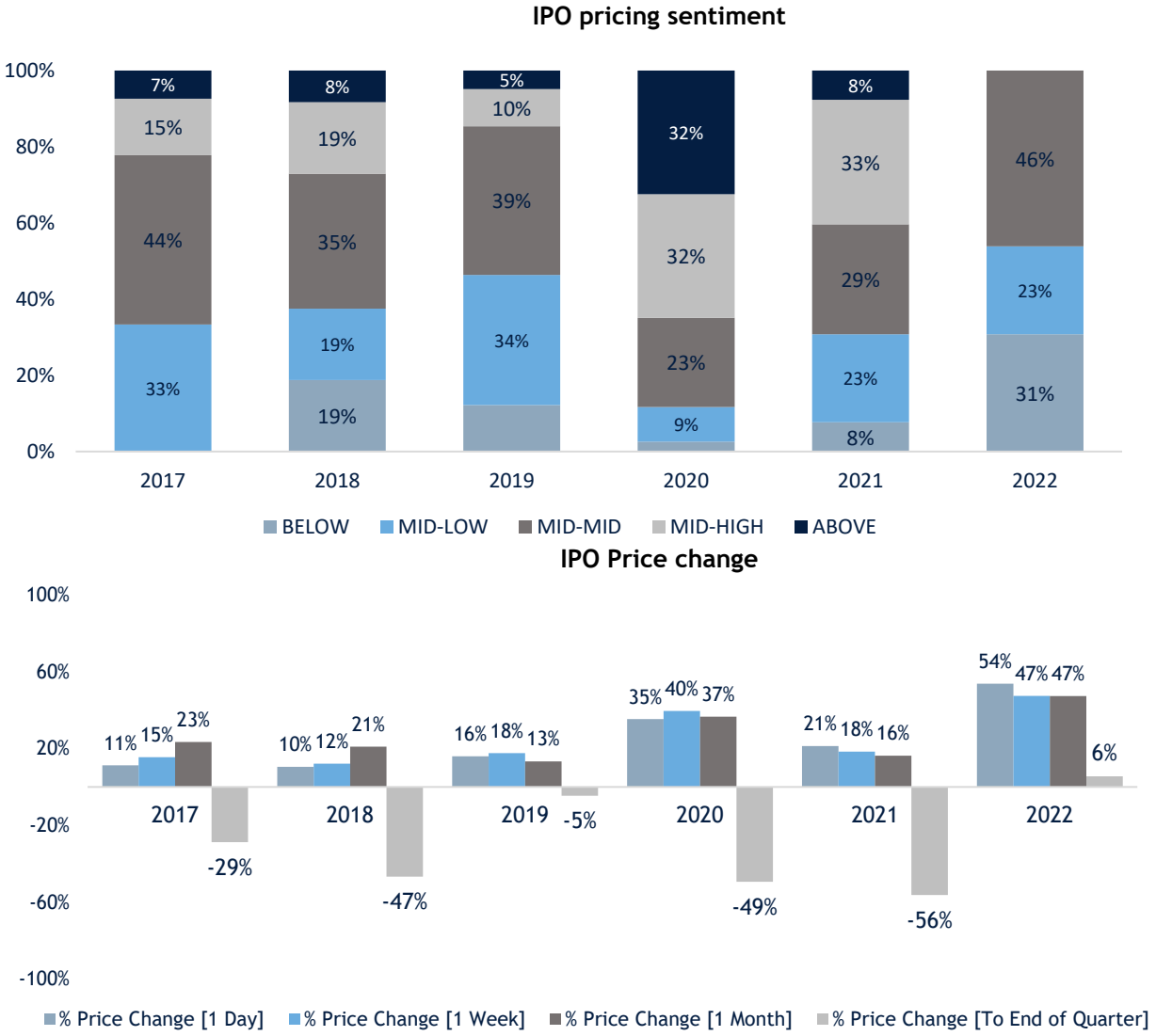
- On the back of 2021, a record breaking year for IPO activity we have seen one of the lowest halfs for IPO activity in recent years with a single SPAC merger in Europe: BenevolentAI and Alvotech becoming public via a US SPAC.
- This half has been down 80% by deal volume compared to same period last year with momentum slowing even further with 3 listings this quarter. In regards to valuation (average market cap) we note a 50% decrease compared to same period last year (USD813m vs USD378m) reflecting the negative sentiment of the overall healthcare market.
- With the previous 18 months of IPO activity being ferocious, this level of activity looked hard to maintain and with today's market sentiment, more and more companies are finding it difficult to reach the public market, leaving many companies waiting in the private markets.



*Note: Novel Modalities refer to companies employing the following technologies: RNA (modifies or provides RNA to patient's cells), Cell therapy (where viable cells are injected, grafted or implanted into a patient), Gene therapy (introduction of genetic material into the body to replace faulty/ missing genetic material) and Antibody (form of immunotherapy that uses antibodies to bind to certain cells or proteins. The objective is that this treatment will stimulate the patient's immune system to attack those cells.); Source: S&P CapitalIQ, Bryan, Garnier & Co Equity Research*

# IPO PRICING AND PERFORMANCE OBVIOUSLY POOR

**Key trends developing in the last quarter**




## Market sentiment still weak into Q2-22

- 2021 was a swing year with more IPOs pricing at the lower end of the pricing range as the year progressed, stressing the weak market sentiment.
- This trend continued into 2022 with more and more companies pricing at the lower end or below the price range.
- The biotech selloff starting late 2021 moving into 2022 is displayed in the bottom graph with 2021 offering attractive valuations for companies that have since experienced a cyclical downturn in the market who now see a ~50% price decrease to date since issuing price.
- The 2022 price change to date shows a close to flat change in share price implying valuations have been deflated from the 2020/2021 vintages and that they reflect investor sentiment in the market currently.



*Note: to end of quarter is to 6/30/22 Source: Capital IQ, Bryan, Garnier & Co Equity Research*

# LOW IPO ACTIVITY STARTING TO PRIORITISE DERISKED ASSETS

**Yearly analysis of IPO activity by stage of lead asset**

## Numbers of Pharma/ Biotech IPOs by stage of lead asset

- By looking at the IPOs in Europe and the US by the stage of their lead asset, we saw an emerging trend with more and more companies IPO'ing and with a shift further and further towards earlier stage lead assets as investors became more bullish on the sector, taking on more risk.
- Now with the IPO market firmly closed, AELIS being the only biotech listed on European markets this year, the trend for early stage projects going public is there but starting to diminish, see below. We opine that off the back of the recent biotech sell-off and market sentiment investors will position towards lower risk, later-stage assets although it is too soon to infer based on the limited data available.
- In recent years, we are seeing an ever increasing proportion of pre-clinical companies that are making it to the public markets, but with limited late stage catalysts it may be a while until they get meaningful data to give them a lift, again highlighting the perils of early public market entry.

| NASDAQ / Europe* | | Marketed | Filed | Phase III | Phase II | Phase I | Pre-Clinical | Research Project |
|---|---|---|---|---|---|---|---|---|
| 2022 | 13 | 0% | 8% | 15% | 31% | 31% | 15% | 0% |
| 2021 | 91 | 0% | 1% | 19% | 43% | 12% | 21% | 4% |
| 2020 | 61 | 0% | 2% | 10% | 36% | 26% | 21% | 5% |
| 2019 | 41 | 0% | 0% | 29% | 34% | 15% | 20% | 2% |
| 2018 | 37 | 0% | 3% | 19% | 43% | 16% | 19% | 0% |

## Selected Transactions - No EU transactions this quarter

| Target/ Issuer name | Ticker | Exchange | Key Therapeutic area | Lead Phase | Offer date | Total Raise (USDm) | Price per Share (USD) | Price change to end of quarter (%) | Market Cap at IPO (USDm) | Market Cap 6/30/22 (USDm) | Geography |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Belite Bio, Inc | BLTE | NASDAQCM | Metabolic Diseases | Phase III | 4/28/2022 | 40.6 | 6 | 419% | 255 | 774.4 | United States |
| HilleVax, Inc. | HLVX | NASDAQGS | VLP vaccine | Phase II | 4/28/2022 | 230.0 | 17 | -36% | 560 | 339.9 | United States |
| PepGen Inc. | PEPG | NASDAQGS | Musculoskeletal | Phase I | 5/5/2022 | 108.0 | 12 | -17% | 289 | 234.7 | United States |



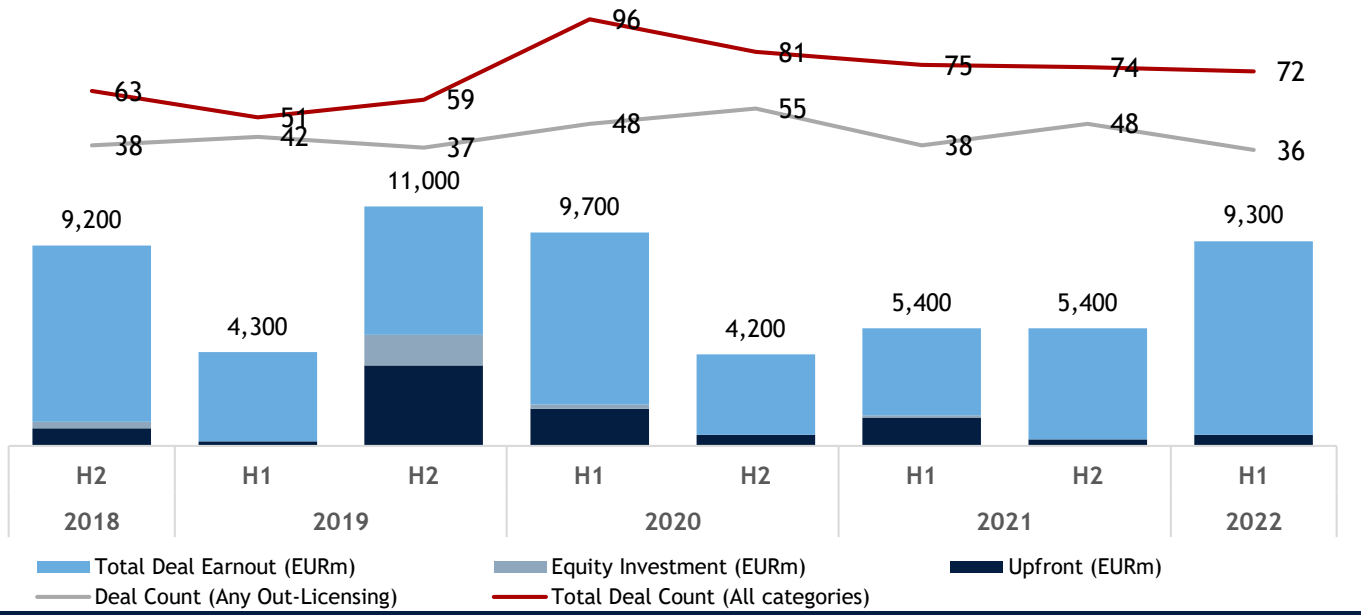
*Includes: Euronext Amsterdam, Euronext Brussels, Euronext Paris, AIM, NASDAQ, Nasdaq OMX Stockholm
Source: Evaluate Ltd, CapitalIQ, Bryan, Garnier & Co Equity Research

# EUROPEAN BIOTECH DEALMAKING ON THE RISE

**H1'22 roughly double that of H1'21 but skewed by Evotec's activity**

## Summary of last quarter

- The total deal value (EUR 6.9bn) in Q2'22 is ~3x that of Q1, and H1'22 shows significant uptick vs that of H1'22 and in-line with H1'20.
- Given the markets mood regarding financing, this could lead/force companies to ink deals to fill financing gaps (or to stay alive)
- The out-licensing activity has been almost muted in Q2 by deal count, actually the lowest of the recent past
- We would expect an uptick in deal making in H2 considering the dwindling cash supplies of biotechs




| Date | Product Candidate(s) | Indication(s) | Out-licensing company | Stage | In-licensing company | Therapeutic Area | Category | Territories | Cash Upfront (mEUR) | Equity Invest. (mEUR) | Total Deal Value (mEUR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/05/2022 | EVT-CG-PD | Cancer | Evotec | research | Bristol Myers Squibb (US) | Oncology | Out-Licensing | WW | 189.9 | | 4747.9 |
| 14/06/2022 | felzartamab; MOR210 | AutoImmune Diseases; Any Indication | Morphosys | phase 2a; preclinical | HIBio (US) | Nephrology; Inflammatory Diseases | Out-Licensing | WW ex-Greater CN | 14.4 & 15% Equity Stake in HIBio (Private) | | 974.6 |
| 14/06/2022 | TargetAlloMod Platform; Discovery Platforms | Various | Evotec | research | Janssen / Johnson & Johnson (US) | Various | R&D, Out-Licensing | N/A | 0.0 | | 630.0 |
| 19/05/2022 | Discovery Platforms; IPSC Platform | Skin Diseases; Atopic Dermatitis; NMSC; Basal Cell Carcinoma; BCC | Evotec | research | Almirall (ES) | Dermatology | Out-Licensing | WW | >0, undisclosed | | 460 |
| 20/06/2022 | VLA15 | Lyme disease vacinne | Valneva | Phase 3 | Pfizer | Infectious disease | Out-Licensing | WW | 123.5 | 90.5 | 383 |
| 16/06/2022 | F.I.R.S.T/nCoDeR platforms | Oncology | BioInvent Internat. | research | Exelixis (US) | Oncology | Out-Licensing | WW | 23.7 | | 23.7 |

*Note: *Based on 2 programs (milestones "up to triple digit EURm per program"), §Inferred from the other disclosed deal terms*

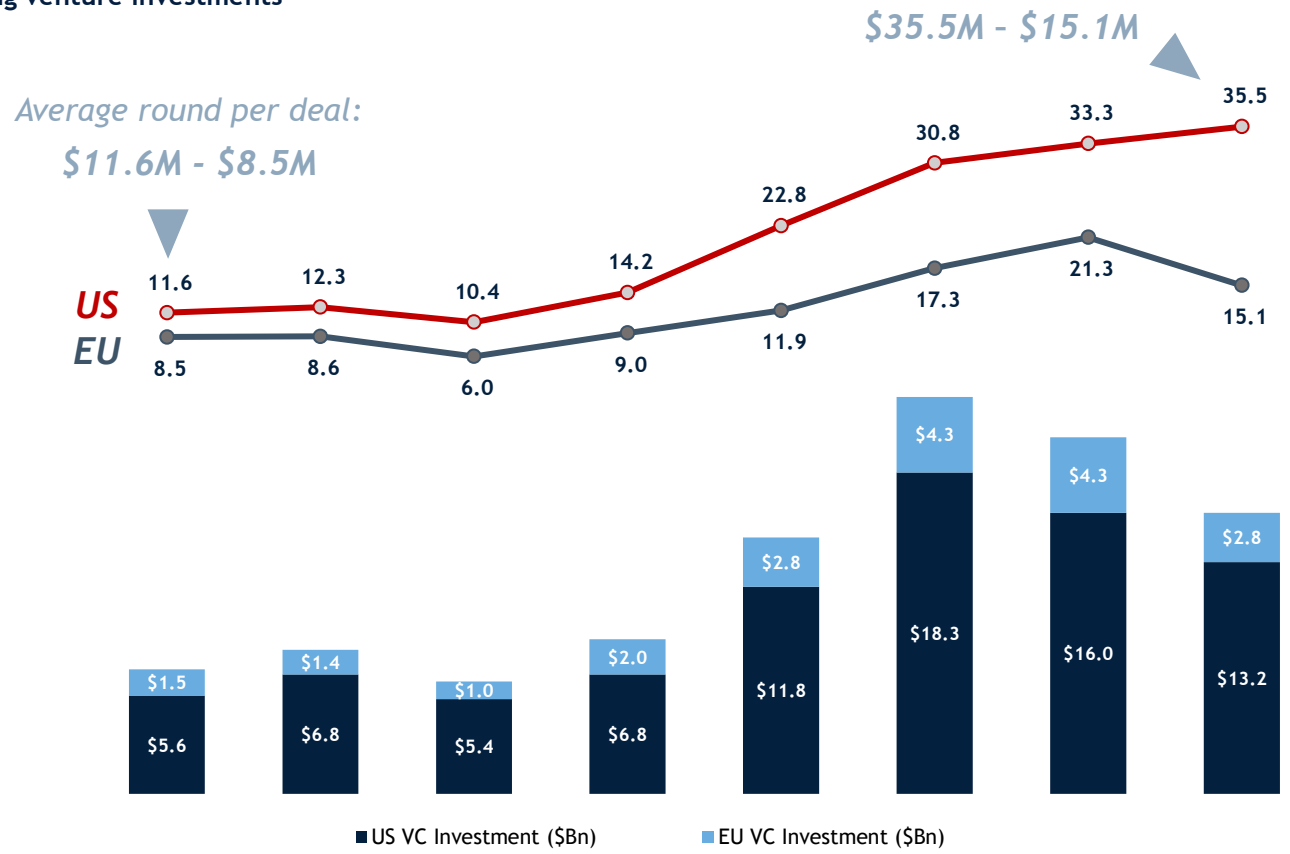
*Source: Biotellytics, Bryan, Garnier & Co Equity Research*

# PRIVATE ROUNDS FOR EU BIOTECH COMING DOWN

**H1 global VC-backed healthcare deals and financing venture investments**

## Summary of last quarter

- Trying to follow a record breaking 2021 looked hard to match and this is reflected in total VC investment, down 30% from H1 21, but still very active, up 95% compared to pre pandemic H1 19 showing signs of increased activity in the sector beyond "the COVID hype".
- We are seeing an increasing valuation gap between the US and Europe suggesting that although private markets in Europe may be faltering, US investors will still pay for good ideas.
- Comparing Q1 22 to Q2 22 we close to identical VC investment, potentially suggesting a slow down in diminishing VC activity which could suggest the environment for young biotechs looks favourable.
- We have seen deal volume diminished, especially in the US, as investors are becoming every weary and only look to the most promising ideas.



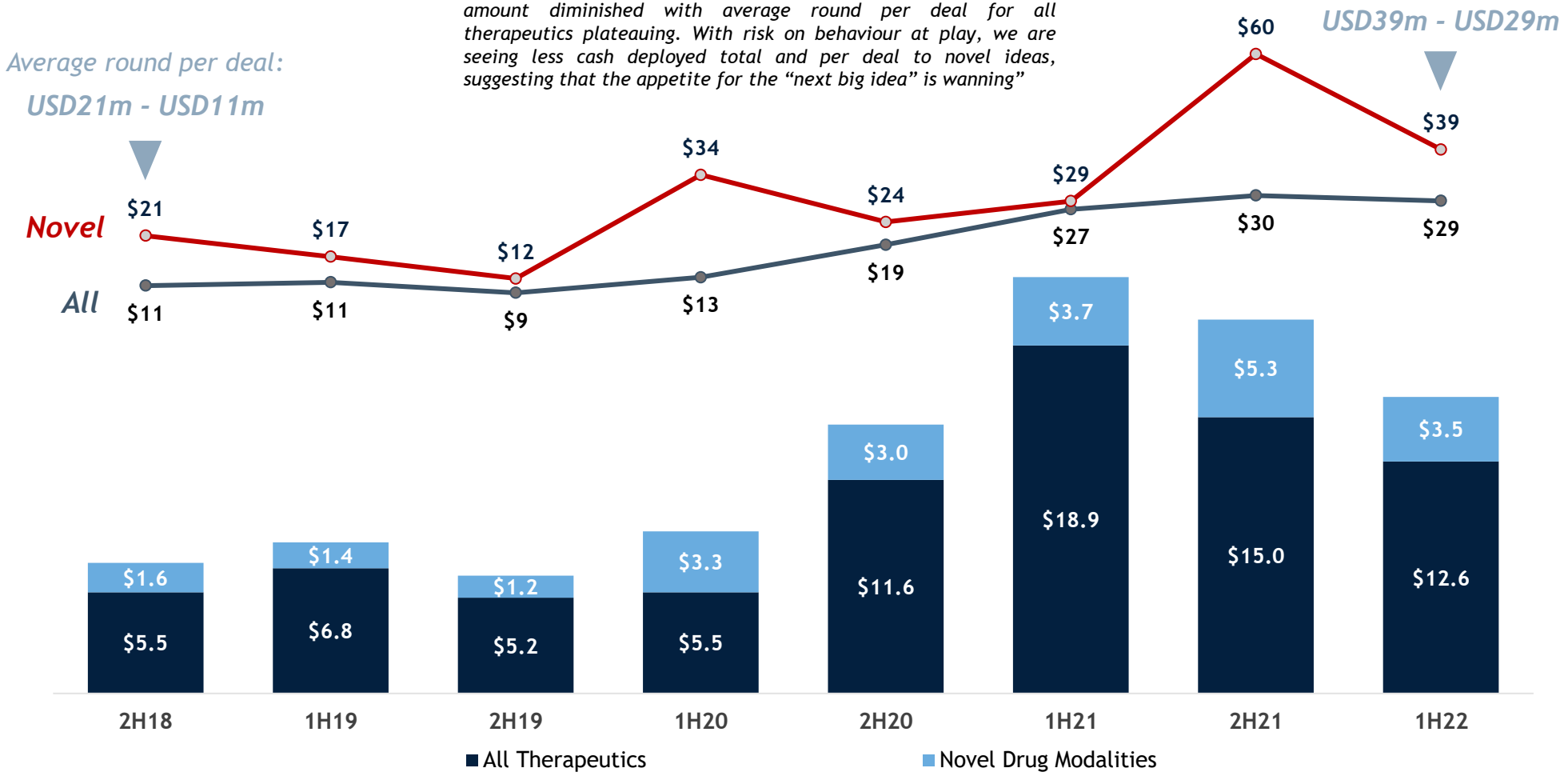

| # of Deals | 2018 | 2019 | | 2020 | | 2021 | | 2022 |
|---|---|---|---|---|---|---|---|---|
| | 2H | 1H | 2H | 1H | 2H | 1H | 2H | 1H |
| United States and Canada | 486 | 550 | 517 | 477 | 520 | 594 | 482 | 373 |
| Europe | 176 | 160 | 174 | 224 | 235 | 247 | 200 | 188 |

*Source: Capital IQ, Bryan, Garnier & Co Equity Research*

# PRIVATE INVESTMENT FOR NOVEL MODALITIES LOSES PREMIUM

**US and European Private Placements - Novel Biotech Modalities Vs Pharma & Biotech Industry Average**

*"We observe the same trend when looking at novel drug therapeutics in comparison with standard therapeutics, total deal amount diminished with average round per deal for all therapeutics plateauing. With risk on behaviour at play, we are seeing less cash deployed total and per deal to novel ideas, suggesting that the appetite for the "next big idea" is wanning"*

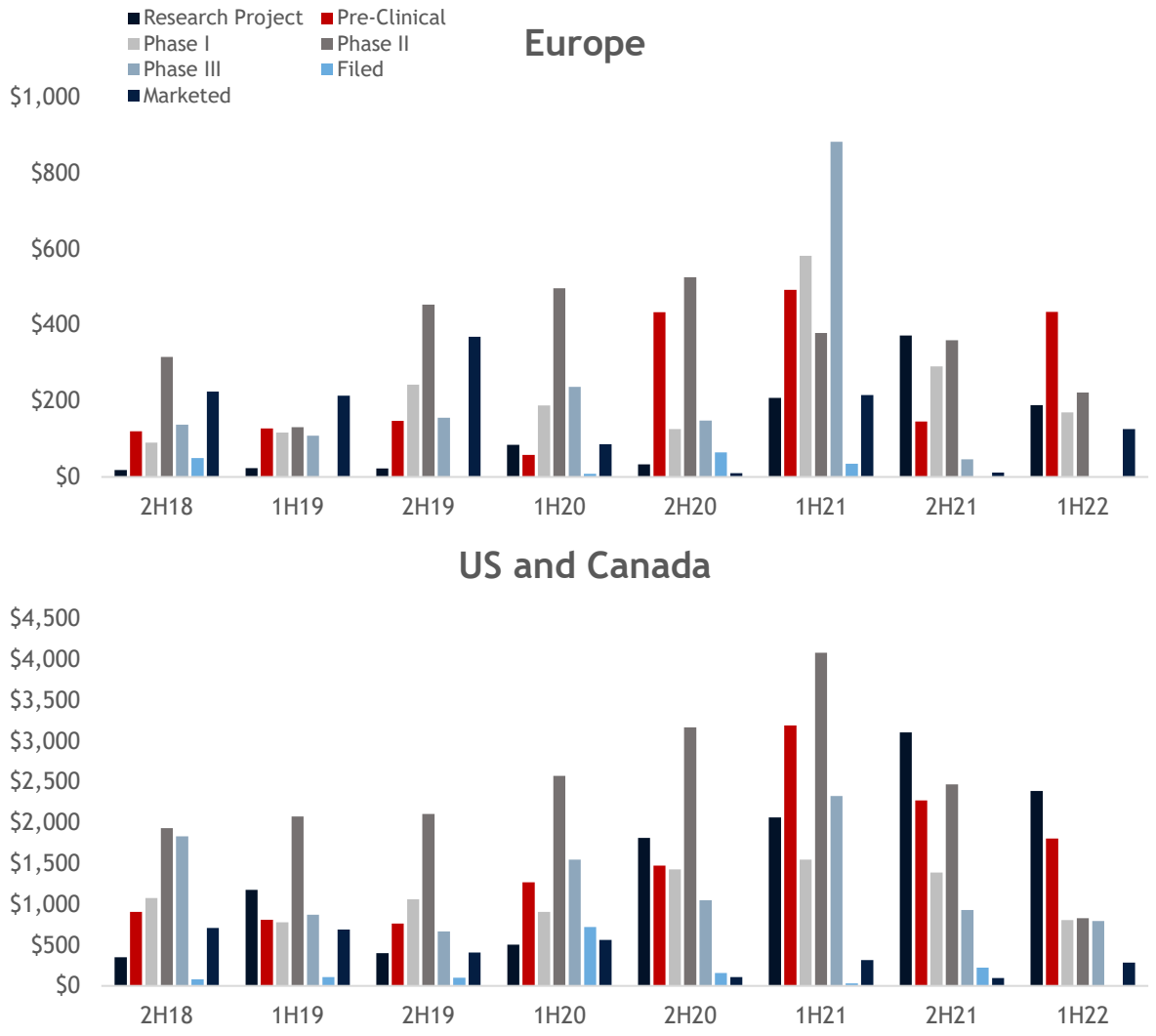





*Source: Capital IQ, Bryan, Garnier & Co Equity Research*

# BACK TO BASICS FOR VC AS EARLY-STAGE ROUNDS DOMINATE IN H1

**US vs European Biotech/Pharma VC Total Transaction Value By Stage Of Development Of Lead Asset**




## Search for diamond in the rough intensifies

- With valuations inflating, especially through the pandemic, we are seeing a constraint in what can be paid for late-stage assets.
- This, in combination with increased early-stage public companies, see page 14, we see more and more private money is being directed to earlier stage assets.
- In numbers: we note a -25% decline year on year ('17-'21 CAGR) of total transaction value for marketed lead asset companies compared to a 42% increase for research project stage companies.
- In conjunction to this, in the recent months we are seeing, for the first time in a few years, a sharp increase in private money injected into marketed stage companies as investors look to minimize risk associated with their portfolio.
- When comparing Europe and US we see similar trends developing but potentially we are seeing less stress placed on late stage assets in Europe compared to US (larger increase in marketed stage assets in US and research project stage assets in Europe prioritised)

*Source: Capital IQ, Bryan, Garnier & Co Equity Research*

# PRIVATE INVESTMENT BACK ON TOPIC OF IMMUNOTHERAPY

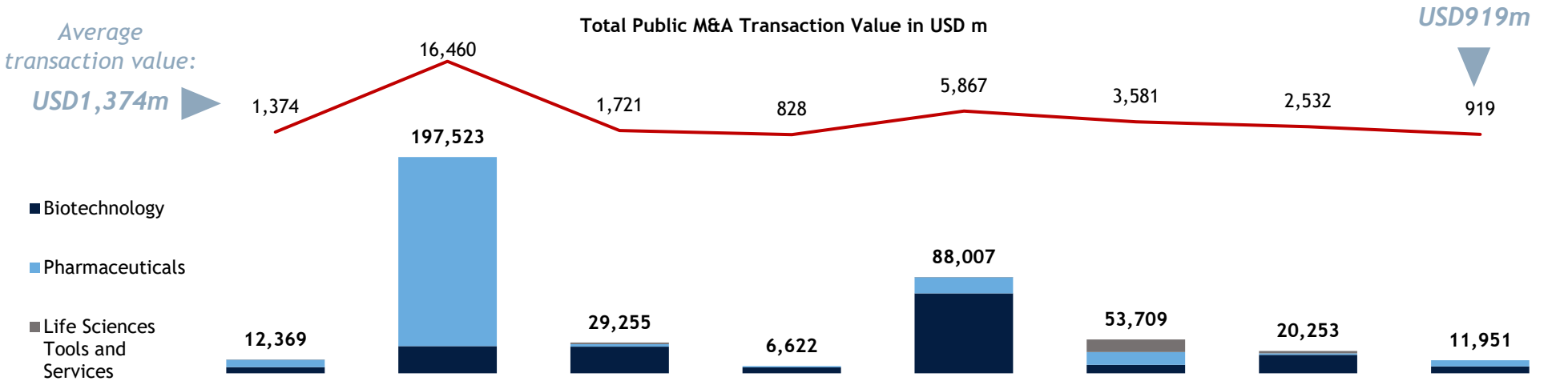
**Largest European Private Placements – That show investor interest immunotherapies for an oncology setting after strong Q1 interest in biological tools**

| Company | Transaction Type | Raised (USDm) | Lead Investors | Area of interest | Background |
|---|---|---|---|---|---|
| ImCheck Therapeutics | Series C | 100 | ANDERA Partners | Immunotherapy | ImCheck Therapeutics SAS designs and develops novel immunotherapeutics that target members of the butyrophilin (BTN) and BTN-like (BTNL) superfamily of checkpoint molecules and engage a specific type of immune cells, γ9δ2 T cells. |
| MiroBio | Series B | 97 | Medicxi | Immunotherapy | MiroBio is developing antibodies and variants to stimulate specific immune cell signals to harness the natural control mechanisms of the immune system. Their offering, I-ReSToRE, is a proprietary discovery platform including the Checkpoint Atlas™ to generate multiple checkpoint agonist candidates for the treatment of autoimmune diseases. |
| ImmunOs Therapeutics | Series B | 76 | GIMV, Samsara BioCapital and Lightspeed Ventures Partners | Oncology | ImmunOs Therapeutics AG, a clinical-stage biotechnology company, engages in the discovery of immunotherapies to enhance cancer treatment. |
| CDR-Life | Series A | 76 | Jeito | Oncology | CDR-Life Inc., a biotech company, engages in research and development of immuno-oncology therapies to harness the immune system. The company offers M-gager, an antibody technology to generate MHC-specific antibody-based T cell engagers against solid and liquid tumor cancer cells. |
| Tubulis | Series B | 63 | ANDERA Partners | Oncology | Tubulis researches, designs, and develops protein-drug conjugates by combining proprietary novel technologies with disease-specific biology. The company develops transformative antibody-drug conjugates (ADCs), which helps to identify novel protein-drug combinations for therapeutic application. |
| Prilenia Therapeutics | Series B | 53 | Forbion | CNS | Prilenia Therapeutics researches and develops products for movement disorders and neurodegenerative diseases. It offers Pridopidine for huntington disease, amyotrophic lateral sclerosis, Parkinson's disease levodopa induced dyskinesia, neurodegenerative eye disease, Parkinson's disease, rett syndrome, fragile X, and Alzheimer's disease. |

*Source: Capital IQ, Bryan, Garnier & Co Equity Research*

# PUBLIC M&A | A BUYER'S MARKET

**Half Annual US and European Public M&A healthcare transactions**




| # of Deals | 2018 | 2019 | | 2020 | | 2021 | | 2022 |
|---|---|---|---|---|---|---|---|---|
| | 2H | 1H | 2H | 1H | 2H | 1H | 2H | 1H |
| Biotechnology | 3 | 8 | 11 | 4 | 9 | 6 | 5 | 6 |
| Pharmaceuticals | 5 | 4 | 4 | 4 | 5 | 6 | 2 | 7 |
| Life Sciences Tools and Services | 1 | 0 | 2 | 0 | 1 | 3 | 1 | 0 |

## Summary of last quarter

Despite the early prediction that 2022 was going to be the year of M&A, this has yet to materialize. Corporates are continuing to adjust to the new realities of an uncertain, yet tightening macro and financial environment, higher than expected inflation, strengthening USD $, uncertain geopolitical environment and supply change constraints, which are the main forces driving volatility in the markets.

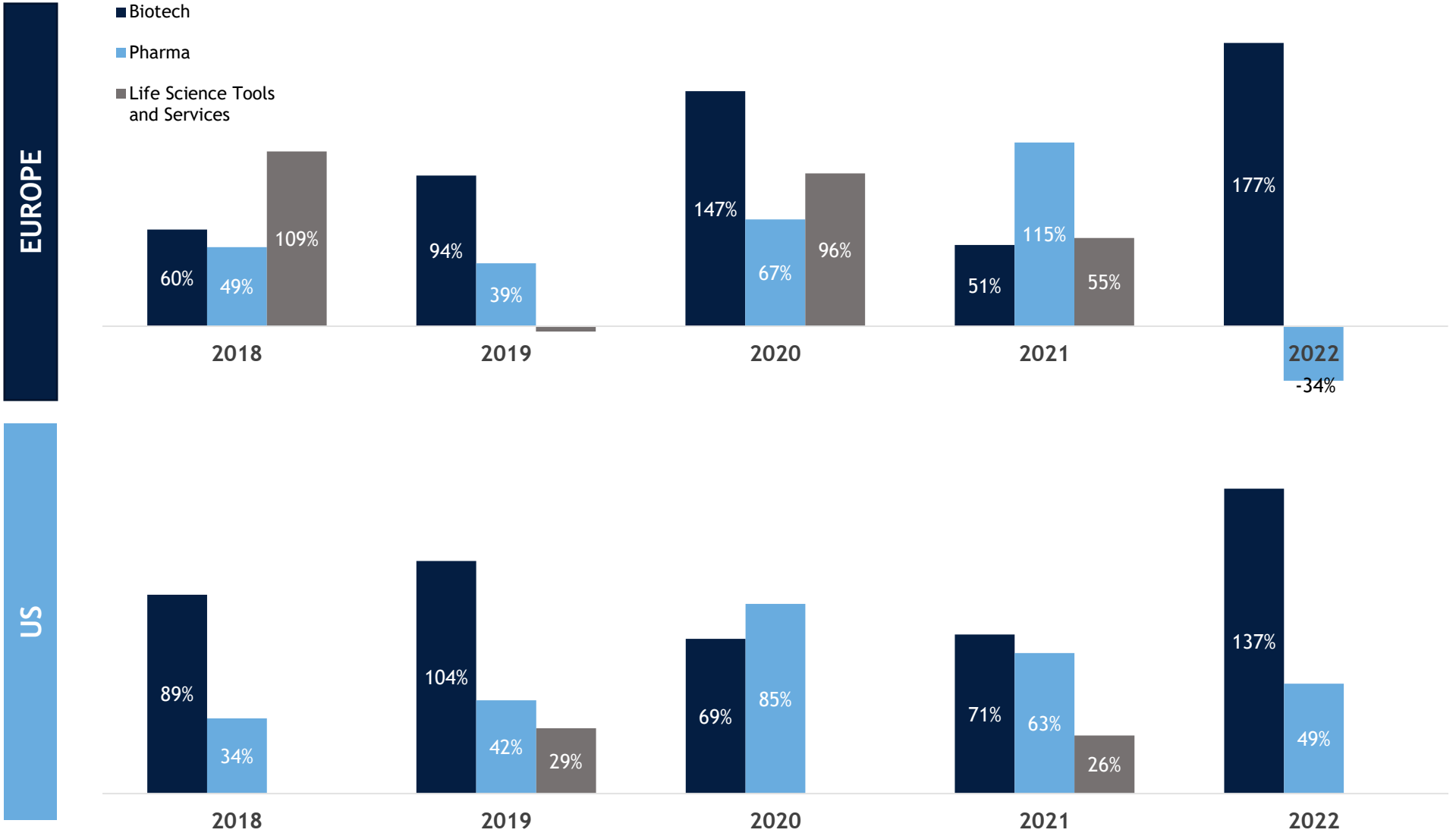
While mainstream news outlets have touted the fact that Big Pharma has enough dry powder to acquire all the small-to-mid-cap biotech players, our analysis shows that Big Pharma's does not have as much cash as it's popularly believed, due to the steady increase in leverage over the last 20 years to a resulting net debt / EBITDA ratio 57% above the median sector average compared to 2002. See page 10.

We note that the analysis supporting these clip-bait news articles fail to capture the wider dynamics driving biotech market valuations and M&A appetite. Many of the biotech's that have gone public over the last 2 years have been early-stage biotech's (see page XXX) with increased clinical, technology risk and often high cash burns – contributing to a higher ß factor. Furthermore, M&A for Big Pharma is not driven by valuations, it is driven by clinical data events, attractive science, fit with strategic priorities, availability of internal R&D funds / resources, funds required to get into the clinic etc…. Super cheap companies makes it easier to do M&A, but does not drive the process! (continued on page 23)


Source: Capital IQ, Bryan, Garnier & Co Equity Research

# BIOTECH M&A PREMIUMS HIGH REFLECTING LOW BASE

**Yearly public weighted average % M&A premiums 1 months before**

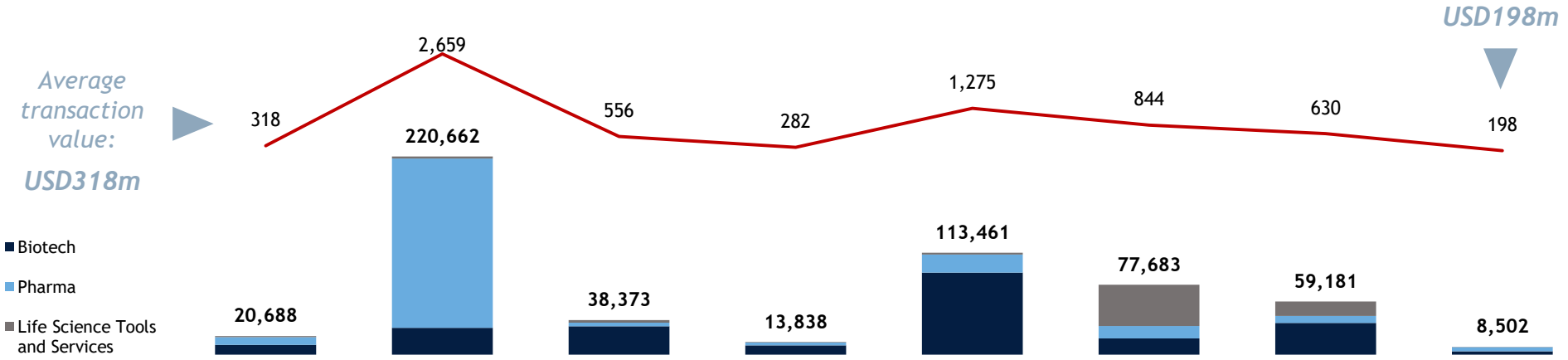





Source: Capital IQ, Bryan, Garnier & Co Equity Research

# PRIVATE M&A | REINFORCING THE FORT

**Half annual US and European private M&A healthcare transactions showing total transaction value USDm**




| # of Deals | 2018 | 2019 | | 2020 | | 2021 | | 2022 |
|---|---|---|---|---|---|---|---|---|
| | 2H | 1H | 2H | 1H | 2H | 1H | 2H | 1H |
| Biotechnology | 20 | 23 | 31 | 24 | 47 | 43 | 34 | 16 |
| Pharmaceuticals | 36 | 46 | 28 | 21 | 32 | 36 | 35 | 23 |
| Life Sciences Tools and Services | 9 | 14 | 10 | 4 | 10 | 13 | 25 | 4 |

## Summary of last quarter (Continued From Page 21)

Some of the notable public and private M&A transactions announced over the last quarter include (in addition to the ones named in the 1Q report):

- 5th Jul – Private - AstraZeneca / TeneoTwo (Teneobio spin off – which was acquired by Amgen for $900m) - $100m upfront + $1165m CVRs – Acquiring a Phase I, bi-specific CD19/CD3 antibody T-cell engager being developed in relapsed and refractory B-cell non-Hodgkin lymphoma, and hoping to improve on the PK/PD + toxicity profile of 1st generation bispecific blinatumomab (Blincyto, Amgen)
- 27th Jun – Public – Ipsen / Epizyme - $247m upfront + $171m CVRs – Acquiring an approved EZH2a inhibitor for relapsed or refractory follicular lymphoma with revenues of approx. $30.9m (2021)
- 23rd Jun – Public - invoX Pharma (Sino Biopharm) / F-Star Therapeutics - $161m – Acquiring the once "crown jewel of UK biotech" for it's bispecific and antibody modifying platform, alongside a mid-stage R&D pipeline
- 21st Jun - Private - Galapagos / Abound Bio – EUR 14m – Acquiring a fully human antibody-based library and biological drug discovery unit
- 21st Jun - Private - Galapagos / CellPoint – EUR 125m upfront + EUR 100m CVRs – Acquiring an automated, point-of-care manufacturing platform for cell and gene therapies
- 14th Jun – Private – Resmed / Medifox Dan - $1B – Acquiring a SaaS platform focused on patient and practice management
- 3rd Jun – Public - BMS / Turning Point Therapeutics - $4.1B – Acquiring repotrectinib, a TKI targeting ROS1 and NTRK gene mutations being developed in NSCLC (Phase I/II), advanced solid tumor and KRAS settings
- 31st May – Private – GSK / Affinivax - $2.1B upfront + $1.2B CVRs - Acquiring a Phase II ready 24-valent pneumococcal vaccine candidate


Source: Capital IQ, Bryan, Garnier & Co Equity Research

# US REGULATORY EVENTS STILL CHALLENGING

## Approvals

- Mixed score card for biosimilars/generics in Q2, with 2 CRLs (Medincell/TEVA & Hyloris/AFT) and one BLA withdrawal (XBrane)
- 2 CRLs for rare diseases (not clinical data for Camurus/Rhythm in AS & inspection readiness issues for Relief/Acer in UCD), but Amryt got a positive CHMP opinion for FILSUVEZ in EB, after a CRL from the FDA requesting a new trial few months ago
- Perfect for Idorsia's QUVIVIQ (3/3 in US/JP/EU), positive CHMP opinions for Calliditas' nefecon in IgAN (CMA), Oncopeptides' PEPAXTI (Full Approval), argenx' VYVGART in gMG (AChR+ pop.), Valneva's COVID vaccine, Formycon's biosimilar (assumedly the first Lucentis biosimilar to launch)
- One has to mention Yselty's EC approval, after some dithering from the authorities (required 2 CHMP opinions)

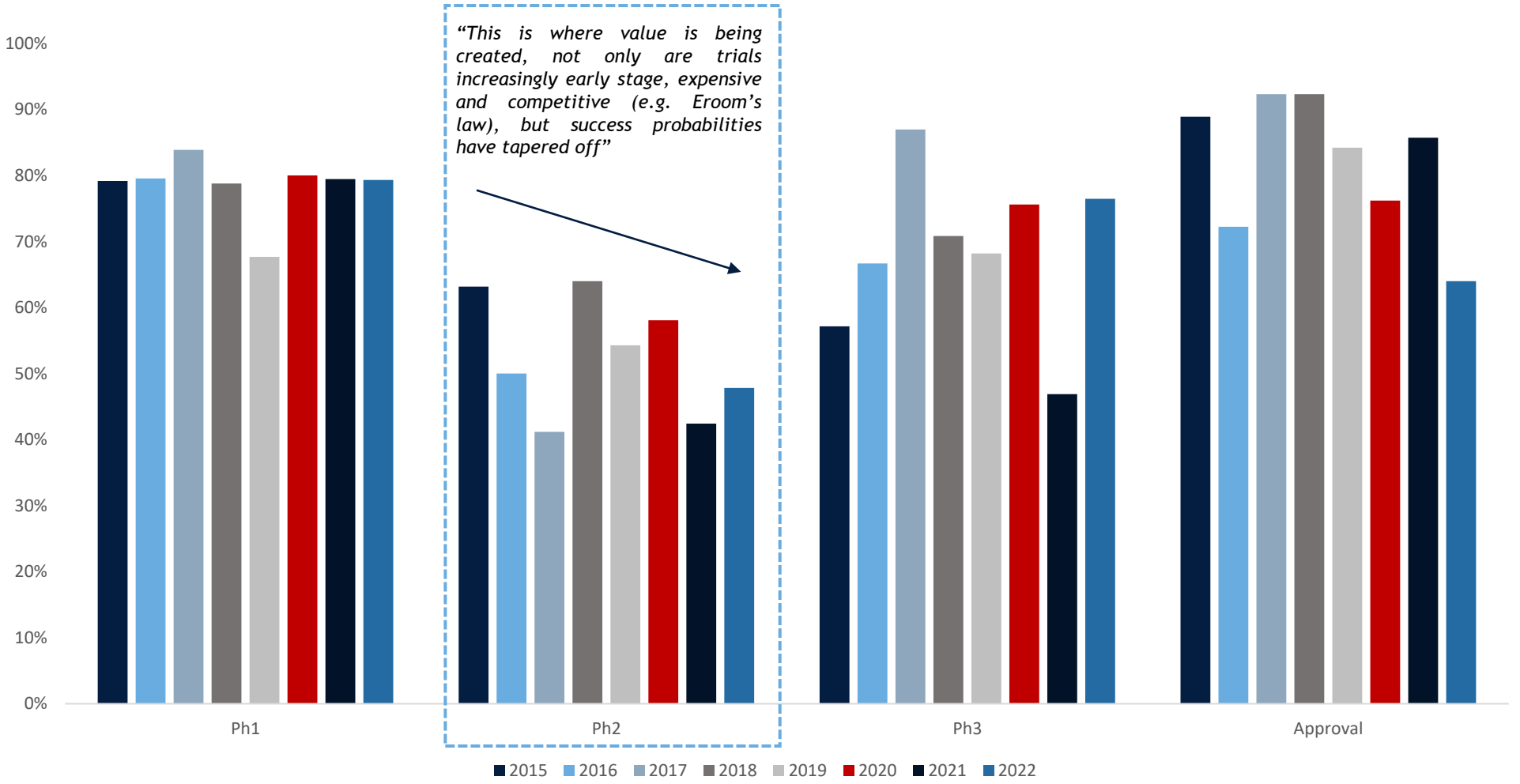
| Product Candidate | Indication(s) | Company | Applicant | Review Type | Territory | Final Decision | Decision Status |
|---|---|---|---|---|---|---|---|
| Bimekizumab | psoriasis | UCB | UCB | CRL (FDA) | US | 5/13/2022 | Rejected |
| mdc-IRM; TV-46000 | Schizophrenia (Maintenance) | MedinCell | Teva | CRL (FDA) | US | 4/19/2022 | Rejected |
| daridorexant (QUVIVIQ) | Insomnia | Idorsia | Idorsia | CHMP (EMA) | EU | 5/3/2022 | Approved |
| Nefecon (Kinpeygo) | IgA Nephropathy; Berger's disease | Calliditas Ther. | Calliditas Ther. | CHMP (EMA) | EU | 5/19/2022 | Approved |
| Xlucane | ARMD (Wet); Other Ophtalmological Conditions | XBrane Biopharma | XBrane Biopharma | Application withdrawal | US | 5/30/2022 | Application Withdrawn |
| setmelanotide FluidCrystal (IMCIVREE) | Obesity (Genetic); Bardet-Biedl Syndrome | Camurus | Rhythm Pharmaceuticals | Approval (FDA) | US | 6/16/2022 | Approved |
| setmelanotide FluidCrystal (IMCIVREE) | Obesity (Genetic); Alstroem Syndrome | Camurus | Rhythm Pharmaceuticals | CRL (FDA) | US | 6/16/2022 | Rejected |
| linzagolix (Yselty) | Uterine Fibroids; Heavy Menstrual Bleeding | ObsEva | ObsEva | Approval (EC) | EU | 6/17/2022 | Approved |
| ACER-001 | Urea Cycle Disorders | Relief Therapeutics | Acer Therapeutics | CRL (FDA) | US | 6/21/2022 | Rejected |
| setmelanotide FluidCrystal (IMCIVREE) | Obesity (Genetic); BBS; AS | Camurus | Rhythm Pharmaceuticals | Approval (EC) | EU | 6/22/2022 | Approved |
| AP101; Oleogel-S10 (FILSUVEZ) | EB (JEB; DEB) | Amryt Pharma | Amryt Pharma | Approval (EC) | EU | 6/23/2022 | Approved |
| melflufen (PEPAXTI) | R/R MM (4L+) | Oncopeptides | Oncopeptides | CHMP (EMA) | EU | 6/23/2022 | Approved |
| VLA 2001 | COVID-19/SARS-CoV-2 Infection (Prophylactic Vaccine; Primary Vaccination; Adults 18-50y) | Valneva | Valneva | CHMP (EMA) | EU | 6/24/2022 | Approved |
| efgartigimod (VYVGART) | gMG | argenx | argenx | CHMP (EMA) | EU | 6/24/2022 | Approved |
| isavuconazole (Cresemba) | Aspergillosis; Mucormycosis | Basilea Pharma. | Pfizer | Approval (NMPA) | CN | 6/24/2022 | Approved |
| FYB201 (ONGAVIA) | ARMD (Wet) | Formycon | Bioeq IP/AG | CHMP (EMA) | EU | 6/24/2022 | Approved |
| Maxigesic IV | Pain | Hyloris Pharma. | AFT Pharmaceuticals | CRL (FDA) | US | 6/30/2022 | Rejected |

Count: 17


Source: Biotellytics, Bryan, Garnier & Co Equity Research

# LATE STAGE SUCCESS RATES TRENDING DOWN

**Clinical chance of success across all multiple indications and phases in Europe**



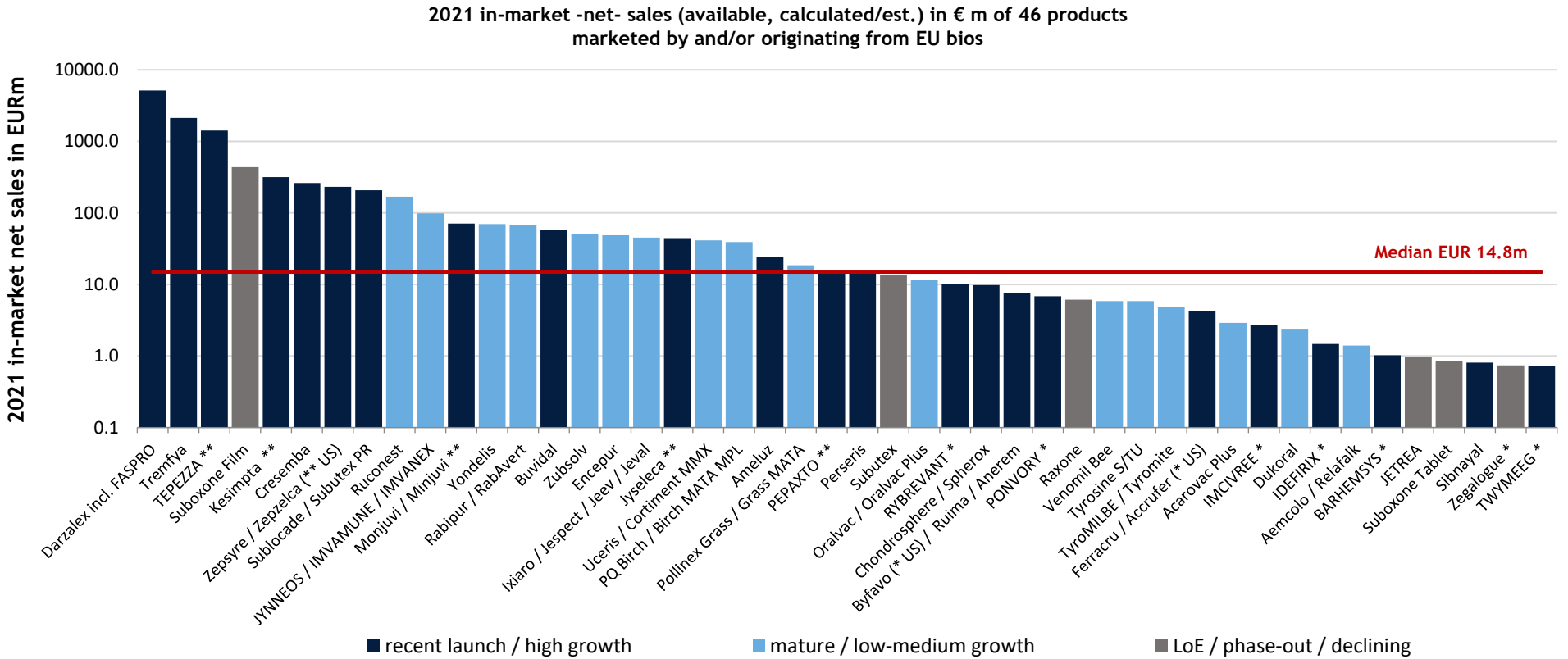



Source: Biotellytics, Bryan, Garnier & Co Equity Research

# EU DRUG SALES IN 2021

## High growth potential drugs already showing top of leaderboards in Europe

- 46 products with net sales number disclosed, or with the possibility to calculate/estimate them thanks to disclosed licensing terms (30% 2020+ launches), 3 blockbuster status (Darzalex, Tremfya, Tepezza)
- 4 out of top 6 (67%) marketed by Big Pharma, unsurprisingly
- Go-alone strategy by nano-to-smid-cap companies for 67% of the products in this sample
- Median annual sales of € 14.8m in 2021 for these products, with predominant launches by EBPs (Emerging BioPharma).






* 2021 launch, ** 2020 launch Source: Biotellytics, Bryan, Garnier & Co Equity Research

# EUROPEAN HEALTHCARE RESEARCH PLATFORM

## Coverage across the market cap and sub-sector spectrum and leading perspectives

**ALEX COGUT**

**HEAD OF HEALTHCARE EQUITY RESEARCH**

Previous experience co-head life sciences research at Kempen

**DYLAN VAN HAAFTEN**

**EQUITY ANALYST**

Previous experience as a research analyst in the Life Sciences and BioChemicals sectors at Kempen & Co

**JEAN-JACQUES LE FUR** PharmD

**EQUITY ANALYST**

Previous experience at Natixis as a Financial Analyst, Ipsen as VP Strategy, Oddo Securities and Roussel Uclaf

**KHALID DEOJEE**

**EQUITY ANALYST**

Previous experience as equity research analyst for Société de Bourse Gilbert Dupont (Société Générale)

**OLGA SMOLENTSEVA** PhD

**EQUITY ANALYST**

Previous experience as a sell-side analyst in the Healthcare sector at Invest Securities and H.C. Wainwright

**ERIC YOO** PharmD

**EQUITY ANALYST**

Previous experience as investment analyst in the Healthcare sector focus on European and US public equity at Third Eye Asset Management

**EDWARD HALL**

**EQUITY ANALYST**

Started his career in 2021 at Bryan Garnier, graduated from Durham University

| | ONCOLOGY | INFLAMMATORY METABOLIC | NEURO | OPHTHALMIC | INFECTIOUS DISEASE | DEVICES, TOOLS & SERVICES |
|---|---|---|---|---|---|---|
| PHARMA | Roche, AstraZeneca, NOVARTIS, SANOFI, basilea, gsk, ucb Pharma, acacia pharma, Genmab, IPSEN, ZEALAND | novo nordisk | | | | |
| BIOTECH | BIONTECH, Galápagos, morphosys, GENFIT, MediCell, valneva, Haldekhero PHARMA, dbv technologies, NANOBIOTIX, OSE, abivax, transgene, Celyad, onxeo, Bone Therapeutics, poxel, LYSOGENE, AELIS FARMA, Sensorion, Geneuro, Theranexus, GenSight, nicox | | | | | |
| MEDTECH/ DIAGNOSTICS | | | | | | medartis, XVIVO, eurofins, median, BIOCARTIS, BIOCORP, PIXIUM, MEDIOS, BICO |

# OUR COVERAGE TODAY

## Coverage across the market cap and sub-sector spectrum and leading perspectives

### Healthcare - 52

| | Phamaceuticals | Current Price* | TP | Upside | Analyst |
|---|---|---|---|---|---|
| **BUY** | UCB | 84.7 | 121 EUR | 43% | JJLF |
| | ROCHE HOLDING | 325.2 | 424 CHF | 30% | JJLF |
| | ASTRAZENECA | 10,980.0 | 10,500 p | -4% | JJLF |
| | MEDINCELL | 5.1 | 18 EUR | 253% | DVH |
| | SANOFI | 99.2 | 110 EUR | 11% | JJLF |
| | BASILEA | 39.1 | 52 CHF | 33% | DVH |
| **NEUTRAL** | GLAXOSMITHKLINE | 1,695.0 | 1,752 p | 3% | JJLF |
| | IPSEN | 95.4 | 106 EUR | 11% | JJLF |
| | NOVARTIS | 81.5 | 85 CHF | 4% | JJLF |
| | NOVONORDISK | 810.2 | 703 DKK | -13% | JJLF |

| | Medtech and Services | Current Price* | TP | Upside | Analyst |
|---|---|---|---|---|---|
| **BUY** | MEDARTIS | 77.4 | 175 CHF | 126% | DVH |
| | MEDIAN TECHNOLOGIES | 10.6 | 40 EUR | 277% | KD |
| | MEDIOS | 26.5 | 65 EUR | 145% | DVH |
| | XVIVO PERFUSION | 228.5 | 400 SEK | 75% | DVH |
| | BICO GROUP | 84.3 | 169 SEK | 100% | EY |
| | ONWARD MEDICAL | 5.1 | 17 EUR | 234% | EH |
| **NEUTRAL** | BIOMERIEUX | 104.3 | U.R. EUR | N/A | DVH |
| | BIOCARTIS | 1.7 | 2.5 EUR | 47% | DVH |
| **CORPORATE** | PIXIUM VISION | 0.5 | 3.4 EUR | 554% | JJLF |

| | Biotech | Current Price* | TP | Upside | Analyst |
|---|---|---|---|---|---|
| **BUY** | AELIS FARMA | 11.1 | 21 EUR | 89% | DVH |
| | BIONTECH | 166.6 | 269 USD | 61% | OS |
| | CELYAD | 1.6 | 11 EUR | 596% | OS |
| | DBV TECH. | 4.5 | 9 EUR | 101% | JJLF |
| | GALAPAGOS | 54.0 | 65 EUR | 20% | DVH |

| | Biotech | Current Price* | TP | Upside | Analyst |
|---|---|---|---|---|---|
| **BUY** | GENEURO | 4.468 | 4 EUR | -10% | KD |
| | GENFIT | 2.29 | 10 EUR | 337% | JJLF |
| | GENSIGHT | 2.292 | 10 EUR | 336% | DVH |
| | INNATE PHARMA | 2.764 | 12 EUR | 334% | OS |
| | INVENTIVA | 5.6 | 26 EUR | 367% | OS |
| | MORPHOSYS | 20.9 | 72 EUR | 244% | DVH |
| | NICOX | 1.9 | 11 EUR | 495% | DVH |
| | VALNEVA | 10.2 | 25 EUR | 144% | JJLF |
| | ZEALAND | 109.9 | 300 DKK | 173% | JJLF |
| **NEUTRAL** | GENMAB | 2,514.0 | 2,150 DKK | -14% | DVH |
| **CORPORATE** | 4D PHARMA | 16.7 | 360 p | 2061% | OS |
| | ABIVAX | 9.1 | 52 EUR | 475% | DVH |
| | BIOCORP | 24.1 | 36 EUR | 49% | JJLF |
| | BONE THERAPEUTICS | 0.3 | 3 EUR | 871% | DVH |
| | HEIDELBERG PHARMA | 5.0 | 14.0 EUR | 179% | OS |
| | LYSOGENE | 0.7 | 11 EUR | 1371% | JJLF |
| | ONCODESIGN | 13.9 | 15 EUR | 8% | DVH |
| | ONXEO | 0.3 | 1 EUR | 280% | OS |
| | OSE IMMUNO | 6.2 | 17.0 EUR | 173% | OS |
| | POXEL | 1.6 | 14.8 EUR | 828% | JJLF |
| | SENSORION | 0.4 | 5 EUR | 1155% | DVH |
| | THERANEXUS | 2.1 | 20.0 EUR | 857% | DVH |

| | Nursing | Current Price* | TP | Upside | Analyst |
|---|---|---|---|---|---|
| **BUY** | KORIAN | 13.8 | 40 EUR | 189% | BLR |
| | ORPEA | 22.0 | 65 EUR | 196% | BLR |
| | LNA SANTE | 33.6 | 63 EUR | 88% | BLR |
| **CORPORATE** | BLUELINEA | 1.1 | 8.8 EUR | 700% | BLR |

**Last close price: 07/13/2022 Source: Bryan, Garnier & Co Equity Research*

# BG&CO'S SELECTED HEALTHCARE TRANSACTIONS

## Coverage across the market cap and sub-sector spectrum and leading perspectives

### M&A

| | | | | | | |
|---|---|---|---|---|---|---|
| oncodesign | GRUNDIUM | Qare | CINCLIS | BlueBee | SYMETIS | |
| *CRO division acquired by* elyan | *Acquired by* Healthcare Partners | *Acquired by* Health Hero | *Acquired by* CELLINK LIFE SCIENCES | *Acquired by* illumina | *IPO & subsequent acquisition by:* Boston Scientific | |
| **€100 000 000** | **Not Disclosed** | **Not Disclosed** | **€70 000 000** | **Not Disclosed** | **$435 000 000** | |
| *Pending Sole Advisor to Seller* | *Sole Advisor to Seller* | *Sole Advisor to Seller* | *Sole Advisor to Seller* | *Sole Advisor to Seller* | *Sole Advisor on a Dual-Track* | |

### Capital Markets

| | | | | | | |
|---|---|---|---|---|---|---|
| AELIS FARMA | MEDIOS | valneva | BICO | abivax | BIONTECH Innovative Manufacturing Services | |
| *Initial Public Offering* EURONEXT | *Follow-On Offering* BÖRSE FRANKFURT | *Initial Public Offering & Follow-On Offering* Nasdaq | *Follow-On Offering* Nasdaq | *Follow-On Offering & Convertible Bonds* EURONEXT | *Initial Public Offering & Follow-On Offering* Nasdaq | |
| **€25 000 000** | **€93 000 000** | **$210 000 000** | **$200 000 000** | **€85 000 000** | **$670 000 000** | |
| *Joint Global Coordinator & Joint Bookrunner* | *Lead Joint Bookrunner* | *Joint Bookrunner* | *Joint Bookrunner* | *Joint Global Coordinator & Joint Bookrunner* | *Joint Bookrunner & Co-Manager* | |

### Private Placement

| | | | | | | |
|---|---|---|---|---|---|---|
| GANYMED ROBOTICS | WANDERCRAFT | cleerly | INOTREM control innate immunity | HighLife | moderna | |
| *Private Placement* | *Private Placement* QUADRANT bpifrance | *Private Placement* VENSANA LRVHEALTH | *Private Placement* INVUS | *Private Placement* LISVF andera SECTORAL ASSET MANAGEMENT | *Private Placement* BB Biotech | |
| **€21 000 000** | **$45 000 000** | **$43 000 000** | **$43 000 000** | **€36 000 000** | **$75 000 000** | |
| *Sole Financial Advisor* | *Sole Financial Advisor* | *Sole Financial Advisor* | *Sole Financial Advisor* | *Sole Financial Advisor* | *Sole Placement Agent* | |


## LONDON

16 Old Queen Street
London, SW1H 9HP
UK

T: +44 20 7332 2500
F: +44 20 7332 2559

Authorized and regulated by the Financial Conduct Authority (FCA)

## PARIS

26 Avenue des Champs-Elysées
75008 Paris
France

T: +33 1 56 68 75 00
F: +33 1 56 68 75 01

Approved and regulated by the Autorité des marchés financiers (AMF) and the Autorité de Contrôle prudentiel et de résolution (ACPR)

## MUNICH

Widenmayerstrasse 29
80538 Munich
Germany

T: +49 89 242 262 11
F: +49 89 242 262 51

## NEW YORK

750 Lexington Avenue
New York, NY 10022
USA

T: +1 212 337 7000
F: +1 212 337 7002

FINRA and SIPC member

## STOCKHOLM

Malmskillnadsgatan 32
6th Floor
111 51 Stockholm
Sweden

T: +46 722 401 080

## OSLO

Beddingen 8, Aker Brygge
Postbox: 0117 Oslo
Oslo 0250
Norway

T: +47 21 01 64 00

## REYKJAVIK

Höfðatorg, Katrínartún 2
105 Reykjavik
Iceland

T: +354 554 78 00

## PALO ALTO

394 University Avenue
Palo Alto
California (CA) 94 301
USA

T: +1 650 283 18 34

FINRA member

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (I)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| ABIVAX | Obefazimod | mRNA splicing activity (miR-124) | Autoimmune | Crohn's disease (CD) | 2022 | Phase II trial commences | DvH, EY |
| | | | | Ulcerative Colitis (UC) | Q2'22 | [COMPETITOR] Morphic phase II trial starts for MORF-057 anti-integrin drug | |
| | | | | Ulcerative Colitis (UC) | Q2'22 | [COMPETITOR] readout from Immunic's vidofludimus | |
| | | | | Ulcerative Colitis (UC) | Q3'22 | Phase III trial commences | |
| | | | | Ulcerative Colitis (UC) | H2'22 | [COMPETITOR] final etrasimod (Pfizer) readout from pivotal ELEVATE-12 study, basis for filing | |
| | ABX196 | Synthetic agonist of iNKT cells | Oncology | Hepatocellular carcinoma | Q3'23 | Results in from phase I/II trial | |
| AELIS FARMA | AEF0117 | Inhibitors of the CB 1 receptor | Neurology, CNS, addiction | Cannabis-Related Disorders (CRD) | H1'22 | CRD phase 2b trial start | EY |
| | | | | Cannabis-Related Disorders (CRD) | 2024 | PhIIb completed, potential 100mUSD milestone received from Indivior | |
| | AEF0217 | Inhibitors of the CB 1 receptor | Neurology, CNS, addiction | Down syndrome, Fragile X syndrome | Q3'22 | Phase I topline results In healthy volunteers (HV) | |
| | | | | Down syndrome, Fragile X syndrome | 2023 | Phase I/IIb initiates | |
| | AEF0317 | to be disclosed | to be disclosed | to be disclosed | 2024 | Company plans to start multiple trials of their other CB1-SSi assets | |
| BASILEA | Lisavanbulin | End-Binding protein 1 (EB1) antagonist | Oncology | Glioblastoma | H1'22 | Phase II interim results | DvH, EY |
| | | | | Glioblastoma | H1'22 | Recommended dose established | |
| | Derazantinib | FGFR1–3 kinase inhibitor | Oncology | Bladder, gastric cancer | H2'22 | Phase II Top-line results FIDES-01 and FIDES-02 trial with atezolizumab in patients refractory to prior FGFR inhibitors | |
| | BAL0891 | Dual TTK/PLK1 mitotic checkpoint inhibitor | Oncology | Solid tumours | H1'22 | Phase I initiated | |
| | Ceftobiprole | 5th-generation cephalosporine | Infection | Acute bacterial skin and skin structure infections (ABSSI) and Staphylococcus aureus bacteraemia (SAB) | 2023 | FDA approval | |



As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (II)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| BIONTECH | BNT111 | mRNA cancer vaccine | Oncology | Melanoma | 2022 | Topline results from Phase II trial in first line setting with pembrolizumab, which we expect it to cover immunogenecity/ neoantigen identification. | OS |
| | BNT112 | mRNA cancer vaccine | Oncology | Prostate cancer | 2023 | Phase I trial data | |
| | BNT113 | mRNA cancer vaccine | Oncology | Relapsed or metastatic head and neck squamous cell carcinoma | 2025 | Phase II trial data | |
| | BNT115 | mRNA cancer vaccine | Oncology | Ovarian cancer | 2023 | Phase I trial data | |
| | BNT161 | quadrivalent mRNA vaccine | Infection | Seasonal influenza | 2022 | Phase I first safety/ immunogenecity data | |
| | BNT164 | mRNA vaccine | Infection | Tuberculosis | H2'22 | Phase I trial data | |
| | BNT211 | autologous CAR-T cell | Oncology | CLDN6-expressing solid tumors | H2'22 | Phase I/II study update - efficacy and CARVac activity | |
| | | | | Unresectable or metastatic melanoma | 2023 | Phase I data in NEO-PTC-01 trial | |
| | BNT311 (GEN 1046) | bispecific targeting 4-1BB and PD-L1 | Oncology | Relapsed or metastatic non-small cell lung cancer | 2023 | Data readout | |
| | BNT312 (GEN 1042) | bispecific targeting 4-1BB and PD-L1 | Oncology | Solid tumours | 2023 | Data readout | |
| | BNT321 | bispecific targeting CD40 and 4-1BB | Oncology | Pancreatic cancer | 2024 | Data readout | |
| | Shingles program | mRNA vaccine | Infection | Shingles | H2'22 | Phase I commences | |
| | HSV-2 program | mRNA vaccine | Infection | Shingles | H2'22 | Phase I commences | |
| | Malaria program | mRNA vaccine | Infection | Shingles | H2'22 | Phase I commences | |
| CELYAD | CYAD-211 | Allogeneic anti-BCMA CAR T | Oncology | Relapsed or refractory (R/R) multiple myeloma | H2'22 | Phase I preliminary data for expansion cohort (IMMUNICY-1) | OS, EY |
| | | | | Relapsed or refractory (R/R) multiple myeloma | 2023 | [COMPETITOR] data for UCARTCS1A (ALLOGENE) | |
| | CYAD-101 | Allogeneic CAR-T with TIM modification | Oncology | Colorectal cancer | 2022 | Update on clinical hold of KEYNOTE-B79 trial | |
| | CYAD-203 | Allogeneic shRNA-based, IL-18-armored NKG2D CAR T | Oncology | Solid tumours | H2'22 | Submission of an IND application to the FDA | |
| DBV TECH | Viaskin Peanut | Peanut protein atopy patch | Allergy | Peanut allergy | Q1'23 | Potential FDA filing of EPITOPE study in toddlers | JJLF |
| | DBV1605 | Atopy Patch Test | Allergy | Dairy milk allergy | 2023 | APTITUDE study data testing milk allergy in children | |



*As of 12/07/2022*

*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (III)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| GALAPAGOS | GLPG2737 | Novel C2 CFTR corrector | Metabolic disease | Autosomal dominant polycystic kidney disease | Q1'23 | Topline results phase II (MANGROVE trial) | DvH, EY |
| | GLPG4399 | Selective SIK3 inhibitor | To be disclosed | To be disclosed | H2'22 | Ph I safety data from healthy subjects | |
| | GLPG3970 | SIK3 inhibitor | Autoimmune | Sjogren syndrome (SS) and systemic lupus erythematosus (SLE) | H2'22 | Data of Phase II proof-of-concept TAPINOMA trial | |
| | GLPG3667 | TYK2 kinase domain inhibitor | Autoimmune | Psoriasis and ulcerative colitis | 2022 | Phase II initiated | |
| | THR-687 | pan-RGD integrin antagonist | Opthalmology | Diabetic Macular Oedema | H2'22 | Data from part A of phase II study | |
| | | | | | | | |
| GENEURO | Temelimab | Antibody against CTLA-4 | Autoimmune | Multiple sclerosis | Q3'22 | PK/PD data to enrich ProTect-MS analysis after recent topline data | KD |
| | | | | Multiple sclerosis | Q1'23 | Data published on long-term Extension of Study | |
| | GNK301 | Anti-human endogenous retrovirus (HERV-K) antibody | Neurology | Amyotrophic lateral sclerosis (ALS) | 2023 | GeNeuro has not yet provided concrete update on the initiation of a clinical study. We expect a trial initiation during 2023. | |
| | | | | | | | |
| GENFIT | Nitazoxanide | Synthetic benzamide with antiparasitic activity | Metabolic disease | Acute-on-chronic liver failure | Q3'22 | Phase I data | JJLF |
| | | | | Acute-on-chronic liver failure | Q1'23 | Phase II proof of concept study initiation | |
| | GNS561 | PPT-1 (Palmitoyl Protein Thioesterase-1) inhibitor | Oncology | Cholangiocarcinoma | Q4'22 | Phase Ib/II trial commences | |
| | | | | Cholangiocarcinoma | H1'22 | CCA program starts recruitment | |
| | Elafibranor | PPARα/PPARδ dual agonist | Metabolic disease | Primary Biliary Cholangitis (PBC) and Hepatic Fibrosis | Q2'23 | Phase III ELATIVE - Top-Line Results | |



As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (IV)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| GENMAB | Epcoritimab | Bispecific antibody for CD3 and CD20 | Oncology | Diffuse large B cell lymphoma | H2'22 | Filing with FDA for use as a monotherapy, enabling approval in 2023 (US) and 2024 (EU). | DvH, EY |
| | | | | Diffuse large B cell lymphoma | H2'22 | [COMPETITOR] Roche plans to file glofitamab | |
| | Teclistamab | Bispecific antibody for BCMA and CD3 | Oncology | Relapsed or refractory (R/R) multiple myeloma | 2022 | EU and US approval, Jansen royalties commence | |
| | Camidanlumab Tesirine | CD25 antibody-drug conjugate | Oncology | Relapsed or refractory (R/R) hodgkin lymphoma | H2'22 | Phase II trial preliminary results | |
| | CD37 HEXABODY | next-generation CD37-specific IgG1 molecule | Oncology | Relapsed or refractory (R/R) multiple myeloma | 2022 | First data expected | |
| | AMG 714 | anti-IL-15 antibody | Autoimmune | Coeliac disease | Q4'22 | Data Phase II/III, potential milestones | |
| | Tidvak (tisotumab vedotin) | Tissue factor antibody-drug conjugate | Oncology | Solid tumours | 2022 | Data readout | |
| | Amivantamab (Jansen) | Bispecific antibody for EGFR and MET | Oncology | Oesophagogastric Cancer | Q1'23 | Topline results from phase II study | |
| | CD38 HEXABODY | next-generation CD38-specific IgG1 molecule | Oncology | Multiple myeloma | Q3'23 | Topline results phase I open label trial | |
| | Inclacumab | P-selectin antibody | Haematology | Sickle Cell Disease and Recurrent Vaso-occlutive Crises | 2024 | Phase III results | |
| | Mim8 | anti-FIXa/anti-FX bispecific antibody | Haematology | Haemophilia A | 2024 | Phase III results | |
| | Tepezza (teprotumumab) | Anti-IGF-1R antibody | Autoimmune | Thyroid eye disease | H2'23 | OPTIC-J trial phase III data readout | |
| | | | | | | | |
| GENSIGHT | GS030 | Gene therapy encoding photoactivatable channel rhodopsin | Opthamology | Retinitis pigmentosa | Q2'22 | Phase I/II PIONEER study recruitment still in progress | DvH |
| | | | | Retinitis pigmentosa | H2'22 | PIONEER study one year follow up data | |
| | | | | Retinitis pigmentosa | 2023 | Final Results PIONEER study | |
| | Lumevoq | AAV vector gene therapy delivering ND4 gene | Opthamology | Leber hereditary optic neuropathy (LHON) | Q3'22 | Restart of validation batches, regulatory review of Marketing Authorisation Application will resume | |
| | | | | LHON | H2'22 | RESTORE (RESCUE & REVERSE long term follow up) data | |
| | | | | LHON | H1'23 | Potential EMA approval and launch | |
| | | | | LHON | Q3'23 | CHMP opinion expected on manufacturing of batches | |
| | | | | LHON | 2023 | FDA approval and launch | |
| | | | | LHON | 2024 | Final data from REFLECT trial | |

*As of X/X/2022*

*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (V)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| HEIDELBERG | HDP-101 | Anti-BCMA Antibody-Drug Conjugate | Oncology | Multiple myeloma | Q4'22 | The first safety data, likely at ASH 2022 | OS |
| | | | | Multiple myeloma | 2023 | Expansion cohort recruiting | |
| | MGTA117 | CD117 antibody | Oncology | Relapsed or refractory aute myeloid leukemia (AML) | Q4'22 | Phase I data on safety and potentially some efficacy. | |
| | TLX250-CDx | Radiotagged anti-PMSA antibody | Oncology | Renal Cell Cancer (RCC) imaging | H2'22 | Phase III ZIRCON - Top Line Results | |
| HUMANIGEN | Lenzilumab | GM-CSF antibody | Oncology, infection | COVID | H2'22 | Data from ACTIV-5/BET-B study. Positive readout could strengthen EUA resubmission with the FDA. | OS |
| | | | | COVID | H2'22 | Data from C-SMART study | |
| | | | | Non-hodgkin lymphoma | H2'22 | Data from registrational SHIELD trial | |
| | | | | Acute graft versus host disease | H2'22 | Data from RATing trial | |
| INNATE PHARMA | Monalizumab | NKG2A receptor antibody | Oncology | Relapsed/metastatic head and neck squamous cell carcinoma (r/m SCCHN) | H2'22 | Interim data phase II INTERLINK study, could trigger USD50m milestone payment from AZ | OS, EY |
| | | | | Non-small cell lung cancer (NSCLC) | 2022 | NEOCOAST study data, could expand use into neoadjuvant NSCLC | |
| | | | | r/m SCCHN | 2025 | Phase II data UPSTREAM trial | |
| | | | | Unresectable, stage 3 NSCLC | 2026 | Phase II data PACIFIC-9 trial | |
| | Lacutamab | KIR3DL2 antibody | Oncology | Mycosis fungoides (MF) and Sézary syndrome (SS) | H2'22 | Preliminary data from ph 2 TELLOMAK study, SS cohort could have registrational potential | |
| | | | | R/R Peripheral T Cell Lymphoma | 2025 | Phase II data | |
| | IPH5201 | CD39 antibody | Oncology | Lung cancer | H2'22 | Phase II initiated | |
| | | | | Solid tumour | 2022 | Phase I topline results | |
| | IPH65 | NK cell engager | Oncology | To be disclosed | 2023 | Moving into the clinic | |



As of X/X/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (VI)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| INVENTIVA | Lanifibranor | PPAR agonist | Metabolic disease | Nonalcoholic steatohepatitis (NASH) and type II diabetes | H2'23 | Phase II NATIVE3- final results | JJLF |
| | | | | NASH | H2'24 | Phase III NATIVE3- Top-Line Results | |
| | | | | NASH | H2'25 | NDA submission | |
| | Cedirogant/ABBV-157 | RORγt inverse agonist | Autoimmune | Chronic plaque psoriasis | Q1'23 | Phase IIb dose-ranging study data | |
| | Odiparcil | Indirect thrombin inhibitor | Metabolic disease | Mucopolysaccharidosis (MPS) | 2022 | Program update | |
| | | | | | | | |
| LYSOGENE | LYS-SAF302 | AAV carrying SGSH gene | Metabolic disease | Mucopolysaccharidosis type IIIA (MPS IIIA), or Sanfilippo syndrome type A | Q3'22 | Phase II/III AAVance topline data main cohort | JJLF, EY |
| | LYS-GM101 | AAV carrying GLB1 gene | Neurology | Infantile GM1 gangliosidosis | Q1'23 | Phase I/II commence | |
| | | | | | | | |
| MORPHOSYS | Monjuvi | CD-19 antibody | Oncology | Relapsed or Refractory Diffuse Large B-cell Lymphoma (DLBCL) | H1'22 | Top-line results for Phase III frontMIND trial, dosed with Lenalidomide | DvH, EY |
| | | | | Relapsed or Refractory DLBCL | H2'22 | B-MIND phase III data | |
| | | | | Non-hodgkin lymphoma | 2023 | Phase III results | |
| | | | | Lymphoma | 2023 | Phase III results | |
| | | | | Lymphoma | 2024 | Final Phase III results | |
| | Felzartamab | CD38 antibody | Metabolic disease | Membranous nephropathy | H2'22 | Phase Ib/II results from M-PLACE study | |
| | | | | IgA Nephropathy | 2023 | Phase Ib/II results | |
| | Pelabresib | BET bromodomain inhibitor | Oncology | Relapsed or refractory myelodysplastic syndrome | 2023 | Data from dose escalation study | |
| | | | | Myelofibrosis (MF) | 2024 | Phase III Top-line data | |
| | Gantenerumab | Aß fibril antibody | Neurology | Alzheimer's disease | H2'22 | Phase III GRADUATE 1 & 2 Top-Line Results, MAA Submission (Europe) and NDA/BLA Filling | |
| | Otilimab | GM-CSF antibody | Autoimmune | Rheumatoid arthritis | H2'22 | Phase III ContRAst trial, first readout | |



As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (VII)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| NICOX | NCX 470 | Nitric oxide (NO)-donating prostaglandin analogue | Opthamology | Open-angle glaucoma and ocular hypertension | Q1'23 | Phase III Mont Blanc trial top-line results | DvH, EY |
| | | | | Open-angle glaucoma and ocular hypertension | 2023 | Phase II Denali trial top-line results | |
| ONCODESIGN | ODS-101 | RIPK2 inhibitor | Autoimmune | Inflammatory bowel disease | 2022 | Pre-clinical Trial data / Start of Ph I and associated milestone | DvH, EY |
| | | | | Inflammatory bowel disease | TBC | Following the LRRK2 program in partnership with Servier, which is progressing with milestones (Phase I expected in 2022), Oncodesign is focused on securing a partnership for the RIPK2 program, and on starting new programs associated with Nanocyclix. | |
| | LRRK2 program | | | | 2022 | Phase I trial for the LRRK2 program expected | |
| ONXEO | AsiDNA | DNA Repair Inhibitor | Oncology | Relaped ovarian cancer | H2'22 | Onxeo has yet to provide an update but phase I/II REVOCAN results in second line maintenance setting can be expected | OS, EY |
| | | | | PARP-resistant ovarian, breast and prostate cancers | H2'22 | Onxeo cleared IND and we anticipate intiation of the study in the US | |
| | OX400 | PARP inhibitor | Oncology | To be disclosed | 2024 | Clinical entry | |
| OSE IMMUNO | FR104 | CD28 antibody | Immunology | Transplant rejection | 2022 | Phase I/II trial initiation | OS |
| | | | | Rheumatoid arthritis | H2'22 | Phase I trial initiation | |
| | OSE-279 | anti-PD1 antibody | To be disclosed | To be disclosed | 2022 | Phase I trial initiation | |
| | OSE-127 | IL-17 alpha antibody | Autoimmune | Ulcerative colitis | 2023 | Phase II data, defines the future of the program and in-licensing option by Servier | |
| | | | | Sézary syndrome | 2023 | Phase II data, defines the future of the program and in-licensing option by Servier | |
| | OSE-230 | CMKLR1 antibody | Autoimmune | Inflammation | 2023 | Phase I trial initiation | |
| | Tedopi | neo-epitope-based vaccine | Oncology | Non-small cell lung cancer | 2024 | Phase II - COMBI-TED (Italy) Top-Line Results | |



As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIOTECH COVERAGE (VIII)

| Stock | Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|---|
| POXEL | PXL065 | mitochondrial pyruvate carrier (MPC) inhibitor | Metabolic disease | Nonalcoholic steatohepatitis (NASH) | Q3'22 | Phase II - DESTINY 1 - Topline Results - NASH | JJLF |
| | | | | N/A | Q3'22 | 505(b)(2) pathway filing | |
| | | | | Adrenoleukodystrophy | H2'22 | Phase IIa - PoC Study commences | |
| | | | | Adrenoleukodystrophy | H1'23 | Phase IIa - PoC Study - Top-Line Results | |
| | PXL770 | AMPK activator | Metabolic disease | Adrenoleukodystrophy | Q4'22 | Phase IIa - PoC Study - Top-Line Results | |
| SENSORION | SENS-401 | 5-HT3 receptor antagonist (setron family) and calcineurin inhibitor | Hearing disorders | Sensorineural hearing loss | H1'22 | [COMPETITOR] Akuous AK-OTOF IND submission | DvH |
| | | | | Sensorineural hearing loss | H2'22 | Study commences in patients scheduled for cochlear implantation | |
| | | | | Cisplatin induced ototoxicity | H2'22 | Phase II submit CTA | |
| | OTOF | AAV encoding otoferlin protein | Hearing disorders | Otoferlin deficiency | H1'23 | IND submission | |
| THERANEXUS | BBDF 101 | Transcription factor EB (TFEB) activator | Rare disease | Batten Disease | Q4'22 | Phase III trial begins | DvH |
| TRANSGENE | TG6002 | Oncolytic vaccinia virus with suicide gene FCU1 | Oncology | Colorectal Cancer (CRC) | H2'22 | Phase I/IIa IV route of administration data | OS |
| | | | | Colorectal Cancer (CRC) | H1'23 | Phase I/IIa IHA route of administration data | |
| | TG4050 | Therapeutic vaccine | Oncology | Ovarian cancer | H1'23 | Phase I data for use in a second line setting | |
| | | | | HNSCC (HPV-negative) | H1'23 | Phase I data for use in a second line setting | |
| | TG4001 | Vaccine targeting HPV E6 and E7 | Oncology | Relapsed or metastatic HPV+ tumours | H1'23 | Phase II data | |
| VALNEVA | VLA1553 | Vaccine | Infection | Chikungunya virus | H2'22 | [COMPETITOR] Emergent BioSolutions reports phase II data | JJLF |
| | VLA15 | Vaccine | Infection | Lyme disease | Q3'22 | Phase III commences | |
| | | | | Lyme disease | H2'23 | Phase III - Top-Line Results – Lyme disease vaccine | |
| ZEALAND | Zegalogue | Glucagon analogue | Metabolic disease | Diabetes, hypoglycaemia and hyperinsulinaemia | Q2'22 | Phase III (<1 Year) - Top-Line Results | JJLF |
| | Glepaglutide | Long-acting GLP-2 analogue | Metabolic disease | Short Bowel Syndrome (SBS) | Q3'22 | Phase III - EASE Results | |
| | | | | Short Bowel Syndrome (SBS) | 2023 | US and EU regulatory filing | |
| | | | | Short Bowel Syndrome (SBS) | 2023 | Glepaglutide- Extension study reports data | |
| | ZP8396 | Amylin analogues | Metabolic disease | Obesity | Q4'22 | Phase I first in human topline results | |



*As of 12/07/2022*

*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIOPHARMA COVERAGE

| Stock | Asset | Target/ MoA/ repurposed drug | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|---|
| BONE THERAPEUTICS | ALLOB | Allogeneic cell therapy | Delayed-union fractures and spinal fusion procedures | H2'22 | End recruitment TF2 Phase IIb trial | DvH, EH |
| | | | | 2023 | Topline phase IIb results | |
| | | | | 2023 | Initiate Phase III trial | |
| | JTA-004 | Enhanced viscosupplement (plasma, hyaluronic acid, synovial fluid, analgesics) | Knee Osteoarthritis | H2'22 | Data from phase III study | |
| | BT-XX | To be disclosed | To be disclosed | 2023 | New target IND submission | |
| | | | | | | |
| MEDINCELL | mdc-IRM (Long-acting Risperidone) | | Schizophrenia | H2'22 | Company ready to refile with FDA | DvH, EH |
| | | | Schizophrenia | 2023 | FDA approval | |
| | mdc-CWM (Long acting celecoxib) | | Post operative pain | H2'22 | AIC (partner) initiates safety study | |
| | mdc-TTG (Long-acting Ivermectin) | | COVID-19 | H2'22 | Data in phase II trial | |



*As of 12/07/2022*

*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR MEDTECH COVERAGE (I)

| Stock | Asset and/or program | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|
| MEDARTIS | NSI pipeline | | H1'23 | Launch | DvH, EH |
| | | | | | |
| MEDIAN TECHNOLOGIES | De/Dx software | Lung cancer | Q2'22 | FDA Q submission | KD |
| | | | Q4'22 | Pivotal clinical trials commence | |
| | | | H1'23 | Pivotal clinical trials data | |
| | | | H2'23 | Regulatory filing and review | |
| | De/Dx software | Non-alcohol fatty liver disease (NAFLD) and nonalcoholic steatohepatitis (NASH) | H1'23 | Large cohort study data | |
| | | | H2'23 | FDA 513(g) and Q submission | |
| | | | H2'24 | Pivotal trial data | |
| | | | H2'24 | Filing and review | |
| | De/Dx software | Hepatocellular carcinoma (HCC) | H1'23 | Large cohort study data | |
| | | | H1'23 | FDA 513(g) and Q submission | |
| | | | H2'23 | Clinical trial commences | |
| | | | H1'24 | Clinical trial data | |
| | | | H2'24 | Filing and review | |
| | | | | | |
| MEDIOS | N/A | N/A | Q3'22 | Berlin compounding facility becomes operational. The extra compounding capacity should add to the already expanded compounding facilities in 2022, further pushing revenues into the higher margin segment. | DvH |
| | | | | | |
| ONWARD MEDICAL | ARCIM | Blood pressure modulation in spinal cord injury (SCI) | Q2'22 | STIMO HEMO topline data | EH |
| | | Blood pressure modulation (SCI) | Q4'22 | FiH HemON trial topline data | |
| | | Mobility (SCI) | H1'23 | Early feasibility study due to start | |
| | ARCEX | Upper limb dexterity and mobility (SCI) | Q3'22 | Up-LIFT pivotal study topline data, we expect validation of ARCEX. | |
| | | Upper limb dexterity and mobility (SCI) | Q4'22 | LIFT Home Pilot study –Top line data inform on use of ARCEX at home. We opine home use to be the most value added for the platform. | |
| | | Upper limb dexterity and mobility (SCI) | H2'23 | Possible market entry in improved mobility | |
| | ARCIM and ARCEX | Novel indications | 2022-2023 | PoC studies- Neurorestore (research partner) releases key publications for potential new ONWARD indications | |
| | | | | | |
| PIXIUM VISION | Prima System | Opthamalogy; restoration of sight | H2'22 | Recruitment of pivotal PRIMAvera study completes | JJLF |



*As of 12/07/2022*

*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR MEDTECH COVERAGE (II)

| Stock | Asset and/or program | Broad Indication | Date | Catalysts/ Newsflow | Analyst |
|---|---|---|---|---|---|
| XVIVO | PrimECC: Heart-lung machine priming solution | Heart transplantation | Q2'22 | Trial commences in Denmark and Norway | DvH |
| | | | 2023 | Trial data | |
| | Non-Ischemic Heart Preservation (NIHP) device | Heart transplantation | Q3'22 | US heart preservation trial (PRESERVE) commences | |
| | European Heart Preservation program | Heart transplantation | Q1'24 | Commercial launch | |
| | | | | | |
| BIOCARTIS | Idylla™ MSI Test | Colorectal cancer (microsatellite instable; MSI) | 2022 | US FDA 510(k) clearance | DvH |
| | Idylla™ ABC (Advanced Breast Cancer) Assay (LifeArc) | Advanced Breast Cancer | 2022 | RUO launch | |
| | Merlin Assay (SkylineDx) | Melanoma | 2022 | CE-IVD launch of manual kit for commercialization in Europe | |
| | ThyroidPrint© on Idylla™ (GeneproDx) | Thyroid cancer | 2022 | RUO launch | |
| | SeptiCyte® RAPID PLUS | Sepsis | 2022 | CE-IVD launch | |



*As of 12/07/2022*

*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (I)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| ASTRAZENECA (COVERED BY JJLF) | | | | | |
| Acalabrutinib (Calquence) | Bruton's tyrosine kinase (BTK) inhibitor | Oncology | Mantle Cell Lymphoma (MCL) | H2'22 | Phase III data from the ECHO trial for use in first line setting in combination with bendamustine and Rituxan |
| | | | Diffuse large B-cell lymphoma (DLBCL) | H2'22 | Data of Phase III ESCALADE trial in combination with R-CHOP in first-line setting |
| | | | Chronic lymphocytic leukaemia (CLL) | 2023 | Phase III data for use in first line setting in combination with in combination with Venclexta with or without Gazyva in patients without deletion 17p or TP53 mutation |
| | | | Mantle Cell Lymphoma | 2023 | US regulatory filing for use in combination with bendamustine and Rituxan in a first line setting |
| ALXN1210 (Ultomiris, ravulizumab) | Complement C5 inhibitor, longer-acting | Autoimmune and haematology | Neuromyelitis optica spectrum disorder (NMOSD) | H2'22 | Present data of Phase III trial of IV formulation |
| | | | Neuromyelitis optica spectrum disorder (NMOSD) | H2'22 | Regulatory filing with IV and once weekly subcutaneous formulations |
| | | | Generalized myasthenia gravis | H2'22 | EU approval (company-expected timeline) of IV formulation |
| | | | paroxysmal nocturnal hemoglobinuria (PNH) / atypical hemolytic uremic syndrome (aHUS) | H2'22 | Potential FDA approval of sBLA of subcutaneous formulation |
| | | | paroxysmal nocturnal hemoglobinuria (PNH) / atypical hemolytic uremic syndrome (aHUS) | H1'23 | Potential EU approval of subcutaneous formulation dosed once weekly |
| | | | Neuromyelitis optica spectrum disorder (NMOSD) | 2023 | Potential FDA approval of IV and once weekly subcutaneous formulations |
| | | | Thrombotic microangiopathy (TMA) | 2023 | Potential FDA approval |
| ALXN1840 | Copper-binding | Rare disease | Wilsons Disease | H2'22 | US and EU regulatory filing |
| | | | Wilsons Disease | 2023 | US launch |
| ALXN1830 | anti-FcRn | Autoimmune | Warm autoimmune hemolytic anemia (WAIHA) | 2022 | Initiate Phase III trial of subcutaneous formulation |
| | | | Warm autoimmune hemolytic anemia (WAIHA) | 2024 | Potential launch of subcutaneous formulation |
| | | | Generalized myasthenia gravis | 2024 | Potential launch of subcutaneous formulation |
| AZD1402 | IL-4R alpha antagonist | Autoimmune | Moderate to Severe Asthma | H2'22 | Data of Phase II trial |


*AZ newsflow continues on next slide...*

*As of 12/07/2022*
*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (II)

| Asset | Target/ MoA | Broad Disease Area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| AZD9977 | MCR modulator | Cardiology | Heart failure patients with chronic kidney disease (CKD) | H2'22 | Data of Phase II trial in combination with Farxiga |
| AZD5718 | FLAP inhibitor | Metabolic disease | Chronic kidney disease (CKD) | H2'22 | Data of Phase IIb trial |
| Benralizumab (Fasenra) | IL-5R antibody | Autoimmune | Nasal polyposis | H2'22 | Potentially resubmit sBLA following complete response letter in March 2022 |
| | | | Nasal polyposis | H2'22 | Data from Phase III ORCHID trial |
| | | | Hypereosinophilic syndrome (HES) | H2'22 | Data of Phase III trial NATRON |
| | | | Eosinophilic esophagitis | H2'22 | Data of Phase III trial MESSINA |
| | | | Atopic dermatitis | 2022 | Data of Phase II trial HILLIER |
| | | | Non-cystic fibrosis bronchiectasis | 2022 | Data of Phase III trial MAHALE |
| | | | Chronic obstructive pulmonary disease (COPD) | 2022 | Data of additional Phase III trial RESOLUTE |
| | | | Eosinophilic granulomatosis with polyangiitis (EGPA) | H1'23 | US and EU regulatory filing |
| CAEL-101 | Anti-kappa and lambda light chains | Autoimmune | Light chain (AL) amyloidosis | H2'22 | Data of Phase III CARES trials |
| | | | Light chain (AL) amyloidosis | 2023 | Potential launch |
| Durvalumab (Imfinzi) | PD-L1 antibody | Oncology | Locoregional hepatocellular carcinoma | H2'22 | US and EU regulatory filing with data of Phase III EMERALD-1 trial |
| | | | Locally advanced, unresectable stage III NSCLC | H2'22 | US and EU regulatory filing with data of Phase III PACIFIC-2 trial |
| | | | Locoregional hepatocellular carcinoma | H2'22 | Data of Phase III EMERALD-1 trial |
| | | | PD-L1 positive NSCLC | H2'22 | China regulatory filing for use in 1L setting |
| | | | Locally advanced, unresectable esophageal carcinoma | 2022 | Data from Phase III KUNLUN trial |
| | | | Gastric cancer and gastroesophageal cancer | 2022 | Data from Phase III MATTERHORN trial |
| | | | Stage II-III non-small cell lung cancer NSCLC | 2022 | Primary DFS data in PD-L1 positive patients from Phase III trial MERMAID-2 |
| | | | Stage II-III non-small cell lung cancer | 2022 | Primary DFS data in Phase III trial MERMAID-1 |
| | | | locally advanced, unresectable stage III non-small cell lung cancer | 2022 | China regulatory filing with data of Phase III PACIFIC-5 trial |
| | | | NSCLC, including EGFR/ALK+ patients | 2022 | US and EU regulatory filing in an adjuvant setting |
| | | | NSCLC | 2023 | US and EU regulatory filing with data of Phase III AEGEAN trial in neoadjuvant setting |
| | | | High-risk hepatocellular carcinoma | 2023 | Data of Phase III EMERALD-2 trial as monotherapy or in combination with Avastin |
| | | | Ovarian cancer | 2023 | Data of Phase III combination trial DuO-O in first-line setting |


*AZ newsflow continues on next slide...*

*As of 12/07/2022*
*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (III)

| Asset | Target/ MoA | Broad Disease Area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| Dapagliflozin (Forziga) | SGLT2 inhibitor | Cardiology | Heart failure patients with preserved ejection fraction | H2'22 | data of Phase III outcome trial DELIVER |
| | | | Heart failure patients with preserved ejection fraction | H2'22 | US and EU regulatory filing |
| | | | Acute myocardial infarction | 2023 | Data of Phase III DAPA-MI trial in reducing risk of hospitalisation |
| IPH5201 | CD39 antibody | Oncology | Lung cancer | H2'22 | Initiate Phase II trial |
| | | | Solid tumours | 2023 | Data from Phase I trial of IPH5201 monotherapy, in combination with Imfinzi, and triple combo with oleclumab |
| MEDI3506 | IL-33 antibody | Autoimmune | Asthma | H2'22 | Data of Phase II trial |
| | | | Chronic obstructive pulmonary disease (COPD) | H2'22 | Data of Phase II trial |
| | | | Diabetic nephropathy | H2'22 | Data of Phase II trial |
| MEDI7352 | NGF/TNF bispecific | Neurology & CNS | Osteoarthritis pain | H2'22 | Data of Phase IIb trial |
| Nirsevimab | IgG1κ antibody | Infection | Respiratory syncytial virus (RSV) | H2'22 | EU approval for prevention of medically attended lower respiratory tract infections (LRTI) in all infants |
| | | | Respiratory syncytial virus (RSV) | H2'22 | US regulatory filing for prevention of lower respiratory tract illness for all infants entering their first RSV season |
| Olaparib (Lynparza) | PARP inhibitor | Oncology | Triple negative breast cancer | H2'22/ 2023 | Potential US launch (monotherapy and in combination with ceralasertib) |
| Osimertinib (Tagrisso) | EGFR inhibitor | Oncology | Non-small cell lung cancer (NSCLC) | H2'22 | Data of global single-arm Phase II SAVANNAH trial |
| | | | Locally advanced Stage III EGFR positive NSCLC | 2023 | US and EU regulatory filing as maintenance therapy following platinum therapy |
| | | | EGFR positive NSCLC | 2023 | US and EU regulatory filing in combination with Alimta and cisplatin or carboplatin in first line setting |
| | | | EGFR positive NSCLC | 2023 | Data of Phase III trial NeoADAURA in neoadjuvant setting |
| Tremelimumab | CTLA-4 antibody | Oncology | Stage I-III limited disease small cell lung cancer (SCLC) | H2'22 | Data of Phase III ADRIATIC trial of Imfinzi with or without tremelimumab |
| | | | NSCLC | Q1'23 | Potential EU approval of triple combination with chemo in first line setting |
| | | | Liver cancer | H1'23 | Potential EU approval of Imfinzi in combination with tremelimumab in first-line setting |
| | | | Stage I-III limited disease small cell lung cancer (SCLC) | H1'23 | US and EU regulatory filing |
| Zibotentan | ETR inhibitor | Metabolic disease | Chronic kidney disease (CKD) | H2'22 | Data of Phase II trial in combination with Farxiga |



As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (IV)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| NOVO NORDISK(COVERED BY JJLF) | | | | | |
| Insulin icodec (LAI287) | Ultra long-acting basal insulin | Metabolic disease | Type II Diabetes | H2'22 | Data from Phase III trial ONWARDS 4 of once-weekly dosing, vs once daily Tresiba, both in combination with meanltime insulin in type II diabetes |
| | | | Insulin-naive type II diabetes | H2'22 | Data from Phase III trial ONWARDS 3 of monotherapy once-weekly dosing, vs once daily Tresiba in insulin-naive type II diabetes |
| | | | Type I Diabetes | H2'22 | Present data from Phase III trial ONWARDS 6 of once-weekly dosing vs once daily Tresiba, both in combination with insulin |
| Concizumab (NN7415) | anti-TFPI | Haematology | Haemophilia A and B | 2023 | US and EU regulatory filing of once daily subcutaneous prophylaxis treatment |
| Semaqlutide | GLP-1 | Metabolic disease | Obesity | H2'22 | EU launch of once-weekly subcutaneous dosing in patients who are obese or are overweight with at least one comorbidity |
| | | | Diabetes | 2024 | Data of Phase III (also EU post-marketing requirement) long-term outcome superiority study FOCUS |
| DCR-AUD | ALDH2, RNAi | Addiction | Alcohol dependence | H2'22 | Interim data of Phase I trial in healthy volunteers |
| UCB (COVERED BY JJLF) | | | | | |
| Cimzia (certolizumab pegol) | Anti-TNF | Autoimmune | Autoimmune conditions | 2024 | Loss of exclusivity in US and EU |
| Bimzelx (bimekizumab) | IL-17A/17F antibody | Autoimmune | Hidradenitis suppurativa (HS) | H2'22 | Data from Phase III trials BE HEAERD 1 and 2 |
| | | | Psoriasis | H2'22 | Resubmit BLA, following complete response letter in May 2022 |
| Dapirolizumab pegol | CD40 ligand antibody | Autoimmune | Systemic lupus erythematous (SLE) | H1'24 | Data from Phase III trials |
| MT1621 | Deoxynucleoside substrate enhancement | Rare disease | Thymidine Kinase 2 deficiency (TK2d) | H2'22 | File NDA |
| Rozanolixizumab (UCB7665) | anti-FcRn | Haematology | Idiopathic thrombocytopenic purpura (ITP) | H2'22 | Data of Phase III trial |
| | | Autoimmune | Autoimmune encephalitis (AIE) | H1'24 | Data of Phase III trial |
| | | Autoimmune | Myelin oligodendrocyte glycoprotein (MOG)-antibody disease | H2'24 | Data of Phase III trial |
| UCB0599 | alpha-synuclein | Neurology and CNS | Parkinson's disease | H2'23 | Data from Phase IIa trial |
| Zilucoplan | C5 inhibitor | Autoimmune | Generalized myasthenia gravis | H2'22 | US and EU regulatory filing |



*As of 12/07/2022*

*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (V)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| BAYER (COVERED BY JJLF) | | | | | |
| Asundexian | Factor XIa inhibitor | Haematology | Thromboembolism | 2022 | Phase III decision in thromboembolism |
| | | | Thromboembolism | 2026 | Launch |
| BAY1093884 | Anti-TFPI | Haematology | Haemophilia A/B | 2022 | Launch |
| BAY 2395840 | BDKRB1 antagonist | Metabolic disease | Diabetic neuropathy | H2'22 | Complete Phase II trial |
| BRT-DA01 | Pluripotent stem cell-derived dopaminergic neurons | Neurology & CNS | Parkinson's Disease | H2'23 | One-year data from Phase I trial |
| Copanlisib (Aliqopa) | PI3K inhibitor | Oncology | non-Hodgkin's lymphoma (NHL) | 2022 | FDA approval in combination with Rituxan and CHOP, and with Rituxan and bendamustine |
| Elinzanetant (NT-814) | Non-hormonal dual antagonist of neurokinin-1 and 3 receptors | Women's health | Vasomotor symptoms of menopause | 2025 | Potential launch |
| Fesomersen | Factor XI antisense therapy | Haematology | Thromboembolism in patients with end stage renal disease on dialysis | H2'22 | Data from Phase IIb RE-THINc ESRD trial |
| Finerenone (Kerendia) | Mineralocorticoid receptor antagonist | Metabolic disease | Chronic kidney disease (CKD) | 2024/2025 | Data from Phase III renal outcome trial FIND-CKD |
| | | | Heart failure with preserved ejection fraction | 2024/2025 | Data from Phase III morbidity and mortality outcome trial FINEARTS-HF |
| IPSEN (COVERED BY JJLF) | | | | | |
| Mesdopetam | Dopamine D3 receptor antagonist | Neurology & CNS | Parkinson's disease - Levodopa Induced Dyskinesia | H2'22 | Data of Phase IIb trial |
| MM-398 | | Oncology | Small cell lung cancer (SCLC) | H2'22 | Data of Phase III portion of registration Phase II/III RESILIENT trial in second-line setting |
| | | | Metastatic pancreatic cancer | H2'22 | OS primary data of Phase III trial NAPOLI-3 in combination with 5-fluorouracil/leucovorin and oxaliplatin in first line |
| Palovarotene | Retinoic acid receptor gamma (RAR-γ) agonist | Rare disease | Fibrodysplasia ossificans progressiva | H2'22 | EMA approval |



*As of 12/07/2022*
*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (VI)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| GSK (COVERED BY JJLF) | | | | | |
| AFX3772 vaccine | | | Pneumonia | H2'22 | Initiate Phase I/II trials of 24-valent pneumococcal vaccine in pediatrics |
| | | | Pneumonia | H2'22 | Initiate Phase III trials of 24-valent pneumococcal vaccine in adults |
| Belantamab (Blenrep) | BMCA antibody | Oncology | Multiple Myeloma (MM) | H2'22 | Data from Phase III trial DREAMM-8 in combination with Pomalyst/dexamethasone vs Pomalyst/Velcade/dex in second-line setting |
| | | | Transplant ineligible Multiple Myeloma (MM) | H2'22 | Complete safety run-in from Phase III trial DREAMM-9 in combination with Velcade/Revlimid/dexamethasone vs VRd |
| | | | Multiple Myeloma (MM) | H2'22 | US and EU regulatory filing of monotherapy in third-line setting |
| | | | Multiple Myeloma (MM) | H2'22 | FDA and EMA approval and launch (company-expected timeline) of monotherapy in third-line patients who have failed Revlimid and a proteasome inhibitor |
| | | | Multiple Myeloma (MM) | 2023 | Potential FDA and EMA approval and launch in combination with Pomalyst and dexamethasone in second-line setting |
| | | | Multiple Myeloma (MM) | H2'23 | Data from Phase III trial DREAMM-7 in combination with Velcade/dexamethasone vs Darzalex/dex in second-line setting |
| Depemokimab | Anti-IL-5 | Autoimmune | Eosinophilic Asthma | 2024 | Regulatory filing, dosed subcutaneously every six months |
| | | | Eosinophilic Asthma | 2024 | Data from Phase III trials |
| Gepotidacin | Topoisomerase inhibitor | Infection | Gonorrhea | 2023 | Regulatory filing |
| GSK3844766A | Pre-F vaccine | Infection | Respiratory syncytial virus (RSV) | H2'22 | Present data from Phase III efficacy trial AReSVi 006 |
| | | | Respiratory syncytial virus (RSV) | H2'22 | Regulatory filing of respiratory syncytial virus (RSV) vaccine for older adults aged 60 years and above |
| Dostarlimab (Jemperli) | PD-1 antibody | Oncology | Endometrial cancer | H2'22 | Regulatory filing in combination with chemo in first-line setting |
| MenABCWY vaccine | | Infection | Meningitis | H2'22 | Data from Phase III trial for prevention of meningococcal meningitis (serogroups A, B, C, Y and W-135) |
| | | | Meningitis | 2023 | Regulatory filing for prevention of meningococcal meningitis |
| Niraparib | PARP inhibitor | Oncology | Endometrial cancer | 2023 | Data from part 2 of Phase III RUBY trial of Jemperli in combination with chemo, followed by Jemperli in combination with Zejula in first-line setting |
| | | | Lung cancer | 2024 | Data of Phase III ZEAL-1L trial in combination with Keytruda in maintenance setting |
| | | | Ovarian cancer | 2024 | Regulatory filing of Zejula and dostarlimab maintenance in first-line setting |


As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (VII)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| SANOFI (COVERED BY JJLF) | | | | | |
| Efanesoctocog alfa | Factor VIII, long-acting | Haematology | Haemophilia A | H2'22 | US regulatory filing, once weekly dosing |
| | | | Haemophilia A | 2023 | EU regulatory filing |
| Haemophilia LVV gene therapy | Lentiviral gene therapy | Haematology | Haemophilia A | H2'22 | Initiate Phase I trial |
| Modified mRNA vaccine for flu | mRNA vaccine | Infection | Influenza | H2'22 | Initiate Phase I trial |
| mRNA therapeutic vaccine for acne | mRNA vaccine | Dermatology | Acne | 2023 | Initiate Phase I trial |
| RSV vaccine, intranasal live-attenuated | | Infection | Respiratory syncytial virus (RSV) | H2'22 | Proof-of-concept data from Phase I/II trial |
| SAR339375 | miRNA-21 | Rare disease | Alport syndrome | H2'22 | Proof-of-concept data from Phase II trial |
| SAR442085 | CD38, Fc-engineered | Oncology | Multiple Myeloma | H2'22 | Proof-of-concept data from Phase I trial |
| Sarclisa (isatuximab) | CD38 antibody | Oncology | Multiple Myeloma | H2'22 | Initiate Phase III trial of subcutaneous formulatio |
| | | | Multiple Myeloma | 2024 | Primary PFS completion of maintenance part of Phase III GMMG trial in combination with Velcade, Revlimid and dexamethasone as induction, followed by combination with Revlimid as maintenance in newly diagnosed multiple myeloma eligible for transplant |
| Sarilumab (Kevzara | IL-6R antibody | Autoimmune | Juvenile idiopathic arthritis (JIA) | 2023 | US and EU regulatory filing |
| SKYPAC vaccine | | Infection | Pneumonia | 2022 | Proof-of-concept data from Phase II trial |
| THOR-707 (SAR444245) | not-alpha IL-2 antibody | Oncology | Solid tumours | 2022 | Proof of concept data as monotherapy from Phase I/II HAMMER trial |
| Tusamitamab ravtansine | CEACAM5 | Oncology | Non-squamous NSCLC | 2022 | Data of Phase II trial in combination with Cyramza |
| | | | Non-squamous NSCLC | 2022 | Data of Phase II trial CARMEN BT01 |
| | | | Non-squamous NSCLC | 2022 | ORR data from Phase II trial CARMEN-LC05 in combination with Keytruda in a first line setting |
| | | | Non-squamous NSCLC | 2022 | ORR data of Phase I/II trial CARMEN-LC04 in combination with Cyramza in a second and third line setting |
| Venglustat | Glucosylceramide synthase (GCS) inhibitor | Neurology & CNS | GM2 gangliosidosis (Tay-Sachs and Sandhoff diseases) | 2023 | US and EU regulatory filing |
| VerorabVax (VRVg) | | Infection | Rabies | | Data of Phase III trials |



As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (VIII)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| NOVARTIS(COVERED BY JJLF) | | | | | |
| Adakveo (crizanlizumab) | P-selectin antibody | Haematology | Sickle Cell Disease | 2022 | Data from Phase III trial STAND in prevention of vaso-occlusive crises |
| | | | Sickle Cell Disease | 2024 | Regulatory filing in pediatric sickle cell disease with crisis |
| AVXS-101 (Zolgensma) | AAV9 gene therapy | Neurology & CNS | Spinal muscular atrophy | H2'22 | Initiate Phase IIIb safety trial STRENGTH via intrathecal delivery |
| | | | Spinal muscular atrophy | 2023 | Data of Phase IIIb trial SMART via intravenous delivery |
| | | | Spinal muscular atrophy | 2025 | Data of new pivotal confirmatory Phase III trial STEER of intrathecal delivery i |
| | | | Spinal muscular atrophy | 2025 | EU and US regulatory filing in type II/III patients |
| Beovu (brolucizumab) | Single chain antibody fragment (scFv) | Metabolic disease | Diabetic macular edema (DME) | 2022 | Launch |
| | | | Proliferative diabetic retinopathy | 2023 | Regulatory filing |
| CPK850 | AAV8-based gene therapy, RLBP1 | Rare disease | Retinitis pigmentosa (RP) | 2022 | Initiate Phase IIb trial |
| | | | Retinitis pigmentosa (RP) | 2022 | Proof of concept phase I/II data |
| CSJ117, inhaled | TSLP inhibitor | Respiratory | Chronic obstructive pulmonary disease (COPD) | 2023 | Data of Phase II trial |
| Hyrimoz (biosimilar Humira) | anti-TNF | Autoimmune | Rheumatoid arthritis (RA) | Q2'23 | EU approval |
| Ianalumab (VAY736) | Anti-BAFF-R | Autoimmune | Systemic lupus erythematosus (SLE) | 2022 | Data of Phase IIa trial |
| | | | Lupus nephritis | 2022 | Initiate Phase III trial |
| | | | Primary Sjogren's syndrome | 2022 | Initiate Phase III trial |
| Icenticaftor (QBW251) | CFTR potentiator | Respiratory | Bronchiectasis | H1'23 | Data of Phase II trial |
| | | | Chronic obstructive pulmonary disease (COPD) | H1'23 | Initiate Phase III trials |
| Ilaris (ACZ885, canakinumab) | IL-1beta antibody | Oncology | Non-small cell lung cancer (NSCLC) | H2'22 | Interim analysis of Phase III trial CANOPY-A in adjuvant setting |
| | | | Non-small cell lung cancer (NSCLC) | 2023 | Final data of Phase III trial CANOPY-A |
| | | | Non-small cell lung cancer (NSCLC) | 2023 | Regulatory filing |
| Inclisiran (Leqvio) | PCSK9 | Metabolic disease | Lipid disorders | H2'22 | data from completed open-label extension Phase II trial ORION-3 |
| | | | Lipid disorders | H2'22 | Initiate Phase III cardiovascular outcomes trial ORION-17 in primary prevention of MACE |
| Iptacopan (LNP023) | Complement factor B inhibitor | Metabolic disease | Membranous nephropathy | H2'22 | Initiate Phase III trial |
| | | | Paroxysmal nocturnal hemoglobinuria (PNH) | H2'22 | Data of single pivotal Phase III APPLY-PNH trial of monotherapy dosed twice daily vs Soliris or Ultomiris |
| | | | Cold agglutinin disease | 2023 | First data from Phase II tria |
| | | | Idiopathic thrombocytopenic purpura (ITP) | 2023 | First data from Phase II trial |
| | | | Membranous nephropathy | 2023 | Full data of Phase II trial |


*Novartis newsflow continues on next slide...*

*As of 12/07/2022*
*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (IX)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| Iscalimab (CFZ533) | CD40 antibody | Transplantation and autoimmune | Liver transplant | H2'22 | Primary 12-month data of Phase IIb CONTRAIL I trial |
| | | | Liver transplant | 2023 | Final data of Phase IIb CONTRAIL I trial |
| | | | Sjogren's syndrome | 2023 | Final data of Phase IIb TWINSS trial |
| | | | Sjogren's syndrome | 2023 | Initiate Phase III trial |
| | | | Liver transplant | 2023 | Initiate Phase III trial |
| JDQ443 | KRAS G12C inhibitor | Oncology | Non-small cell lung cancer (NSCLC) | H2'22 | Initiate Phase III trial KontRASt 02 vs docetaxel in second-line setting |
| Kisqali (ribociclib) | CDK4/6 inhibitor | | HR-positive, HER2-negative breast cancer | H2'22 | Potential FDA approval (company-expected timeline) in combination with endocrine therapy in adjuvant high- and intermediate-risk adjuvant setting |
| | | | HR-positive, HER2-negative breast cancer | H2'22 | Final data of Phase III trial NATALEE in combination with endocrine therapy |
| LCZ696 | Angiotensin receptor neprilysin inhibitor (ARNI) | Cardiology | Heart failure | 2026-2030 | Loss of exclusivity |
| Ligelizumab | anti-IgE | Autoimmune/ allergy | Chronic idiopathic urticaria | H2'22 | Present data from Phase III superiority trials PEARL 1 and 2 vs Xolair |
| Lutathera (lutetium Lu 177 dotatate) | Lu-177-labeled somatostatin analogue peptide | Oncology | neuroendocrine tumors (NET) | 2023 | Regulatory filing in first-line setting |
| | | | neuroendocrine tumors (NET) | 2023 | Data of Phase III NETTER-2 trial |
| NIS793/ spartalizumab | TGF-beta + PD-1 | Oncology | Pancreatic cancer | H1'23 | Phase II daNIS-1 trial of NIS793 with and without spartalizumab, both in combination with gemcitabine and Abraxane in first-line setting |
| Piqray (alpelisib, BYL719) | PI3K inhibitor | Oncology | BRCA wild type ovarian cancer | H1'23 | Regulatory filing in combination with PARP inhibitor |
| | | | Triple Negative Breast Cancer (TNBC) | H1'23 | Regulatory filing |
| Pluvicto (lutetium [177lu] vipivotide tetraxetan) | radioligand therapeutic (RLT) targeting PSMA | Oncology | Prostate cancer | H2'22 | EU full approval in patients patients previously treated with chemo and Xtandi/Zytiga |
| | | | Prostate cancer | 2023 | Regulatory filing in pre-taxane metastatic castration-resistant prostate cancer |
| Sabatolimab (MBG453) | TIM-3 antibody | Oncology | Myelodysplastic syndromes (MDS) | 2022/2023 | PFS data from pivotal Phase II trial STIMULUS-MDS-1 in combination with HMA |
| | | | Myelodysplastic syndromes (MDS) | 2022/2023 | US regulatory filing in combination with HMA |
| | | | Unfit acute myeloid leukemia (AML) | 2023 | Data on complete remission from dose expansion part of Phase II trial STIMULUS-AML-1 in combination with Venclexta and azacitidine |
| | | | Myelodysplastic syndromes (MDS) | 2023 | Phase III trial STIMULUS-MDS-2 in combination with HMA in adults - support EU filing |
| Scemblix (asciminib) | ABL myristoyl pocket (STAMP) inhibitor | Oncology | Philadelphia chromosome-positive chronic myeloid leukemia in chronic phase (Ph+ CML-CP) | H2'22 | EU approval in third-line setting |


*Novartis newsflow continues on next slide...*

*As of 12/07/2022*
*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (X)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| Secukinumab (Cosentyx) | IL-17A antibody | Autoimmune | Psoriatic arthritis | H2'22 | Data of Phase III trial INVIGORATE 2 of IV regimen |
| | | | Lichen planus | H2'22 | Potential early regulatory filing |
| | | | Juvenile idiopathic arthritis (JIA) | H2'22 | EU approval |
| | | | Lichen planus | H2'22 | Initiate Phase III trial |
| | | | Hidradenitis suppurativa (HS) | H2'22 | Data at 52 weeks from Phase III trial SUNSHINE and SUNRISE |
| | | | Axial spondyloarthritis | H1'23 | Data of Phase III trial INVIGORATE 1 of IV regimen |
| | | | Axial spondyloarthritis | H1'23 | Regulatory filing of IV regimen |
| Tafinlar | MEK inhibitor | Oncology | Glioma | 2022 | Regulatory filing for combination in first-line pediatric patients |
| Tropifexor | Synthetic non-bile acid FXR agonist + SGLT2/SGLT1 inhibitor | Metabolic disease | Nonalcoholic steatohepatitis (NASH) | 2022 | Data from Phase IIb combination trial ELIVATE |
| YTB323 | CAR T, CD19 | Oncology | Diffuse large B-cell lymphoma (DLBCL) | 2022 | Initiate pivotal Phase I trial in second-line setting |


As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (XI)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| ROCHE (COVERED BY JJLF) | | | | | |
| Atezolizumab (Tecentriq) | PD-L1 antibody | Oncology | Non-small cell lung cancer | 2022 | Interim OS analysis and final DFS in ITT Stage IB-IIIA populations of Phase III trial |
| | | | Bladder cancer | 2022 | Resubmit EU regulatory filing of monotherapy and in combination with gemcitabine and carboplatin in first-line setting |
| | | | Bladder cancer | 2022 | US regulatory filing |
| | | | Bladder cancer | 2022 | Final OS data of Phase III IMvigor130 trial |
| | | | Bladder cancer | 2022 | RFS data of Phase III ALBAN trial |
| | | | Triple negative breast cancer | 2022 | Interim efficacy analysis of NSABP-sponsored Phase III GEPARDOUZE trial in combination with paclitaxel and carboplatin in neoadjuvant setting |
| | | | Squamous head and neck cancer | 2022 | US and EU regulatory filing in combination with chemo in adjuvant setting |
| | | | Renal cell carcinoma | 2022 | US and EU regulatory filing in adjuvant setting |
| | | | Liver cancer | H2'22 | Interim efficacy analysis of Phase III IMbrave050 trial in combination with Avastin |
| | | | Non-small cell lung cancer | H2'22 | EFS interim analysis data of Phase III IMpower030 trial |
| | | | Liver cancer | 2023 | US and EU regulatory filing in combination with Avastin |
| | | | Non-small cell lung cancer | 2023 | US and EU regulatory filing in neoadjuvant setting |
| | | | Non-small cell lung cancer | 2023 | US and EU regulatory filing of subcutaneous formulation |
| | | | Metastatic triple negative breast cancer | 2023 | US and EU regulatory filing in combination with gemcitabine/carboplatin or capecitabine in first line setting |
| Autogene cevumeran | mRNA-based personalized cancer vaccine + PD-1 | Oncology | Pancreatic cancer | H2'22 | Initiate randomized Phase II combination trial |
| | | | Melanoma | H2'22 | Topline interim data of Phase II trial IMcode001 in combination with Keytruda in first line setting |
| Baloxavir marboxil (Xofluza) | CAP endonuclease inhibitor | Infection | Influenza | H1'23 | EU approval (BI-estimated timeline) in treatment of influenza A and B |
| | | | Influenza | 2023 | S and EU regulatory filing in treatment of influenza A and B with one-time dosing in pediatric patients from birth to under 1 year of age |
| Crovalimab | C5 inhibitor | Haematology | Paroxysmal nocturnal hemoglobinuria (PNH) | H2'22 | Data from China Phase III COMMODORE 3 trial |
| | | | PNH | H2'22 | Data of Phase III trial COMMODORE 2 trial |
| | | | PNH | H2'22 | China regulatory filing |
| | | | Atypical hemolytic uremic syndrome (aHUS) | 2024 | Regulatory filing |


*Roche newsflow continues on next slide...*

*As of 12/07/2022*
*Source: Company data, Bryan, Garnier & Co Equity Research*

# GENERAL NEWSFLOW FROM OUR BIG PHARMA COVERAGE (XII)

| Asset | Target/ MoA | Broad disease area | Broad Indication | Date | Catalysts/ Newsflow |
|---|---|---|---|---|---|
| Gantenerumab | amyloid-beta antibody | Neurology and CNS | Alzheimer's Disease | 2022 | US and EU regulatory filing |
| Glofitamab | CD20-CD3 T cell bi-specific | Oncology | Diffuse large B-cell lymphoma (DLBCL) | H2'22 | File BLA for accelerated approval in third-line setting |
| | | | Diffuse large B-cell lymphoma (DLBCL) | H1'23 | FDA and EU approval |
| Hemlibra (emicizumab) | factor IXa/X bi-specific | Haematology | Haemophilia A | 2022 | Data from Phase III HAVEN 7 trial in infants |
| Inavolisib | PI3K-alpha inhibitor | Oncology | Breast cancer | 2022/2023 | Data from Phase III INAVO120 trial in combination with Ibrance and fulvestrant in first-line setting |
| Ipatasertib | Akt inhibitor | Oncology | Castration resistant prostate cancer | H2'22 | OS data of Phase III trial IPATENTIAL150 in combination with Zytiga in first line setting |
| | | | Castration resistant prostate cancer | H2'22 | US and EU regulatory filing |
| Mosunetuzumab | CD20-CD3 T cell bi-specific | Oncology | Follicular lymphoma | H2'22 | FDA approval in third line setting |
| Rozlytrek (entrectinib) | neurotropic tropomyosin receptor kinase (NTRK) and ROS1 inhibitor | Oncology | Non-small cell lung cancer | 2022 | US and EU regulatory filing |
| Susvimo (ranibizumab port delivery system) | VEGF antibody | Metabolic disease | Age-related macular degeneration (AMD) | H2'22 | Data from Phase III trial PAVILLION |
| | | | Age-related macular degeneration (AMD) | H2'22 | Data of Phase III trial PAGODA |
| | | | Age-related macular degeneration (AMD) | 2023 | US and EU regulatory filing |
| Tiragolumab | TIGIT + PD-L1 antibody | Oncology | Esophageal cancer | H2'22 | China regulatory filing of combination with paclitaxel and cisplatin in first-line setting |
| | | | Non-squamous non-small cell lung cancer | H2'22 | Data of randomized Phase II trial SKYSCRAPER-06 |
| | | | Esophageal cancer | H2'22 | Data of China Phase III SKYSCRAPER-08 |
| | | | Cervical cancer | H2'22 | Data of pivotal Phase II SKYSCRAPER-04 |
| Vabysmo (faricimab) | VEGF/Ang2 bi-specific | Metabolic disease & opthalmology | Diabetic macular edema (DME) / age-related macular degeneration (AMD) | H2'22 | EU approval |
| | | | Retinal vein occlusion (RVO) | H2'22 | Data from Phase III COMINO trial |
| | | | Retinal vein occlusion (RVO) | H2'22 | Data from Phase III BALATON trial |
| | | | Retinal vein occlusion (RVO) | 2023 | US and EU regulatory filing |



As of 12/07/2022
Source: Company data, Bryan, Garnier & Co Equity Research