

## Chase a Check (Vol. 3) – Biopharma Cash Runway Map

May 1, 2023

- **Bottom line:** As risk of recession and its potential impact on near-to-mid-term access to equity capital remains a concern across industries, cash position is becoming increasingly important to the valuation of companies that have not yet achieved profitability. In this note, we update our cash runway map (previous versions [here](#) and [here](#)) for not-yet-profitable companies across our broad Biopharma coverage universe, categorizing companies using estimated quarters of cash runway and cash as a proportion of market cap as measures of durability in the face of challenging capital markets. We define four investment themes — financing overhang, value investing, high-volatility catalyst plays, and growth investing, in an effort to identify stocks in each subsector with strong balance sheets and rich catalyst paths, vs. those with greater need for capital access under potentially unfavorable terms.
- *Details for each Biopharma sub-sector inside the note...*

Reason for report:

**PROPRIETARY INSIGHTS**

S&P 500 Health Care Index:

1,555.39

### Companies Highlighted

2137 HK, A, ABBV, ACIU, ACLX, ACRS, ADAP, AFMD, ALDX, ALGS, ALLK, ALPN, ALVR, AMTI, ANTX, ARGX, ARVN, ARWR, ASND, ATNX, AUPH, AURA, AVIR, BBIO, BCIY, BEAM, BHVN, BLUE, BMRN, BOLT, BPMC, CBAY, CCCC, CGEM, CGEN, CLDX, CMPX, CNTA, CNTB, COGT, CRBU, CRNX, DBTX, DCPH, DICE, DNLI, DSGN, EDIT, ELEV, ELYM, ENTA, EQ, ETNB, EWTX, FATE, FDMT, FOLD, FULC, FUSN, GILD, GLTO, GLUE, GNFT, GOSS, GPCR, GRPH, HARP, HLTX, HOOK, HOWL, ICPT, IFRX, IMGN, IMTX, IMUX, IMVT, INSM, IPHA, IPSC, IRON, ITOS, JAZZ, KALV, KDNY, KNTE, KPTI, KROS, KRTX, KURA, KYMR, LNTH, LVTX, MDGL, MGNX, MIRM, MLTX, MNKD, MOLN, MORF, MREO, MRNA, MRNS, MRSN, MRTX, MRUS, NAMS, NKTR, NKTX, NRIX, OPT, PCVX, PEPG, PFE, PHVS, PLRX, PNT, PRDS, PTCT, Q, QURE, RAIN, RAPT, RARE, RCKT, ROUN, RERI, RETH, RGNV,

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Please refer to Page 27 for Analyst Certification and important disclosures. Price charts and disclosures specific to covered companies and statements of valuation and risk are available at <https://svbsecurities.bluematrix.com/bluematrix/Disclosure2> or by contacting SVB Securities LLC Editorial Department, 53 State Street, 40th Floor, Boston, MA 02109.

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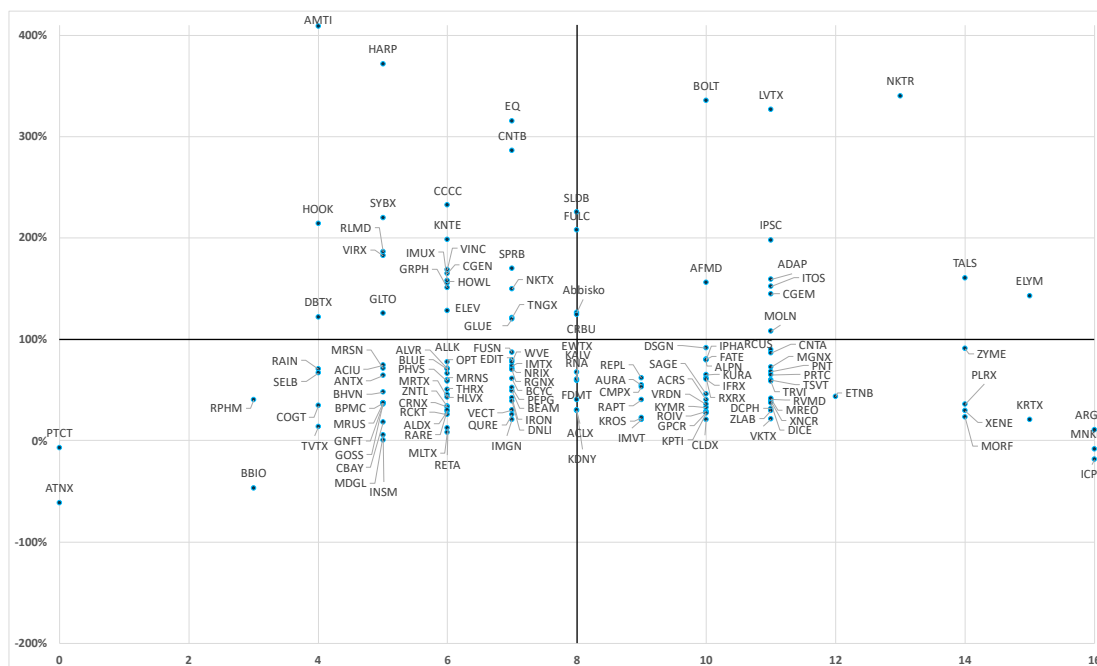
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## Biopharma Cash Runway Map Overview

We map the cash position of Biopharma companies that have not yet reached profitability within our coverage universe (Exhibit 1) based on 2 dimensions: (1) anticipated quarters of cash runway (based on each company's reported cash position, estimated rate of cash burn, and/or management guidance where available) and (2) the proportion of market cap comprised of net cash. We chose 8 quarters (2 fiscal years) of cash runway as a threshold for companies in a relatively strong cash position and likely to be insulated from near-term volatility in capital markets. For the proportion of market cap accounted for by net cash, we use Net Cash / Market Cap ratio of 100% as the delineation identifying stock trading above or below cash – acknowledging that this threshold lumps companies with at ratio between 0-100% with highly levered companies (with a negative ratio due to negative net cash), as an artifact of our methodology.

### Exhibit 1. Overall Coverage Universe Cash Runway Map



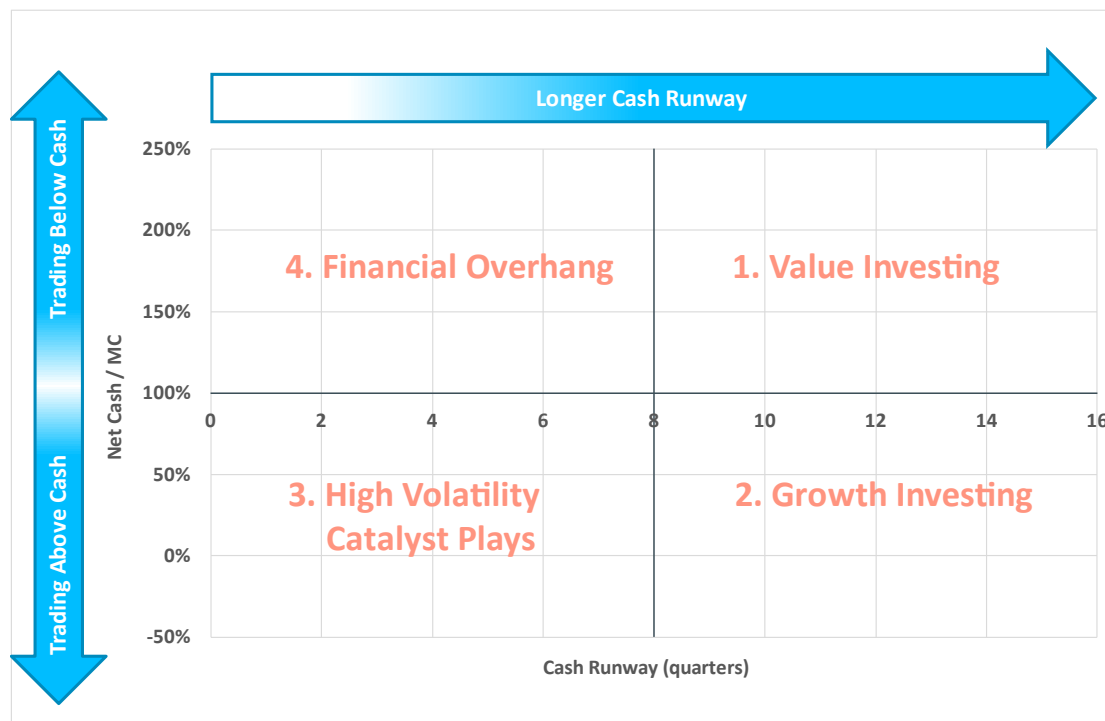
Source: FactSet, Company Data, SVB Securities Research

## Map Interpretation Keys and Insights

The map delineates 4 quadrants, each highlighting different investment themes (Exhibit 2):

- 1. Value Investing:** These companies have over 2 years of anticipated cash runway but are trading below cash, representing potential targets for value investors, as they could have substantial downside protection in an environment of uncertain access to capital.
- 2. Growth Investing:** Trading above cash (Market Cap > Net Cash) with over 2 years of cash runway, these stocks are generally owned for their growth potential – driving higher valuations than “Value Investing” stocks. Highly levered companies (Net Cash/Market Cap < 0) in this quadrant have robust cash runways, potentially limiting the risk profile of these companies’ debt securities.
- 3. High Volatility Catalyst Plays:** These companies have less than 2 years of cash runway and are trading above cash, representing the greatest volatility in the face of uncertain access to capital. Many of these companies have attractive catalysts to offset more modest cash positions, offering interesting positioning opportunities.
- 4. Financial Overhang:** These companies have less than 2 years of cash runway and are trading below cash. Stocks in this quadrant are facing a near-term financial overhang.

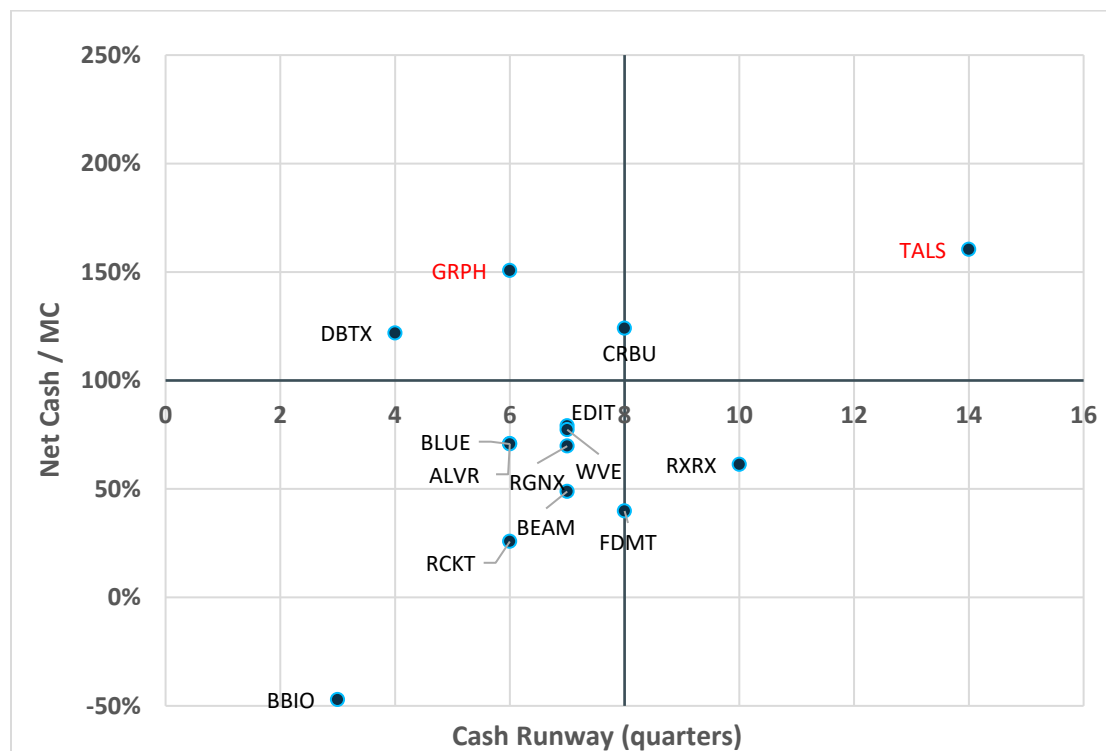
**Exhibit 2. Map Quadrants & Investment Themes**



Source: SVB Securities Research

## Foroohar Coverage Universe – Genetic Medicine

Exhibit 3. Genetic Medicine Cash Runway Map



Source: FactSet (Accessed 04/28/23), SVB Securities Research

**Companies in transition across our coverage.** Two companies, TALD (MP) and GRPH (MP), have announced restructuring and exploration of strategic alternatives (notes [here](#) and [here](#)), making cash runway estimates based on current activities (including program discontinuations) uncertain. Additionally, based on our projections and analyses, MIRM (OP) and ARWR (OP) (not included in the map) are expected to transition towards profitability without requiring additional capital raises. For ARWR in particular, this transition addresses a key bear pushback to the thesis underlying our upgrade (note [here](#)).

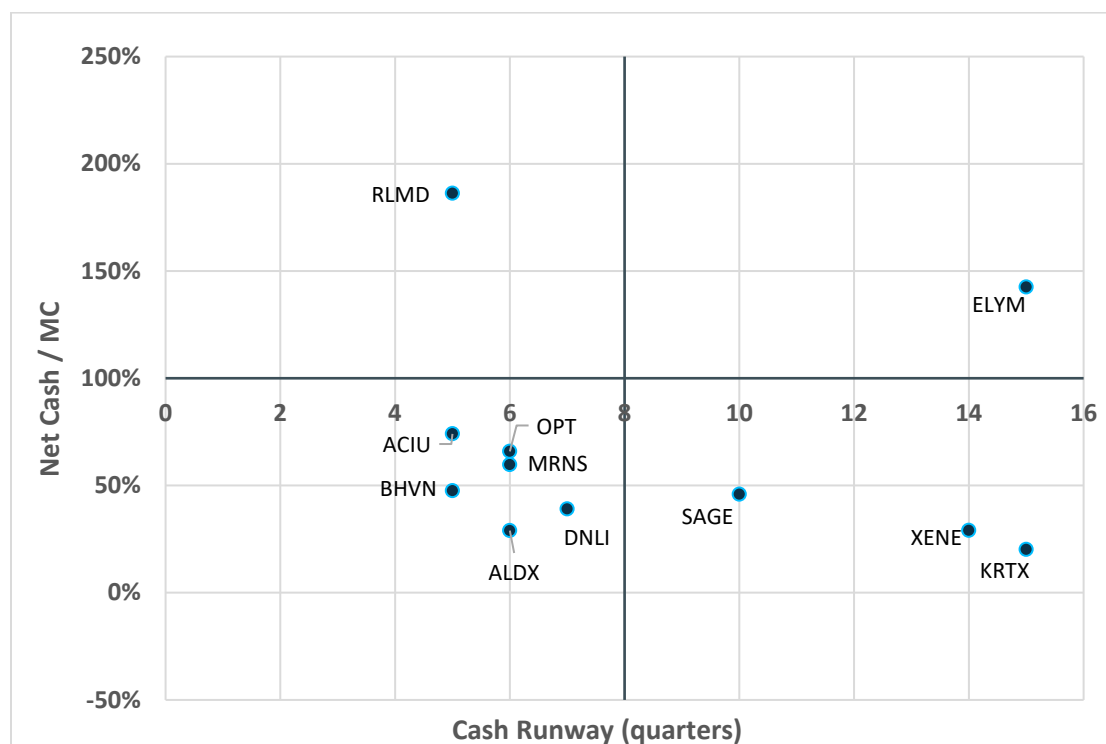
**Financial Overhang for DBTX (MP).** With only \$105mm in cash and equivalents (as of December 31, 2022) expected to fund operations into 1H24, the company added a going concern notice to its most recent financial disclosure (note [here](#)), highlighting their urgent capital needs. While partnership for DB-020 could provide non-dilutive capital, we believe the uncertainty around the company's ability to secure a partner in a timely manner represents a major near-term risk for the stock.

**RXRX (MP) – a potential growth investing opportunity?** With the current cash position estimated (based on our model) to fund operations through 4Q25, and Net Cash only representing ~60% of its Market Capital, RXRX could potentially represent a growth investing opportunity. Based on our analysis, RXRX will be well-funded through upcoming clinical readouts – including Ph1 data for REC-3964 for Clostridium difficile Colitis in 2H23, Ph2 topline data for REC-994 in cerebral cavernous malformation in 2H24, and Ph2 interim data for REC-2282 in neurofibromatosis type 2 (NF2) mutated meningioma in 2024; and could potentially generate additional revenue through potential acceleration in partnered programs (with associated milestone payments) under the ongoing collaborations with Roche (RHHBY, Not Rated)/Genentech and Bayer (Not Rated), as well as through potential new collaborations. Nonetheless, while long-term oriented tech investors point to this name as a source of inexpensive exposure to broader AI tailwinds, healthcare and specialist investors have expressed caution on the timeline to late-stage de-risking clinical data.

**High volatility in Genetic Medicine highlights potential catalyst plays.** The vast majority of not-yet-profitable stocks within our coverage have less than 2 years of expected cash runway and are currently trading above cash. Of note, RCKT (OP) trades at cash <50% of market cap, and BBIO (OP) has negative Net Cash/Market Cap ratio (highlighting the impact of the company's debt balance). For RCKT, disclosure of the pivotal Phase 2 study design in Danon disease is the key near-term focus for investors, with blue-sky (a 6-month study with only gene expression and biomarker endpoints) and grey-sky (a 2-year study featuring hard clinical endpoints and no contribution of gene expression to the composite primary) scenarios implying \$30-35 and \$10-12, respectively. BBIO's Part B mortality results from the ATTRibute-CM Phase 3 study of Acoramidis in ATTR-CM is the major upcoming catalyst for the ATTR space overall, and we see a +50%/-30% risk/reward for the readout with a blue-sky scenario (decisively superior efficacy that in the tafamidis label) resulting in a potential +100% move for the stock.

## Goodman Coverage Universe – Neuroscience/Ophthalmology

Exhibit 4. Neuroscience/Ophthalmology Cash Runway Map



Source: FactSet (Accessed 04/27/2023), SVB Securities Research

**Companies trading below cash.** RLMD (OP) and ELYM (OP) are both trading under cash due to clinical development failures that occurred in 2022, and investors seem to be remaining on the sidelines for both companies as clinical development paths of lead candidates remain risky. RLMD's REL-1017 failed in two pivotal trials in major depressive disorder (MDD) in both monotherapy and adjunctive settings, largely due to issues with trial execution (see our notes [here](#) and [here](#)). Management has guided to disciplined spending while the company continues the ongoing RELIANCE II study (now called Study 302), with updated protocol based on the prior failed studies, and plans to initiate another adjunctive MDD study (Study 304) in mid-2023 (see our note on the updated clinical development plan [here](#)). ELYM faced numerous setbacks in its pipeline last year, with failures of ETX-810 in two pain indications as well as a strategic decision to discontinue ETX-155 in MDD. Now the focus is on the preclinical ETX-123 Kv7 channel opener program for treatment of seizures, which makes sense to us given investor excitement around XENE's (OP) and BHVN's (OP) Kv7 programs. However, the competitors are ahead in development, and ELYM will have to move quickly to catch up, starting with a Phase 1 trial that is planned to initiate in 1H24.

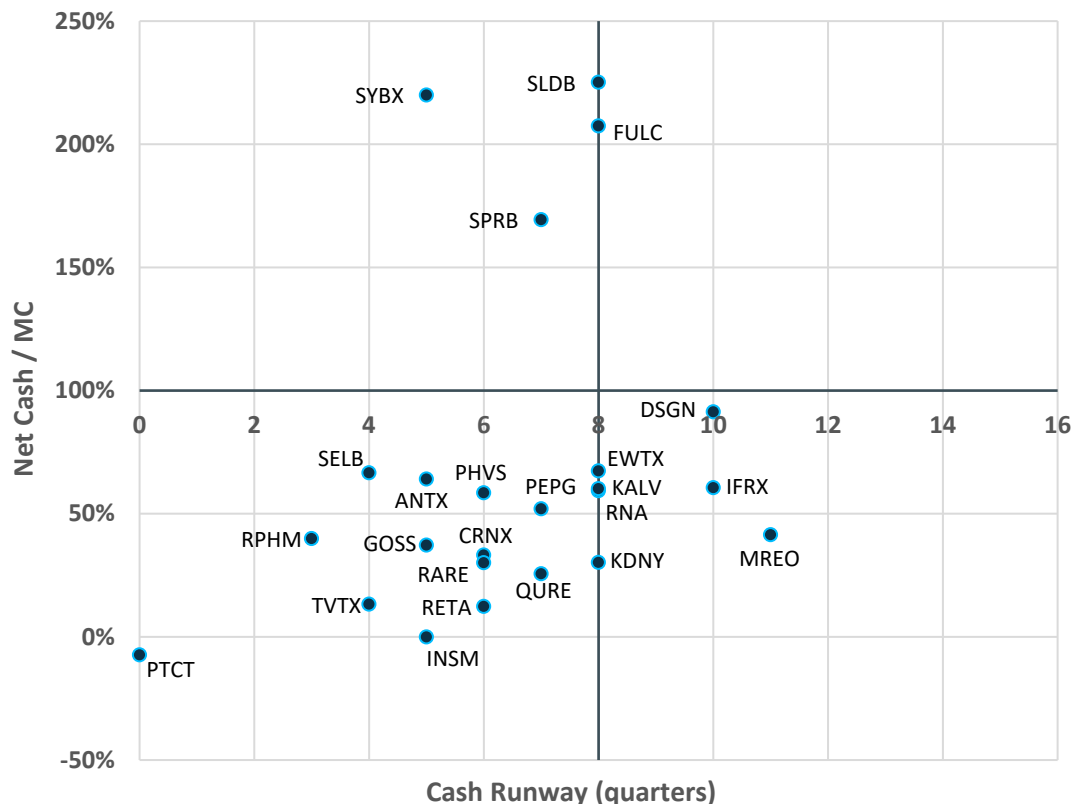
**Higher volatility plays in our coverage universe.** We recently highlighted key upcoming near-term catalysts in our space in our [1Q23 preview](#), including MRNS's (OP) potential interim readout of the Phase 3 RAISE trial of IV ganaxolone in refractory status epilepticus in mid-2023 (final readout in 2H23) and ALDX's (OP) PDUFA date for reproxalap in dry eye disease on Nov 23, 2023. BHVN (OP) and DNLI (OP) each have diverse pipelines weighted towards higher risk opportunities, and data readouts expected this year and early next should begin to de-risk some of these plays (see our recent initiation reports for the new [BHVN](#) and [DNLI](#) for more information on pipelines and key catalysts).

**Potential growth investing opportunities.** We remain bullish on KRTX's (OP) KarXT, a novel antipsychotic targeting M1/M4 muscarinic receptors that has demonstrated robust positive data across 3 pivotal trials (one Phase 2 and two Phase 3) in schizophrenia. KRTX is filing an NDA soon for KarXT in schizophrenia and is also moving forward with clinical development of KarXT in Alzheimer's psychosis, which we believe has a good chance of working (based on prior studies with xanomeline, a component of KarXT) and is another large opportunity. We also continue to like XENE's XEN1101, a Kv7 channel opener that has shown solid efficacy in focal onset seizures in the pivotal Phase 2 X-TOLE study. Management is aiming to replicate this result in the Phase 3 X-TOLE2 and X-TOLE3 studies (data in 2025) and is also generating data for XEN1101 in Phase 2 MDD (data in 3Q23) to potentially differentiate the asset and/or pursue another indication for XEN1101 (though we think the latter seems less likely based on recent comments by management). Finally, we remain on the sidelines for SAGE (MP) as we continue to believe that zuranolone (PDUFA on Aug 5) will be a niche product for specific sub-populations of MDD patients, like those with higher anxiety, and it remains to be seen how exactly the 2-week dosing regimen will affect pricing, access, and real-world use.



## Schwartz Coverage Universe – Rare Disease

Exhibit 5. Rare Disease Cash Runway Map



Footnote: Company provided no cash guidance; runway based off our model (AMTI, EWTX, FOLD, PTCT, RARE, TVTX). Model runway not in alignment with company guidance; runway based on company guidance (ASND, IFRX, INSM, KALV, KDNY, PHVS, RPHM, RETA, QURE).

Source: SVB Securities Research, FactSet (accessed 04/28/23), Company Presentations/Press Releases

**Potential cash crunch coming for PTCT (MP) and RPHM (OP); however, upcoming catalysts could offer an opportune time to raise additional funds.** As we highlighted in our recent initiation of PTCT ([Several Wild Cards About to Flip with Upcoming Catalysts; Initiate MP & \\$48 PT](#)), one of the overhangs for the company is the negative net cash position and high burn. However, PTCT has four important readouts expected this quarter, thus, we believe the company could have the opportunity to raise additional funds, assuming one or more of these readouts are positive (we assume a \$300M raise in 2Q23). The readouts include **(1)** the Ph.3 APHENITY study ([NCT05099640](#)) with sepiapterin/PTC923 for PKU (expected in May 2023), **(2)** the Ph.2/3 MIT-E study ([NCT04378075](#)) with vatiquinone for mitochondrial disease associated seizures/MDAS, **(3)** the Ph.3 MOVE-FA trial ([NCT04577352](#)) with vatiquinone for

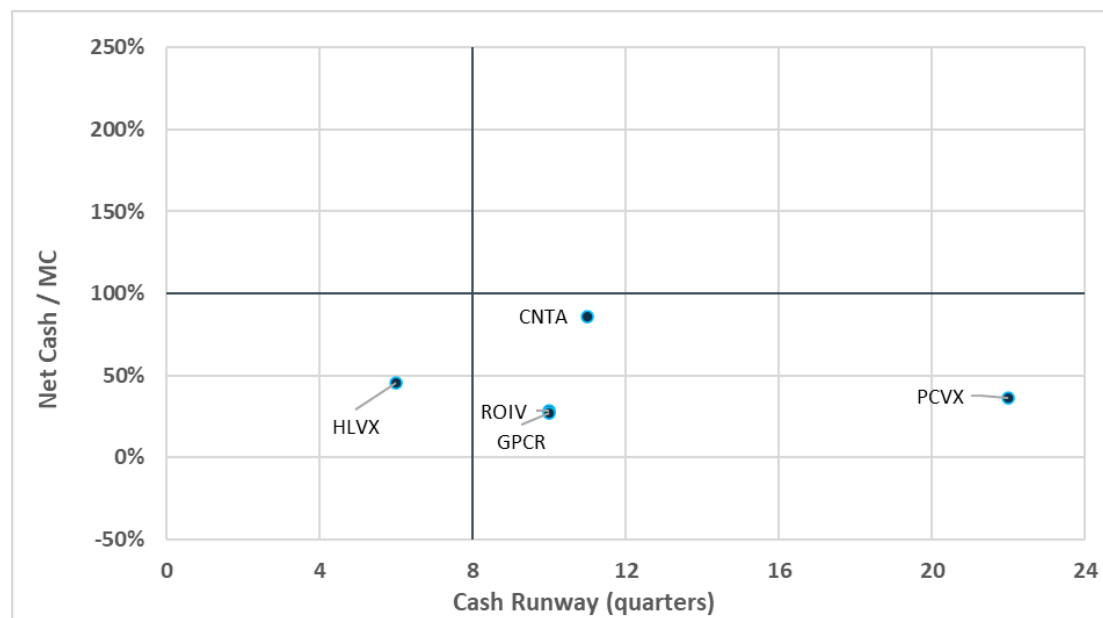
Friedreich's Ataxia/FA, and (4) results from the first 12 weeks of the Ph.2 PIVOT-HD study ([NCT05358717](#)) with PTC518 in Huntington's Disease. We believe the PKU program is the most de-risked pipeline program with the highest expectations, whereas vatiquinone (MDAS/FA) appears to largely be priced out of shares, with the FA readout offering the greatest upside potential to PTCT (our expected stock moves can be found on page 24 of our initiation [here](#)). As for RPHM, the company ended FY22 with \$101.2M in cash and guides to a runway into 2024; however, given the Ph.2b STRIDE data for mavodelpar (primary mitochondrial myopathies/PMM) are expected in 4Q23, we believe the company could monetize positive data. We remain optimistic for positive on Ph.2b STRIDE data based on promising Ph.1b data in PMM ([LINK](#)) and Ph.1b data in long-chain fatty acid oxidation disorder (LC-FAOD) that reads through favorably to PMM ([LINK](#)). Recall, the bar is higher in LC-FAOD because nuclear DNA (nDNA) is mutated in LC-FAOD where all mitochondria are impaired. In PMM, the patients with mitochondrial DNA (mtDNA) defects that RPHM is studying in Ph.2b STRIDE, both healthy and mutated mitochondria exist due to heteroplasmy, implying that mavodelpar could benefit PMM patients with mtDNA mutations more. Based on the progress the company reported at their 4Q22 earnings call ([LINK](#)), we remain enthusiastic about the potentially sizable PMM market opportunity which may be more attractive than we had initially thought and look forward to the Ph.2b STRIDE data in 4Q23.

**Several commercial names have less ample balance sheets; however, execution on the sales side could help starve off a financing.** Within our Rare Disease coverage, we have a handful of already commercial names, some of which we assume will reach profitability without the need for another raise, including AUPH (OP), BMRN (OP), FOLD (OP), and SRPT (OP). ASND (OP) is a commercial company with Skytrofa (pediatric growth hormone deficiency) sales exceeding expectations (€31.6M in 1Q23 vs. €19.5M Visible Alpha and €20.9M SVB Securities; [LINK](#)). However, the focus remains on TransCon PTH (hypoparathyroidism). ASND ended 1Q23 with €586M in cash and expects to achieve cash flow breakeven without the need for additional dilutive equity financing which is why we did not include ASND in our exhibit although our own estimates reflect the potential need for another capital raise. There exists another group of commercial names that we believe will likely need to tap the capital markets for additional funds; many of these companies are grouped in the lower left of the cash runway map, including INSM (OP), RETA (MP), and TVTX (OP). INSM ended 4Q22 with \$1,148M in cash which is offset by ~\$1,150M in debt. However, INSM anticipates sufficient funds to cover operations out to ASPEN data for brensocatib in bronchiechstasis expected in 2Q24. For RETA, Skylarys recently gained FDA approval for the treatment of FA and the company is preparing for the commercial launch. RETA ended 4Q22 with \$387.5M in cash and marketable securities and has the option to monetize a PRV; management believes this will fund operations through the end of 2024. Finally, for TVTX, the company also recently gained FDA approval for their product Filspari in IgA nephropathy. Following the approval, the company conducted a raise with gross proceeds of approx. \$230M; however, with some convertible debt on the balance sheet and another possible product launch in the near term (FSGS), we believe TVTX might need to conduct another raise (we assume potentially next year).

**Companies trading below cash offer a potential “value” play.** In our coverage universe, SLDB (MP), FULC (OP), SYBX (OP), and SPRB (MP) are trading considerably below cash with 1-2 years of funding runway to readout key catalysts or execute trials/operations. SPRB has multiple key readings including Ph.2 P.O.W.E.R. data in polycystic ovary syndrome (PCOS) in 1H23, Ph.2 cohorts 1 and 2 data in pediatric congenital adrenal hyperplasia (CAH) in 2H23, and most importantly, Ph.2b CAHmelia-203 data in adult CAH in 2H23 and CAHmelia-204 data in 2H24. Upcoming catalysts could offer opportunities for a potential raise. Meanwhile FULC is working with the FDA to define a sickle cell disease population where the benefit of FTX-6058 could outweigh potential risk ([LINK](#)). Fortunately, FULC conducted an equity raise in 1Q23 that could help the team work through the clinical hold with enough funds to get back on track in the clinic. SYBX is a late-stage biotech company deep in execution mode to study SYNB1934 in phenylketonuria (PKU) patients in Ph.3. We anticipate medical meeting presentations from earlier programs (i.e., SYB8802 in enteric hyperoxaluria) will maintain some news flow as SYBX executes their pivotal trial in PKU. SLDB has been busy closing the AavantiBio acquisition and de-prioritizing SGT-001 ([LINK](#)). SGT-003's IND submission is expected in 2H23 followed by the initiation of DMD patient dosing in late-2023.

## Risinger Coverage Universe – Diversified Biopharma

Exhibit 6. Diversified Biopharma Cash Runway Map – SMIDs



Source: SVB Securities

**SMIDs in our coverage well-capitalized through key pipeline readouts / catalysts.** We estimate these companies have between 6-22 quarters of cash runway. We do not see meaningful financing overhangs for these companies near term.

**HLVX (OP) is developing a potentially first in class norovirus vaccine for infants (HIL214) with key de-risking Ph2b topline results expected in 1Q24.** If successful, the vaccine could generate blockbuster sales comparable to rotavirus vaccines (\$1.6B in 2021). If the 1Q24 Ph2b results are positive, we believe the company could have multiple options to raise additional capital including non-dilutive partnerships or via the capital markets. We have heard that many investors who are interested in the company have not taken positions given thin trading volume. As such we would expect significant interest in any future raises if the upcoming results are positive. Should the Ph2b results disappoint, HLVX does have the risk of a limited cash runway to identify a path forward.

**PCVX (OP) well-capitalized following recent offerings.** PCVX has over 20 quarters of cash runway in our estimates and we believe the company will not be capital constrained near term. The company recently initiated a Ph2 study of its 24-valent pneumo vaccine candidate VAX-24 in children and plans to initiate a Ph3 study in adults in 2H23 plus a Ph1/2 study of VAX-31 in 2H23. We believe as these studies read out in 2024-2025 the company will have multiple strategic options if results are compelling. We would also not be surprised if the company

announces a partnership for ex-US commercialization in the next year which could add additional non-dilutive cash.

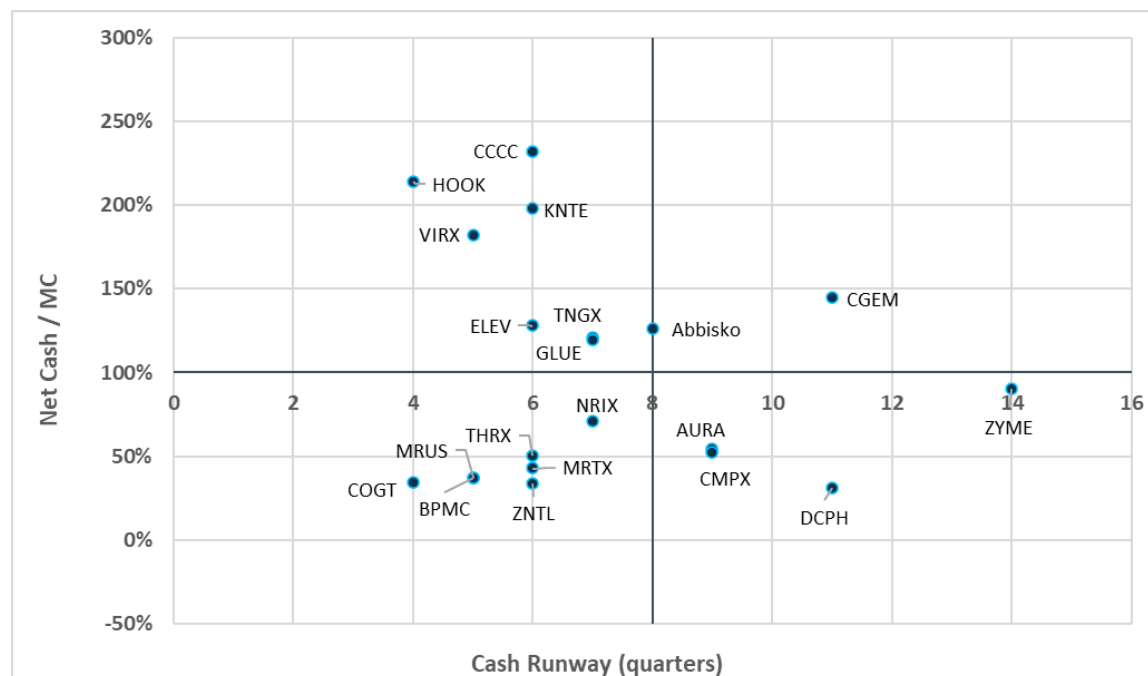
**ROIV (OP) remains one of our top picks for 2023 as we see a clear roadmap for news flow on potential blockbuster opportunities.** ROIV's current market cap is approximately \$6.3B, and assets with key data in 2023 could generate combined peak sales well over \$5B. We expect Roivant to announce: 1) encouraging TL1A maintenance data in late 2Q, 2) positive IMVT-1402 Ph1 data in mid-2023, and 3) brepocitinib (TYK2/JAK) Ph2b proof of concept data in SLE in 2H23. In addition, we await LNP patent litigation updates over the course of 2023; we continue to see the potential for Roivant to realize \$1B or more in royalties from Moderna (MRNA, MP, Foroohar) and Pfizer (PFE, MP) over the medium term. The company anticipates that its current cash position is anticipated to cover expenses into 2H25.

**CNTA (OP) has recently rationalized its pipeline and we see potential and substantial upside to readouts across 2024.** Centessa is expected to yield registrational data for SerpinPC, its subcutaneous therapy for Hemophilia B in 2024. Similarly, the first LockBody program LB101 (PDL1 x CD47) is expected to yield data from its Ph1/2a trial in 2024 which could validate the masking platform for accommodating difficult to target antigens in solid tumors. Positive news flow throughout 2024 for company's preclinical orexin program in narcolepsy type 1 would drive further upside. We anticipate that the company could do a cash raise in the wake of promising readouts, but mgmt. has guided a cash runway into 2026.

**GPCR (OP) is competing for best-in-class oral small molecules targeting a multitude of pathologies. Ph2 GSBR-1290, oral GLP-1, data is expected in 2H23.** Mgmt. highlighted dosing completion of the Ph1b study of GSBR-1290 on its 4Q22 update. The program remains on track –topline readouts for both the Ph1b and Ph2a for patients with type 2 diabetes and obesity is still expected in 2H23. The company completed its IPO in Feb. 2023 and reported cash, cash equivalents and short-term investments of \$249.5M as of Feb 28, 2023. Mgmt. sees this cash balance as sufficient to fund operations through the end of 2025.

## Berens / Liu Coverage Universe – Targeted Oncology and Protein Degraders

Exhibit 7. Targeted Oncology and Protein Degraders Cash Runway Map



Source: FactSet (Accessed 04/28/23), SVB Securities Research

### Within the targeted oncology universe, many companies face diminishing reserves.

Given the difficult capital markets landscape of 2022, the majority of our SMID cap names are facing declining cash positions, and many need to raise capital this year to avoid dipping below 1 year of a cash runway. We project that 11 companies within our universe will execute raises this year, including AURA (OP), BPMC (MP), ELEV (MP), HOOK (OP), MRTX (OP), MRUS (OP), THR (OP), TNGX (OP), VIRX (OP), and ZNTL (OP). We note that cash runway estimates are based off SVB securities estimates of cash burn rates and may differ significantly from company guidance. We also note that we did not include companies within our coverage universe that no longer need to raise capital.

**CGEM (OP) has long cash runway and catalysts through 2023.** CGEM is currently trading below cash (~145%) but has ~11 quarters of runway to realize value from clinical programs without being cash constrained or needing to raise capital. Additionally, the company has near-term catalysts in initial Phase 1 datasets for CLN-049 (FLT3xCD3) in AML and CLN-619

(MICA/B) in solid tumors, both expected in mid-2023. We note that CGEM is presenting a poster with Phase 1 data for CLN-619 at ASCO this year.

**HOOK has a notable financial overhang.** We note that according to our analysis, HOOK has currently in the weakest cash position within our coverage universe, with only ~4 quarters of cash runway remaining (absent raises). HOOK started 2022 with \$66.9mn in cash and ended the year with \$113.4mn in cash following financing in 1Q22. However, HOOK is again in the position of needing to bolster its balance sheet to fund the ongoing Phase 2 study of HB-200 + pembrolizumab in 1L and 2L+ HNSCC and the ongoing Phase 1 study of HB-300 in prostate cancer, as well as the planned initiation of a randomized Phase 2 study of HB-200 + Keytruda in 2023 for 1st line HNSCC. This magnifies the importance of the upcoming catalysts in HB-200 + Keytruda data in 1L and 2L+ HNSCC, as we currently model a 2Q23 \$75mn raise in conjunction with this data. While HOOK's cash balance is limited, the stock is still trading significantly below cash (~214%), which we think is reflective of limited investor enthusiasm for ongoing programs based on data to date. Similarly, we note that ELEV is also trading below cash (~128%), with lack of investor credit for the pipeline likely a product of the company's lean portfolio following the de-prioritization of former lead asset, seribantumab. Recently, investor interest in the in-licensed ADC targeting Claudin 18.2, EO-3021, has increased, especially following announcement that a Chinese dataset will be presented at ASCO.

**ZYME (MP) is in a strong cash position, although investors remain wary while pipeline develops.** With 14 quarters of runway, ZYME has one of the strongest cash positions within our universe, which is largely attributable to the \$325mn upfront payment ZYME received from JAZZ (OP, Goodman) for the out-licensing of zanidatamab. However, the company is trading near cash (91% of market cap in cash), which we think reflects investors' reluctance for the story in the near term, given datasets presented for the lead asset, ZW-49, and the fact the company's pipeline remains largely preclinical and lacks notable clinical catalysts until 2024/2025. Of note, TNGX is also trading near cash (~121%), though we highlight the company's first clinical data presentation is expected in 2Q23 for TNG908 (PRMT5 inhibitor).

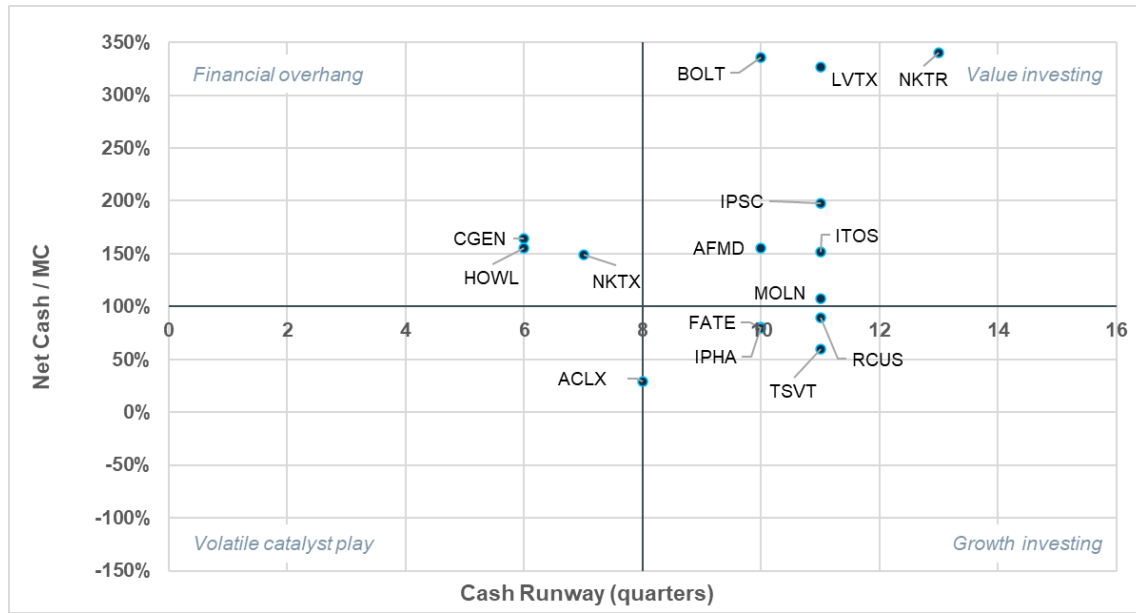
**Within our protein degraders and targeted oncology coverage universe, cash reserves could suggest raises within this year.** With the exception of ARVN (OP), which continues to have significant cash reserves of more than \$1bn, we forecast potential raises for CCCC (OP), COGT (OP), GLUE (MP), and NRIX (OP) within this year on the assumption that the companies would like to have more than 1 years' worth of runway by the end of the year. We believe that positive data could facilitate these raises, with each company having significant key catalysts towards the back half of the year. For CCCC, the company will present updated clinical data for CFT7455 (Ikaros/Aiolos degrader) in multiple myeloma at the new dose regimen. For COGT, the company will have bezuclastinib (KIT inhibitor) indolent systemic mastocytosis data and lateral impact from BPMC's Ayvakit launch in the indication. For GLUE, the company will have initial MRT-2359 (GSPT1 degrader) clinical data in myc-driven tumors. For NRIX, the company will present NX-2127 (BTK + IMiD degrader), NX-5948 (BTK degrader), and NX-1607

(CBL-B inhibitor) clinical data. We note that cash runway estimates are based off SVB securities estimates of cash burn rates and may differ from company guidance.



## Graybosch Coverage Universe – Immuno-Oncology (IO)

Exhibit 8. Immuno-Oncology Cash Runway Map



Source: SVB Securities, as of 4/28/2023

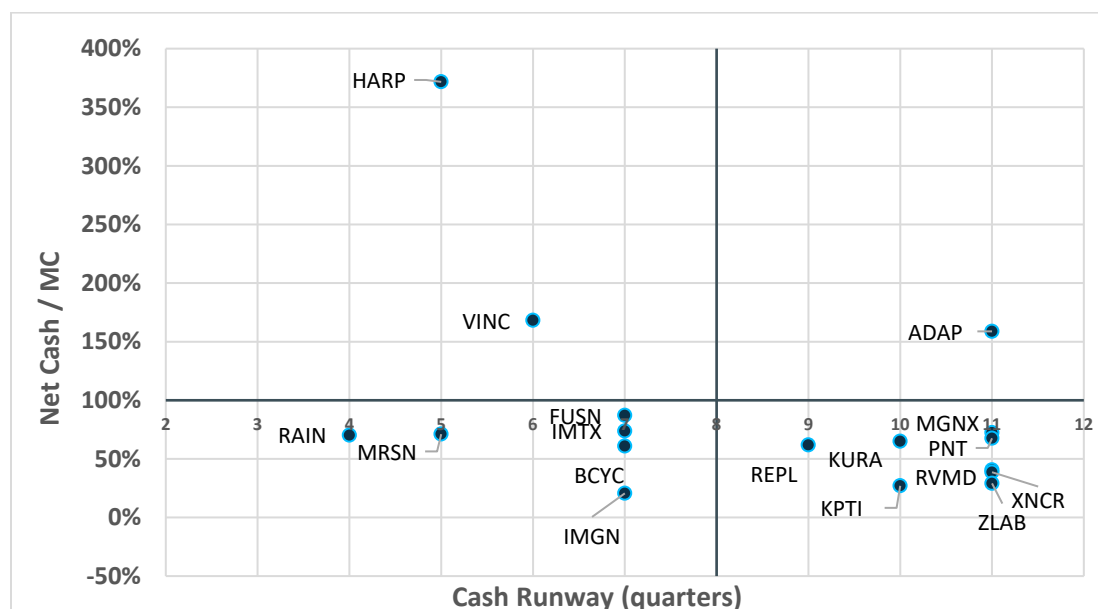
Within our immuno-oncology (IO) universe of companies that are not yet profitable, most companies fall within the Value Investing, and then Growth Investing, quadrants. These companies all share extended cash runway ( $\geq 2.5$  years) but vary on the level of risk attributed by the market.

- Value investing – AFMD (OP), IPSC (OP), ITOS (OP), MOLN (MP), BOLT (MP), LVTX (OP), and NKTR (MP).** Each of these companies benefit from extended cash runways as they aim, to varying degrees, to re-position themselves and/or gain investor confidence following prior clinical or strategic setbacks, whether real (BOLT, MOLN, NKTR), or overstated (AFMD, IPSC, ITOS, LVTX). Their decent cash positions provide investors with the opportunity of time to realize value inflection upside.
- Growth investing – FATE (OP), IPHA (OP), TSVT (OP), and RCUS (OP).** TSVT best fits a growth investing profile given the steady ramp-up of manufacturing and commercial performance of its marketed autologous BCMA-CAR-T cell therapy, Abecma ([LINK](#) for the latest trends, showing they are matching industry-leading, Kite [GILD, MP: Risinger], in volume scale-up). Abecma profits are beginning to contribute to TSVT's comfortable cash position and diminished financing risk ahead of company-profitability. IPHA, RCUS, and FATE are all pre-revenue but receive moderate premiums above cash in their valuations for their later-stage and diverse pipelines (IPHA and RCUS) or platform potential (FATE).

- **Financial overhang – CGEN (OP), HOWL (OP), and NKTX (OP) all face near-term financing risk (cash runway <2 years), which we believe contributes to each stock's currently below-cash valuation.** For HOWL, the company's cash runway was recently extended through 4Q24 after drawing down both \$20M tranches (\$40M total) of their loan agreement with PWB (Not Rated). Under the agreement, however, HOWL is required to raise \$50M from the sale of equity or from a strategic partnership by 9/23/23. Although we satisfy this condition in our model through an assumed out-licensing agreement in 3Q23 for second clinical candidate WTX-330 (IL-12 INDUKINE), we believe some investors may see elevated financing risk, especially the company anticipates initial Ph 1 data for lead program WTX-124 (IL-2 INDUKINE) in 4Q23. While we recognize this concern, we are positive on the company's lead INDUKINE programs and platform and believe that HOWL will secure the required funding in an appropriately non-dilutive fashion (see [LINK](#) for additional perspective on our positive outlook for HOWL). In the case of CGEN, the company arguably has the most pronounced financing risk amongst our coverage. The company's tight cash reserves has necessitated a slower pace of development and difficult strategic decisions, that ultimately, may have contributed to less robust clinical readouts and fewer shots on goal. Despite this challenging financial overhang, we remain positive on the long-term therapeutic potential of the company's pipeline targeting the CD226 axis, and believe the company should be able to secure additional non-dilutive funding from prospective development partner, likely for either their first-in-class anti-PVRIG or newly advanced candidate, anti-IL-18BP (see [LINK](#) for more discussion).
- **ACLX (OP) is our most expensive stock on a net cash-to-market cap basis and exhibits characteristics of companies within both High Volatility Catalyst Play and Growth Investing quadrants.** ACLX has cash runway of two years, a program in registration trials (CART-ddBCMA, autologous CAR-T partnered with Kite), and platform in ph1 trials. The stock has been tracking with Legend (LEGN, Not Rated), as investors appreciate the large total addressable market for auto CAR-T in multiple myeloma (MM). ACLX will likely raise equity around FDA submission (~2025) on the back of confirmation study data. In the meantime, the stock could trade up and down with competitor clinical read-outs and manufacturing / commercial success (or challenges).

## Chang/Khurshid Coverage Universe – Emerging Oncology

Exhibit 9. Emerging Oncology Cash Runway Map



Note: ATNX (MP) is excluded, the company has imminent financing needs and is undergoing restructuring process.

Source: FactSet (Accessed 04/28/23), SVB Securities Research

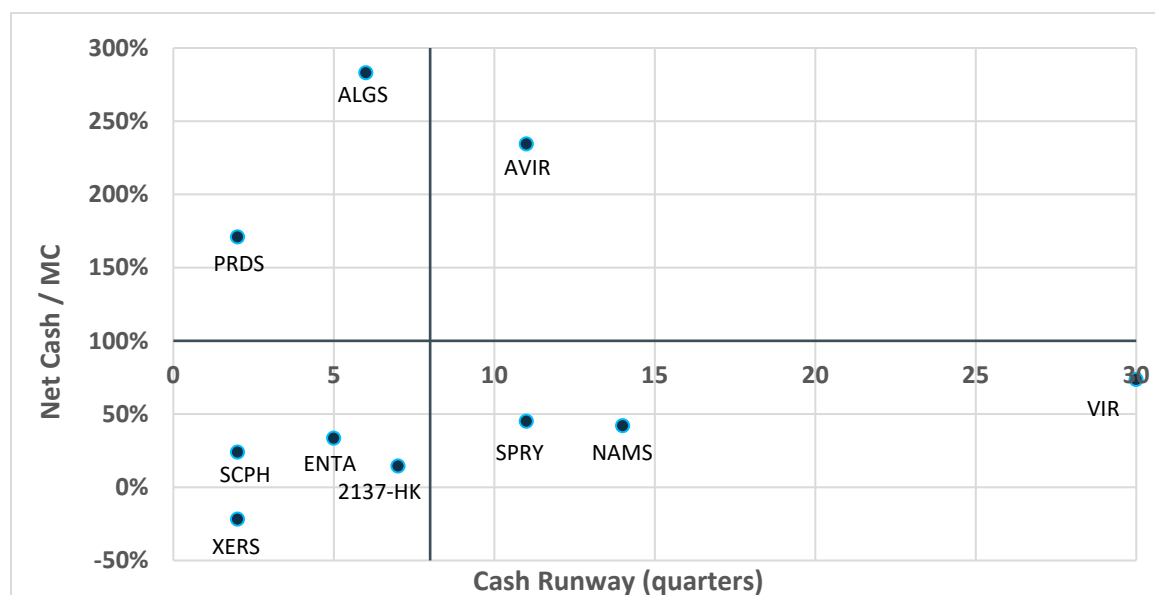
**Six of our companies are exceptionally well-positioned with estimated cash runway through 2025 or into 2026: ADAP (MP), MGTX (OP), PNT (OP), RVMD (OP), XNCR (OP), ZLAB (OP).** ADAP is in the process of merging with TCRR (MP), and the cumulative cash balance of both companies extends the joint entity's runway into 2026. MGTX has recently received multiple payments from collaboration agreements, approval of partnered programs, and sale of a royalty interest in a partner program. PNT benefits from recent upfront payments totaling \$260M from partner LNTH (OP, Ruiz) for the commercial rights to late-stage programs PNT2002 (PSMA) and PNT2003 (SSTR); see our initiation [HERE](#). RVMD remains well-financed ahead of upcoming data for RMC-6236 (multi-RAS ON inhibitor) and RMC-6291 (KRAS G12C ON inhibitor); see our deep dive [HERE](#). XNCR continues to be strongly capitalized from royalty streams and milestones from partners ([LINK](#)). ZLAB is a commercial-stage company and has most recently guided to having sufficient cash to achieve commercial profitability in 2025.

**Three of our companies have near-term cash needs heading into important data catalysts: HARP (OP), MRSN (OP), RAIN (OP).** Though HARP recently executed a PIPE financing, runway remains into 2H24 as data readouts are awaited for HPN328 (DLL3xCD3) and HPN217 (BCMAxCD3 partnered with ABBV [MP, Risinger]). MRSN is one of our top picks for the year ([LINK](#), [LINK](#)) and top-line data for the UPLIFT study of UpRi (upifitamab rilsodotin, NaPi2b antibody-drug conjugate [ADC]) in platinum-resistant ovarian cancer (prOC) are

expected mid-2023. MRSN's cash runway is into 2H24. For RAIN, top-line data for the Phase III MANTRA study of milademetan (MDM2 inhibitor) in dedifferentiated liposarcoma (DD-LPS) are expected 2Q23. RAIN does not have a disclosed cash runway given uncertainty of funding needs after the binary catalyst; we estimate runway as ~1 year based on current burn rate.

## Ruiz Coverage Universe – Infectious Disease, Endocrine & Cardiovascular Disorders (IDECV)

Exhibit 10. IDECV Cash Runway Map



Source: FactSet (Accessed 04/28/23), SVB Securities Research

Vir (VIR, OP), NewAmsterdam (NAMS, OP), and ARS (SPRY, OP), all have substantial cash runways (well over ~2 years) and each could represent unique growth opportunities. Within our universe, Vir, NewAmsterdam, and ARS are the most well-capitalized, with net cash representing ~40-70% of their market capitalization. **Vir** continues to reflect a strong balance sheet of ~\$2.4B that should support “several years” of operating runway and fund the company through potentially validating data readouts in several possible blockbuster indications, including hepatitis B virus (HBV) infection, influenza A, and hepatitis D virus (HDV). **NewAmsterdam’s** cash position is expected to support operations and clinical trial execution across three Phase 3 trials for obicetrapib in LDL-C lowering efficacy and cardiovascular risk reduction, through 2026. **ARS** also should have sufficient capital to support operations for the next ~3 years, including the potential 2H23 commercial launch of *neffy* (intranasal epinephrine), if approved for the treatment of Type 1 allergic reactions. As a reminder, we think the risk/reward could be skewed to the upside (~70-80% up / ~50% down) ahead of *neffy’s* upcoming AdCom on May 11, 2023 and mid-2023 PDUFA (note [HERE](#)).

scPharma (SCPH, OP) should have sufficient cash to support Furoscix’ US launch in decompensated heart failure (HF) for at least the next ~12 months, and future capital requirements might depend on the degree of Furoscix uptake. scPharma launched

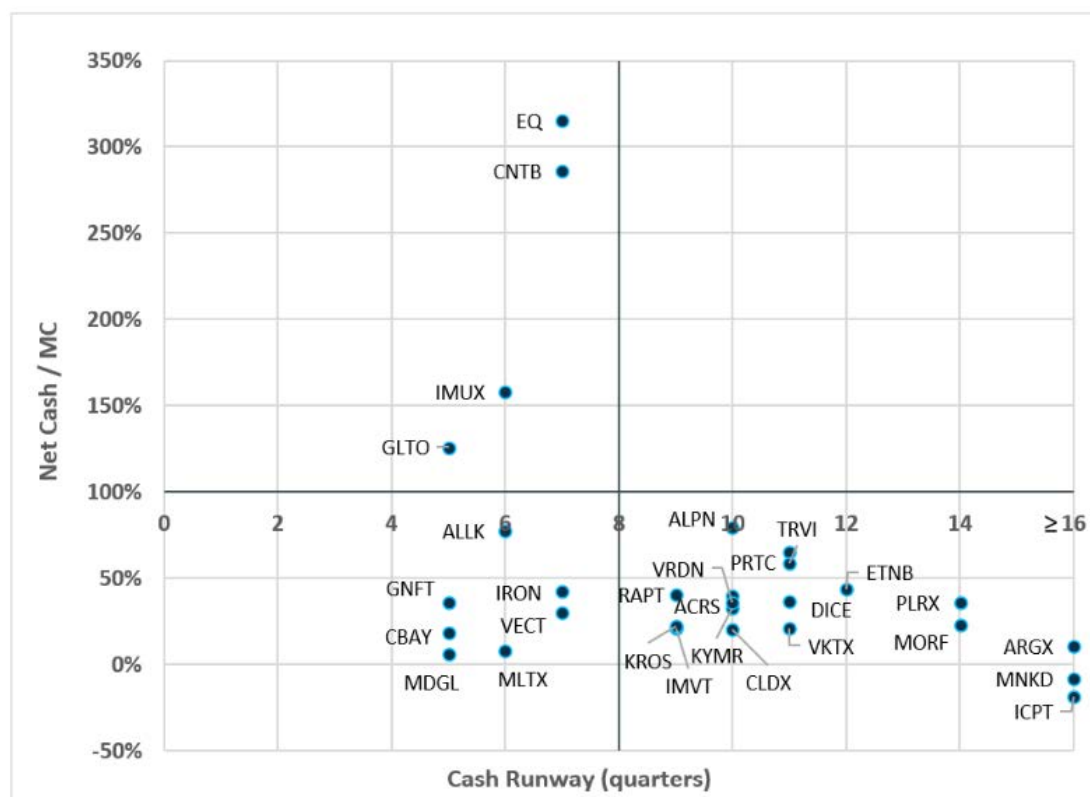
Furoscix (subcutaneous furosemide) for decompensated HF in Feb 2023, marking their transition into an early commercial story. Their YE22 cash position of ~\$118M (includes draw-down of a \$50M debt tranche from Oaktree [Not Rated] and a \$50M capital raise) should help fund Furoscix' launch for at least the next ~12 months (our estimate). However, future capital needs beyond this period may depend on Furoscix' launch ramp, and thus we expect investors to focus on new launch metrics details at scPharma's 1Q23 earnings in May. As a reminder, scPharma could access another ~\$50M (in two \$25M tranches) via their existing debt financing with Oaktree, which depends on achieving pre-specified, undisclosed commercial milestones.

**Two antiviral-focused companies in our universe had recent news which impacts their expected cash runways.** **Enanta** (ENTA, MP) could extend their cash runway through sale of their global royalties on Mavyret. Though our model forecasts a capital raise in 2023, Enanta's recent ([LINK](#)) sale of 54.5% of their future royalty payments from Abbvie [ABBV, MP, Risinger] on worldwide sales of Mavyret to OMERS (Not Rated) for a \$200M purchase price represents a non-dilutive strategy to potentially extend their cash runway and support development of their COVID-19 antiviral, EDP-235, and other pipeline assets. **Pardes** (PRDS, MP) has ~\$173M in cash, but pomotrelvir's (PBI-0451) recent Phase 2 setback in COVID-19 has raised uncertainty around Pardes' path forward. Following these negative Phase 2 results (see our note [HERE](#)), Pardes is halting all development of pomotrelvir, which could significantly reduce their burn rate. Now, Pardes is exploring a range of next steps which could include "an acquisition, merger, business combination, or other transaction" ([LINK](#)), and we note that their cash position (preliminarily ~\$173M as of March 31, 2023) might draw strategic interest.

**Xeris' (XERS, OP) goal is to achieve cashflow breakeven by YE23, but they could face a possible cash crunch if FY23 revenue growth underperforms management's expectations.** As of YE22, Xeris reported ~\$122M in cash, cash equivalents, and short-term investments and ~\$187M in outstanding debt (including draw-down of the last \$50M tranche from Hayfin [Not Rated]). Xeris' commercial portfolio includes: (1) Gvoke for severe hypoglycemia, which we think could grow steadily by ~8% Q/Q on average in FY23E, (2) Recorlev for endogenous Cushing's, whose launch has been slower than expected since its Jan 2022 launch, albeit management recently pointed to a steady increase in referrals/new patient additions at their 4Q22 earnings which could bolster Recorlev's revenue trajectory in FY23E (note [HERE](#)), and (3) Keveyis for primary periodic paralysis, which we think could start to face increased generic pressure in FY23E (orphan exclusivity expired Aug 2022).

## Smith/Kratky Coverage Universe – Immunology & Metabolism

### Exhibit X – Immunology & Metabolism Cash Runway Map



Source: FactSet (Accessed 04/28/23), SVB Securities Research

#### ARGX (OP) and PLRX (OP) have the strongest absolute cash positions in our coverage.

ARGX and PLRX have the greatest nominal cash and equivalents on hand in our coverage universe with ~\$2.19bn and ~\$591mn (pro-forma), respectively. For ARGX, the company raised ~\$761mn in net proceeds via a secondary equity offering in March 2022, following positive topline results from the Phase 3 ADAPT-SC study evaluating subcutaneous (SC) efgartigimod for generalized myasthenia gravis (gMG). During the 4Q22 earnings call (see our note [HERE](#)), ARGX guided to 2023 cash burn of ~\$500mn, and noted their expectation that existing cash, cash equivalents, and financial assets together with anticipated future revenues from efgartigimod should fund the company to profitability. In our model, we assume commercial launch of SC efgartigimod in gMG in 2023 and in primary immune thrombocytopenia (ITP), chronic inflammatory demyelinating polyneuropathy (CIDP), and pemphigus vulgaris and foliaceus (PV/PF) in 2024. ARGX has multiple upcoming clinical and regulatory catalysts, including topline results from the ADHERE study in CIDP expected in 2Q23, the June 20<sup>th</sup> PDUFA date for SC efgartigimod in MG, topline data from the ADDRESS trial in PV/PF anticipated in 2H23, and readouts from the Phase 3 ADVANCE-SC trial in ITP



expected in 2H23. We remain confident ahead of the pivotal ADHERE trial data in CIDP and believe the readout is the key near-term focus for investors, representing one of several upcoming pivotal datasets that we expect will continue to unlock efgartigimod's multi-blockbuster commercial potential. ARGX is one of our Top Picks for 2023.

For PLRX, we model pro-forma cash of \$591mn, which includes the net proceeds from the ~\$269.9mn equity raise in January 2023, following positive topline results from the 320mg dose cohort of bexotegast (PLN-74809) in the Phase 2a INTEGRIS-IPF study in idiopathic pulmonary fibrosis (IPF) patients (see our notes [HERE](#) and [HERE](#)). During the 4Q22 earnings call, management expects the current cash to fund operations into 2H26. Bexotegast is an oral, dual-selective inhibitor of  $\alpha\text{v}\beta 6$  and  $\alpha\text{v}\beta 1$  currently in clinical development for IPF and primary sclerosing cholangitis (PSC). In our model, we project the launch of bexotegast in IPF in 2029 and in PSC in 2028, suggesting that PLRX will likely need additional funding before turning profitable. PLRX plans to report the 24-week data from the 320mg cohort of the INTEGRIS-IPF trial in 2Q23, with safety and durability of efficacy being key. The company also plans to initiate a Phase 2b study of bexotegast in IPF in mid-2023. In addition, PLRX continues to expect initial results from the lower dose cohorts (40, 80, and 160mg) of the INTEGRIS-PSC study in 3Q23, and has recently commenced enrollment in the 320mg dose group (see our note [HERE](#)). We continue to expect bexotegast to compete for a best-in-class profile in IPF and see PSC representing an underappreciated opportunity for PLRX.

**We consider ICPT (MP) and MNKD (OP) to be outliers within our coverage group, despite their cash to market cap ratios, negative net cash position, and projected cash runway.**

For ICPT, we acknowledge some degree of uncertainty regarding the company's cash runway ahead of multiple upcoming regulatory catalysts that should clarify the potential path for obeticholic acid (OCA) in NASH. Specifically, a virtual FDA AdCom meeting has been scheduled for May 19<sup>th</sup> to discuss ICPT's NDA resubmission of OCA ahead of the June 22, 2023 PDUFA date (see our note [HERE](#)). We expect that an AdCom could present a challenge for ICPT, particularly following MDGL's (OP) recent breakthrough Phase 3 MAESTRO-NASH results reported in December (see our notes [HERE](#) and [HERE](#)). Were ICPT not to receive approval for OCA in NASH, we expect ICPT would undertake a significant strategic and financial restructuring, focusing its resources on the core primary biliary cholangitis (PBC) franchise, where we currently model ~\$315mn in revenues for 2023. This business could achieve positive cash flows, in our view, and potentially obviate the need for additional external capital if optimized. Looking ahead, we expect greater clarity following the key NASH regulatory updates expected over the next several months. For MNKD, we note that if the company is able to achieve our forecasted sales for Afrezza and royalties from Tyvaso DPI (treprostinil dry powder inhalation) with partner United Therapeutics (UTHR, Not Rated), MNKD may require minimal or no additional capital to reach positive cash flows, which we project in 2024.

**Our coverage universe includes several companies with less than 2 years of cash runway.** Among these, GNFT (OP), CBAY (OP), MDGL (OP), and MLTX (OP) are particularly



noteworthy. GNFT and CBAY may seek additional capital following pivotal readouts for their Phase 3 trials in 2L primary biliary cholangitis (PBC). For GNFT, topline results from the Phase 3 ELATIVE trial of elafibranor (PPAR $\alpha$ / $\delta$  agonist) in 2L PBC are expected in late 2Q23. The company has partnered this program with Ipsen (IPN FP, Not Rated), who will be responsible for regulatory submissions and commercialization globally. GNFT recognized ~€80mn from an upfront payment of €120mn from Ipsen in 2021 with an additional ~€40mn as deferred revenue to be gradually recognized after completion of the Phase 3 ELATIVE study. GNFT is eligible to receive regulatory, commercial, and sales-based milestone payments of up to €360mn. In 2023, our model assumes a €25mn milestone payment following topline results, €45mn upon NDA submission, and an additional €14.5mn in deferred revenue recognition from Ipsen's upfront payment. We also model €373mn in cumulative elafibranor royalties paid to GNFT by 2030. Accordingly, GNFT will not need to raise capital to directly support an elafibranor launch. However, the company does have a pipeline of rare liver disease assets that are entering mid-stage clinical studies (see our notes [HERE](#) and [HERE](#)), and would likely require capital to further advance these programs. For CBAY, topline results from the Phase 3 RESPONSE trial for seladelpar (PPAR $\delta$  agonist) in 2L PBC are expected in 3Q23. The company recently signed a collaboration and license agreement with Kaken Pharmaceuticals (4521-TKS, Not Rated) for development and commercialization of seladelpar in PBC in Japan, providing both strong economics as well as external clinical and regulatory validation ahead of the topline readout (see our note [HERE](#)). CBAY currently has ~\$262mn of cash or ~\$180mn net cash. However, pending positive data, CBAY may look to raise additional capital to support the PBC launch.

Furthermore, MDGL may need to raise additional funds to support a potential launch and commercialization of resmetirom (THR- $\beta$  agonist) in NASH. The company is guiding to NDA submission in 2Q23. MDGL ended 2022 with ~\$359mn in cash and equivalents, and recently drew \$35mn from a term loan facility with Hercules in February, with access to another \$165mn of capital dependent on achievement of certain clinical/regulatory milestones. The Hercules facility should provide some flexibility for MDGL in terms of launch resourcing and capitalization. We continue to be encouraged by the strong Phase 3 MAESTRO-NASH data announced in December ([HERE](#) and [HERE](#)) and the recent breakthrough therapy designation for resmetirom granted in April ([HERE](#)), and currently model resmetirom launch in 2024. We further note MDGL's comments regarding business development, most notably at our Global Biopharma Conference in February, where the company highlighted heightened strategic interest and partnership discussions that could evolve into M&A discussions following the Phase 3 MAESTRO-NASH topline results (see our note [HERE](#)). We continue to believe MDGL could provide significant strategic value to an acquirer looking to bolster their pipeline with what we expect to be a multi-blockbuster therapy.

Lastly, MLTX plans to report topline data by the end of June from the Phase 2 MIRA study in hidradenitis suppurativa (HS) for lead program sonelokimab (SLK), a tri-specific single domain antibody targeting IL-17A, IL-17F, and albumin. MLTX recently hosted a Capital Markets Day, disclosing a preliminary cash balance of ~\$63mn at the end of 1Q23 and an expected cash

runway to 4Q24 (see our note [HERE](#)). However, we believe MLTX will require additional cash as the company's pipeline matures into potential Phase 3 programs and/or SLK expands into additional indications.

## Disclosures Appendix

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I, SVB Securities Biopharma Team, certify that the views expressed in this report accurately reflect my views and that no part of my compensation was, is, or will be directly related to the specific recommendation or views contained in this report.

| Distribution of Ratings/Investment Banking Services (IB) as of 03/31/23 |       |         |                       |         |
|---|-------|---------|-----------------------|---------|
| Rating  | Count | Percent | IB Serv./Past 12 Mos. |         |
|   |       |         | Count                 | Percent |
| BUY [OP]  | 238   | 65.2    | 56                    | 23.5    |
| HOLD [MP]   | 111   | 30.4    | 7                     | 6.3     |
| SELL [UP]   | 16    | 4.4     | 1                     | 6.3     |

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**Outperform (Buy):** We expect this stock to outperform its benchmark over the next 12 months.

**Market Perform (Hold/Neutral):** We expect this stock to perform in line with its benchmark over the next 12 months.

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