BUILDING A BUSINESS

Stepping to the exit

A historical analysis of oncology deals can help bioentrepreneurs navigate the right time for partnerships and exits and can inform on the type of investors likely to be interested.

Bioentrepreneurs have to think about when and how to exit, and plan venture capital financing accordingly, at every step in the process of developing their companies. Many articles provide general insights but do not tailor their advice depending on the stage of maturity of the company and its assets. Here, we analyze the economics of venture financings and trade sales in the oncology field from 2004 through 2020. Our analysis provides pointers about the financial requirements required to advance a company through each stage of development, to estimate the right time for an exit and how it can be enabled, and to forecast a company's chance of moving to the next stage of business.

Attrition in drug development

The high attrition rate of drug development means that most venture capital (VC) investments in this sector are unprofitable. VC funds are driven by a few outlier investments that provide superlative returns. The European Investment Fund (EIF), a limited partner/investor in hundreds of VC funds, including many life sciences funds, has showed that of the 3,592 EIF-backed VC investments made during 1996–2015, only ~60% had achieved an "exit," with the remaining companies still in the VC fund's portfolio[1]. Of the 60% of life sciences investments that exited, 75% were written off or returned less than the invested capital. The other 25% of the exits returned more than 1× the invested capital, but just 6% of those returned more than 5× the invested capital. That 6% of outliers, on average, returned half of a VC fund. Similarly, VC thought leader Bruce Booth has estimated that only 10% of exits on US biotechs return 4× or more[2].

Our investment firm, Aglaia, has built a database of 190 full-acquisition deals involving oncology therapeutics ventures for which deal economics were disclosed (Box 1). We were able to retrieve full investor financing information up to exit for 134 companies. By combining this information with published datasets on drug-development attrition rates and phase-transition durations of 4,414 medicinal products, including 1,628 oncology products[3,4], we have created a dataset that is historically informative about the acquisition interests of pharma and the predicted time to exit, risk of failure and capital needs of startups.

As oncology is by far the most important area for mergers and acquisitions (M&A) in life sciences—garnering $67 billion in 2019[5], for example—we focus our analysis on the cancer sector. Even so, we believe this dataset may still provide useful insights for bioentrepreneurs working in other indications, especially considering that oncology products include the majority of drug modalities found elsewhere in biopharmaceutical discovery and development. In what follows, we describe our findings relevant to bioentrepreneurs running companies at each drug-development stage.

Preclinical

The discovery/preclinical phase consists of target validation and development of compounds through preliminary studies enabling an investigational new drug (IND) application, the point at which companies ask the regulators for approval of first-in-human studies. This phase is the longest one in the drug-development pathway, taking 5.5 years on average.

Box 1 | Data and methodology

We extracted a database from GlobalData containing completed, 100% acquisition and majority acquisition deals between 1 January 2004, and 31 December 2020 in the area of oncology. This yielded a list of 862 deals. We excluded all deals with no reported values, companies with more than five therapy areas beside oncology and companies with no reported drug pipeline; this yielded 511 deals. The remaining 351 deals were curated by using the following sources: websites of acquired company and acquiring company, HBM Partners, Crunchbase, the website of the US Securities and Exchange Commission and Pitchbook. The company's press releases were taken as leading source in cases of discrepancy. We excluded deals having companies with no oncology focus, companies developing generics, companies developing diagnostics and cases in which the company was developing a platform technology with no clear oncology focus. A total of 190 deals were admitted to the final database. We retrieve full investor financing information up to exit for 134 of these 190 M&A deals. We extracted a database from GlobalData containing 1,050 completed venture financing deals between 1 January 2015 and 31 December 2020 in the area of oncology. The venture financing deals contained 1,654 unique investors that were categorized according to the type of series round invested.

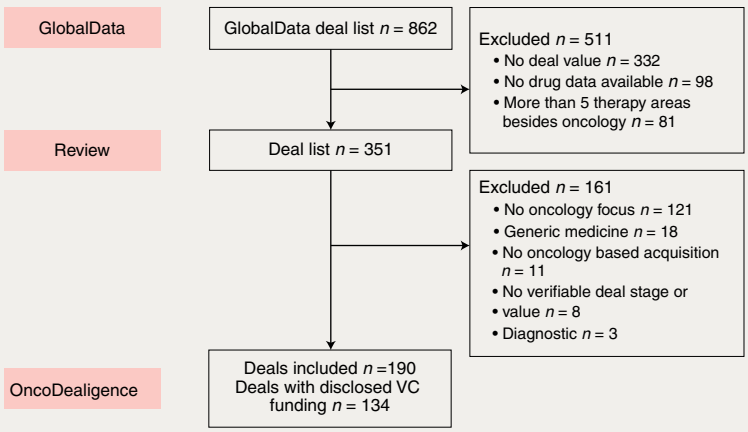

Table 1 | Key financial aspects of the different phases of oncology drug development

	Preclinical		Phase I		Phase II		Phase III		Marketed	
	Total	Up front	Total	Up front	Total	Up front	Total	Up front	Total	Up front
Mean deal value ($ million)	238	90	245	116	1,091	851	1,814	1,243	4,250	4,211
Mean investment ($ million)	30		44		184		222		417	
Phase success rate (%)	45		49		25		48		92	
Time (years)	5.5		2.7		3.7		3.1		0.8	

Shown are VC money required to get to a particular phase in oncology drug development, chances of successful phase transition, average and up-front deal values and duration for each phase of development.

It is also one of the riskiest phases of drug development, with a success rate of only 35% (Table 1). The attrition is usually caused by an inability to validate a drug target or a failure to develop a suitable drug product.

New targets bring their own set of expectations from pharma companies and VCs. They should have a strong causal connection with the disease, such as a genetic link or functional evidence in disease-relevant models. Alas, for most, a *Science*, *Cell* or *Nature* paper and a patent are not enough; until you have obtained extensive validation through preclinical studies, be prepared for an uphill battle when meeting with industry or investors. It isn't just that VCs would be taking a leap of faith in investing in a project lacking such validation. It's that they know pharma will require strong clinical validation with any new target, and without that, there will be a risky, long and expensive development path, with a low likelihood of early exit.

Let's say your start-up is pursuing a target that already well validated; what would be your next challenge? One of the most important requirements is for you to show a differentiating edge over competitors.

Within our dataset, we found a highly skewed distribution of exits with a wide variance in value (Fig. 1). Within this wide variance, the average exit value reflects a balance between many relatively low-value deals and a few extreme upper-deal outliers. The average deal value gives an exaggerated view of what high-performing oncology ventures, in our experience, may be sold for. The median deal value suggests what companies are actually commonly sold for. We tracked the development stage of the company at time of acquisition, and to our surprise, about one-third of acquisitions were preclinical-stage oncology ventures (Fig. 1a). Indeed, M&As have been moving earlier in recent years. The proportion of preclinical-stage ventures increased to 42% in the shorter timeframe of 2015–2020, when checkpoint inhibitors targeting cytotoxic lymphocyte-associated antigen 4 (CTLA4) and programmed death receptor 1 (PD1) emerged as transformative treatments in immuno-oncology, leading to a scramble for unprecedented, early M&A activity (Fig. 1b).

The increase in M&A for preclinical ventures reflects heightened competitiveness among big pharma and big biotechs for oncology drugs, which requires them to make earlier-stage deals. It also shows how hype, in this case around immuno-oncology, influences acquisitions. For any bioentrepreneur developing a proposition in such a space, this has consequences for when and whether they can exit their venture, which increases their odds of receiving an investment.

Biotechnological innovation tends to move in cycles, in which an initial discovery leads to inflated expectations, followed by technical failures and disillusionment, after which breakthroughs are needed to generate new enthusiasm. Cell therapy, oncolytic viruses, oligonucleotide therapeutics and immuno-oncology have all followed these cycles. Bioentrepreneurs need to be aware of where their companies fall within the innovation cycle. This can be learned by speaking with industry experts and monitoring pharma and VC activity.

Most pharma companies have partnering pages on their websites or organize partnering days, which can be used as a starting point to understand what pharma is looking for. At Aglaia, we usually have biannual meetings with pharma, at which we discuss our portfolio and ask for updates on their current and future interests. Given that big pharma rarely makes deals outside its areas of declared interest[6], this influences how we (and other VCs) pick the fund's portfolio.

VCs, and accordingly also bioentrepreneurs, must also act on trends that could impact the profiles of companies that will exit 5–10 years from now. For example, the clinical successes of Yescarta and Kymriah has helped pharma embrace adoptive cell therapy, which has in turn spurred interest by many more VCs in this modality.

Preclinical oncology trade sales had a mean deal value of $238 million (Fig. 1a). The higher risk of failure for early-stage drugs is reflected in preclinical deals, which normally involve a relatively small up-front payment, with the remainder being paid in contingent milestone payments. Again, bioentrepreneurs need to be savvy about this. You may want to move your asset into first-in-human trials; then again, you may prefer to develop a compelling preclinical data package and then exit early, at a lower acquisition price, thereby avoiding the risk of failure in clinical development. A pharmaceutical company acquiring a preclinical company typically will fund more clinical programs than the enterprise could afford on its own, and that increases the chance of achieving the milestones by allowing more shots on goal.

In our dataset, we found that biotechs do 58% of preclinical oncology acquisitions, but big pharma was over-represented in deals valued more than $150 million. We recommend that bioentrepreneurs use data providers to identify the companies developing products in the appropriate area and/or active in (early-stage) dealmaking. Although the pipelines of big pharma, and increasingly big biotech, are filled with drug products originated by biotechs, the quantity of deals they do is very variable. So you must constantly evaluate the field. Within Aglaia we reiteratively analyze the top 20 dealmakers in oncology, which allows us to focus our portfolio discussions.

If seeking a preclinical exit, it is crucial to forge a partnership with pharma early on[7], even though the pharma partner will not typically be the party that acquires the company. In our data, we found that, of the acquired companies with existing collaborations, only a minority of those existing collaborations were with the acquiring party. It is possible that the existence of a pharma collaboration can trigger a sense of urgency in a competing pharma, which then acquires the company. This suggests that bioentrepreneurs can sometimes use an initial deal to spark interest from other large companies. In terms of fundraising, partnerships with pharma provide external validation of a

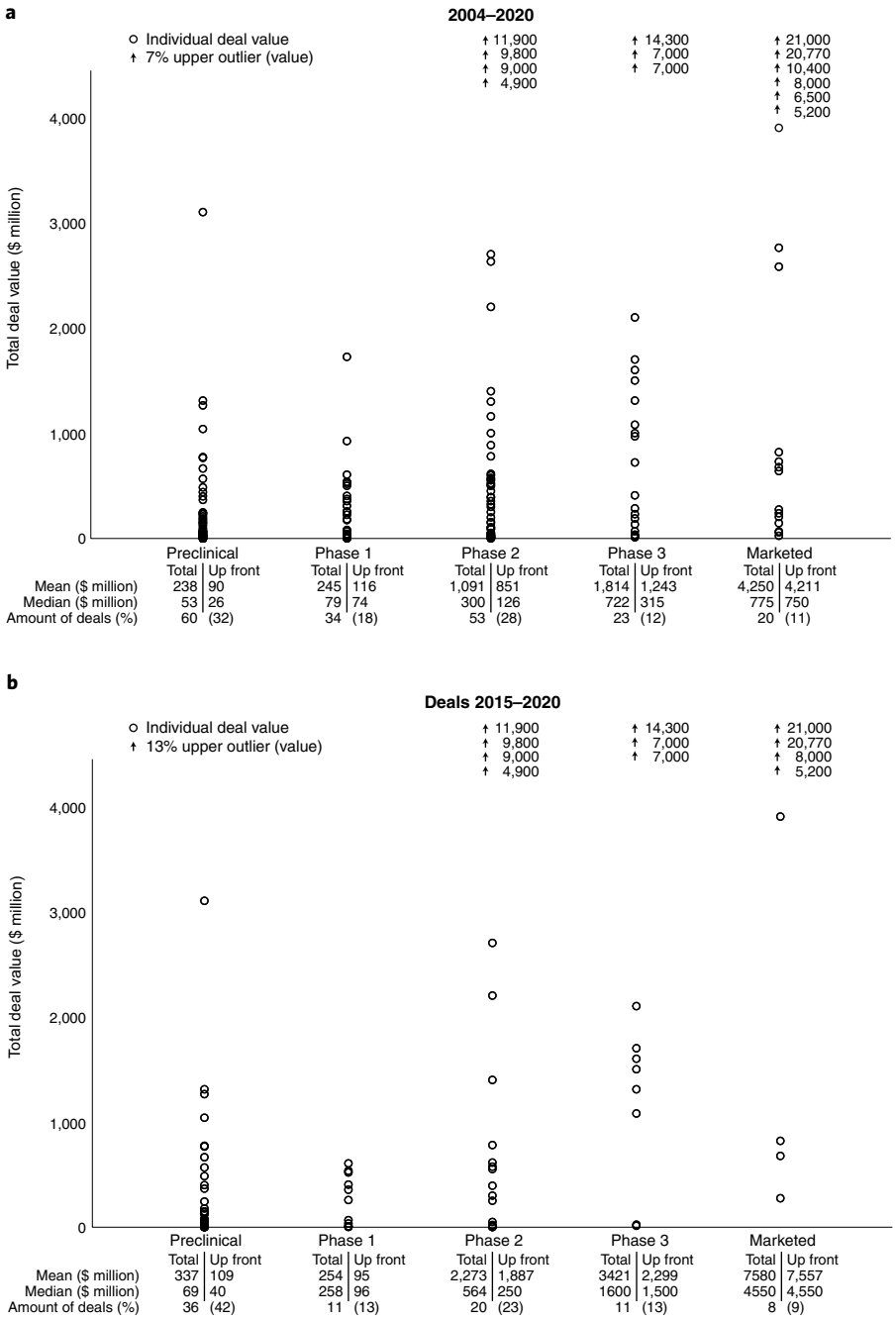

Fig. 1 | Deal stage of oncology venture at time of acquisition. a,**b**, A total of 190 acquired oncology therapeutics ventures were categorized according to their stage of development at the time of acquisition in the period 2004–2014 (**a**) and 2015–2020 (**b**). The preclinical phase also includes the drug discovery phase owing to a lack of discovery-stage deals.

company's value and technology concepts, which can greatly facilitate a fundraising campaign. Similar to what we found with our oncology M&A dataset, more than half of oncology licensing deals in 2020 were with early preclinical companies, particularly those with proprietary drug-discovery platforms[8].

Once settled on the exit journey, it's possible to estimate the funds required to get there. Our dataset of companies with disclosed venture funding shows a large spread in total invested capital, but provides a rough idea of what's needed. For oncology entrepreneurs, a series A fundraising round of $20–30 million should be sufficient to complete the preclinical phase and provide a first opportunity to exit (Fig. 2). In our dataset of 190 oncology biotech M&A deals, 68% of ventures did not exit preclinically and subsequently progressed to Phase 1, though that percentage might be decreasing in current times.

Phase 1

Phase 1 studies take an average of 2.7 years and have a success rate of 49% (Table 1). It is important to note that oncology drugs with completed dose-escalation studies (phase 1a) are nowadays often further evaluated in a phase 1b study, in patients in whom the drug is expected to have activity. The phase 1b oncology trial provides the company a first glimpse of anticancer activity, which can then be confirmed in a phase 2a study, generating preliminary evidence of both safety and efficacy. The phase 1a trial can be done in less than 1 year, and the phase 1b can take 1–2 years to complete, depending on the number of targeted patients.

The mean deal values of phase 1 stage oncology ventures were in the same range as those of preclinical ventures, but the higher phase 1 median deal values show that lower deal values are less common in this phase (Fig. 1). Only 18% of oncology ventures were acquired at this stage, and that percentage declined in the 2015–2020 subset (Fig. 1b). Our data suggest that the uptick in value for oncology companies that have moved from preclinical stage to phase 1 is relatively low. This can be explained by the fact that the success rate of phase 1 studies is relatively high and therefore these do not add much value. This explains the rise in popularity of phase 1b studies in oncology, given that they provide additional value creation. Phase 1b cohorts are also becoming larger, resulting in more solid interim safety and efficacy data packages. Thus, we predict that values for phase 1 acquisitions will rise in the future.

There has been an increased interest in developing products for rare tumors, those that occur in fewer than 15 out of 100,000 people each year. Rare tumors account for 20% of all tumors and tend to have limited treatment options. But developing drugs for rare tumors has certain regulatory benefits, including 7 years of marketing exclusivity, and can have relatively low cost. Yet they also tend to have projected peak sales of around $250 million on average, so bioentrepreneurs should be aware that this might require a different pool of potential acquirers[9]. Alternatively, bioentrepreneurs could consider marketing the drugs themselves, but this requires an entirely different business plan that will attract yet other types of investors.

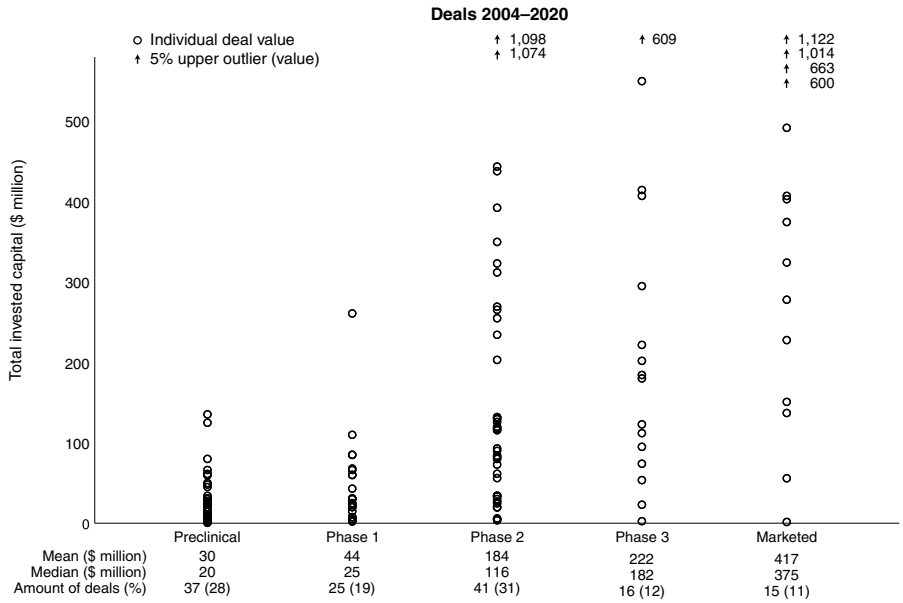

Fig. 2 | Capital invested in oncology ventures until exit. Total invested venture capital of 134 oncology therapeutics ventures until exit.

Oncology companies require, on average, ~$44 million of VC funding to reach a phase 1 exit, which is only $14 million more than needed to exit preclinically (Fig. 2). We often see biotechs either choosing to develop a strong preclinical package or taking a minimally acceptable data package to the regulators for clinical study approval and thereby making themselves a clinical-stage company. That may help explain why these numbers are similar.

We recommend that bioentrepreneurs seek funding for both a phase 1a and phase 1b study, with one or more clinical cohorts of 20–30 patients each, given that the capital invested in a phase 1a study typically doesn't drive better deal value. However, because it takes time for the final data from a clinical study to read out and for a deal with pharma to conclude on the basis thereof, we recommend seeking funding for a phase 2a study as well. In this way, you won't end up negotiating a deal when you are running out of cash and can use the emerging phase 2a data to support the deal discussions.

For oncology entrepreneurs, a series B of $20–40 million should be sufficient to complete phase 1, whose cost is mostly dictated by the number of targeted patients. Clinical development in oncology is generally more expensive than that for other diseases, particularly for phase 1 trials, because of the extensive analytical work on blood and tissue. The costs associated with a drug modality also plays a role—cell therapy companies have high manufacturing costs, for instance.

The pool of investors you can tap into changes when you reach phase 1. We analyzed 1,050 series A–D and beyond, venture financing rounds of oncology ventures from 2015 to 2020, and identified 1,654 unique participating investors. The majority of the rounds were A or B, and often that was enough to achieve an exit or to conclude that results were insufficient to warrant additional investment.

Fifty-two percent of investors participated in series A (Fig. 3). Series B investors made up the second largest pool of investors, at 31%. A large proportion of the top series A, B and C investors don't seem to exclusively invest in particular venture rounds (Table 2), but smaller funds (<$150 million) typically focus on early-stage investments, given that their cash reserves are insufficient to maintain their shareholding in later rounds. In contrast to these blue-chip investors, most other oncology investors seem to exclusively participate in certain venture rounds, particularly series B and C.

Bioentrepreneurs running ventures with assets ready to enter human testing would do well to question VCs about their preferred exit strategy and how much money they invest over the lifespan of a company. Typically, VCs aim for either a trade sale to a pharmaceutical company or an initial public offering (IPO) as their exit routes. For VCs, an IPO is not an exit at the moment it occurs; VCs will still need to sell their shares. Of course, acquisitions of public companies also occur, and did so in about one-quarter of the M&A in our database (data not shown). Historically, only late clinical-stage biotechs were good IPO candidates, but that has changed dramatically in recent years. In 2020, 66% of IPOs were on preclinical and phase-1-stage companies[10]. Interestingly, the average IPO proceeds of preclinical biotechs were as much as those of phase 1 and phase 2 biotechs[11].

If a startup does not have a data package strong enough to trigger an M&A, or if the development path seems exceedingly expensive, then an IPO might be a better option than a trade sale, especially if VCs are wrapping up their funds. A good timing for planning an early-stage company IPO is 1 year before the IND application. A public biotech's stock price is critically dependent on regular news flow around the achievements of developmental milestones, and an IND approval, and then the completion of a phase 1a, phase 1b and phase 2a trials, are all milestones that occur in a relatively short time frame.

To enable an IPO these days, bioentrepreneurs need to tap into a class of investors called crossover investors. These investors specialize in helping a venture cross over from a private to a public company. Crossover investors will buy into your company in a special venture financing round called a mezzanine round and will furthermore commit to buy a large proportion of IPO shares.

Phase 2

The phase 2 'proof of concept' study is the first to evaluate a drug product for efficacy. This is the most difficult phase of drug development and thus has a success rate of only 25% (Table 1). It takes 3.7 years on average and can vary depending on whether a phase 2a study (small non-randomized cohort) is done as well as a phase 2b study (small randomized cohort).

We found that the acquisition deal value increased fourfold, to $1.09 billion, when companies transitioned from preclinical/phase 1 to phase 2 (Fig. 1a). At this stage, 28% of oncology ventures were acquired, the second largest portion after preclinical exits. Acquisition prices increased twofold to $2.27 billion between 2015 and 2020, compared with the entire 15-year dataset, suggesting increased competition for advanced-stage companies in recent years (Fig. 1b). Oncology has consistently made up the lion's share of new drugs being admitted to the market over recent years. Because of this, oncology has become a focus area for many pharmaceutical companies, which are increasingly dependent on biotechs to fuel their pipelines. This is likely also why the majority of acquisitions are now of

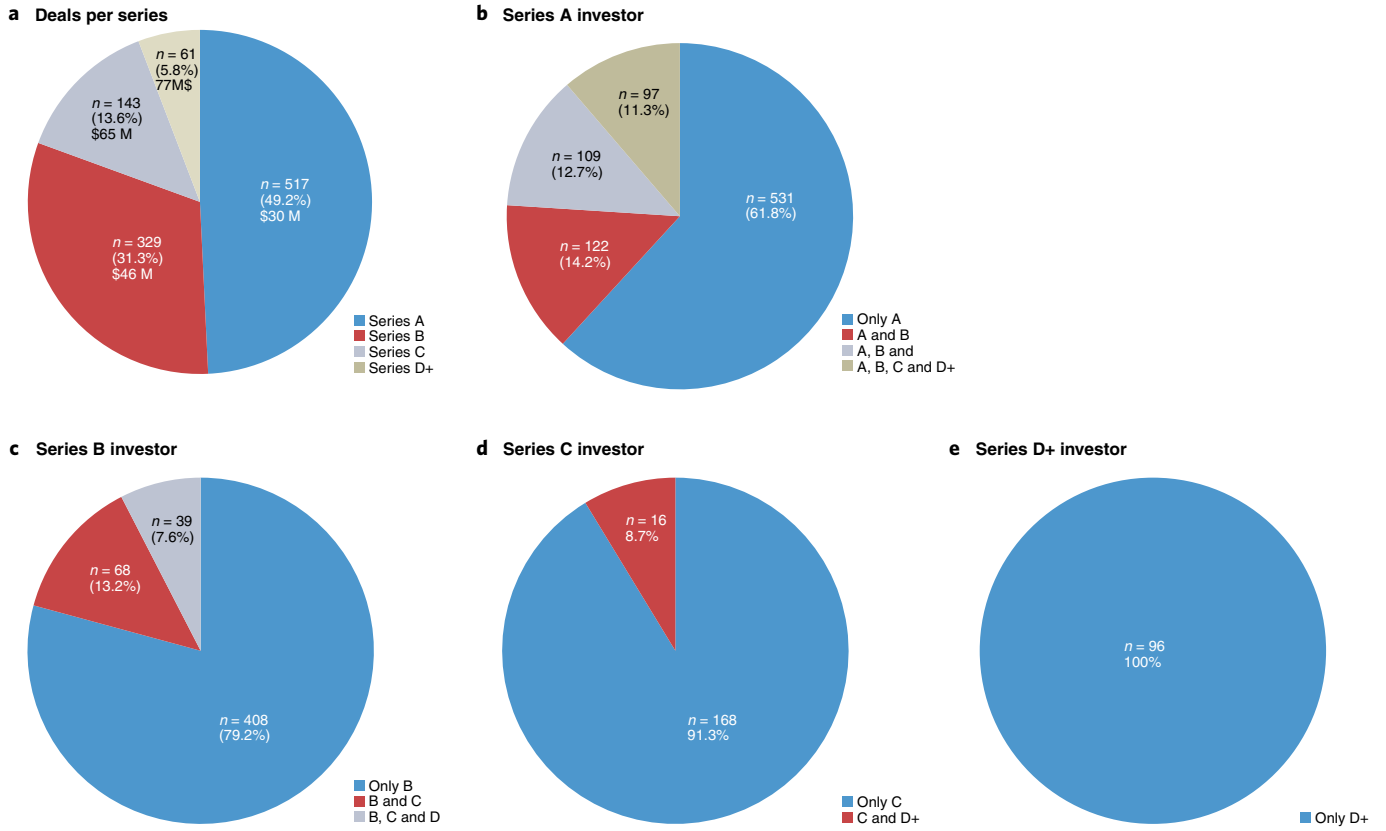

Fig. 3 | Number of oncology venture financings and type of investors. a, 1,051 venture financing rounds on oncology ventures were stratified for series A, B, C, and D and beyond (D+) rounds. Mean deal sizes are depicted. **b**–**e**, Series A investors (**b**), series B investors (**c**), series C investors (**d**) and series D+ investors (**e**) were analyzed for participation in venture financing rounds.

preclinical-stage oncology ventures. Buyers in these high-value deals were mostly pharmaceutical companies with revenues of over $10 billion, meaning that the pool of acquirers here is smaller.

The drug modality also factors into the deal decision-making process of both VCs and big pharma/big biotech. In our data, we found that 70% of phase 2 deals involved traditional drug modalities, such as small molecules and antibodies. When looking at acquisitions valued at or above $150 million, 71% of these were for traditional drug modalities, irrespective of development stage. This suggests that more innovative drug modalities generally command lower deal values, likely because these modalities have not been robustly de-risked and pharma companies are not accustomed to them.

In our dataset, we found only six acquisitions of cell therapy companies and only a handful of acquisitions of companies developing oligonucleotide therapeutics. As of today, RNA therapeutics have been approved only for monogenetic diseases, where one dysfunctional gene leads to a disease. RNA-targeting drugs will still have to find their way in more complex diseases like cancer. We surmise that pharma tends to partner with oncology companies developing nontraditional medicines, rather than acquiring them. Developing an entire new drug modality, such as a cell therapy or oncolytic virus, comes with developmental, regulatory and manufacturing uncertainties. For pharma it is advantageous to have biotechs do the heavy lifting here. In general, bioentrepreneurs need to be aware of this when working on entirely novel drug modalities that are not yet accepted by pharma.

Antibody–drug conjugates (ADCs) can serve as an example. When the target is not validated and the antibody, payload and linker technology all have not been tested in patients, there are significant risks. In the ADC field, a novel linker technology on its own can be sufficient to transform a disease outcome, as we have seen with Daiichi's Enhertu (fam-trastuzumab) for advanced HER2-positive breast cancer, and will be more palatable to acquirers. In such a case, a bioentrepreneur should take into account pharma's historical slow adoption of new drug modalities. We recommend that bioentrepreneurs screen big pharma's partnering pages and deal-making activity to determine what the level of interest is for their drug modality, as VCs are effectively doing the same. It is also important to try to understand pharma's profiles of acquisition candidates versus licensing or partnering candidates, which affects when you can exit.

The VC funding requirement to exit at phase 2 increases to ~$180 million, mainly driven by clinical trial costs (Fig. 2). Taken together, we can conclude that raising five- to sixfold more than a $20–30 million series A alone could lead to a fourfold higher deal value, but the risk of failure also strongly increases. If a bioentrepreneur is aiming for a phase 2 stage exit, they may not need complete phase 2a data; instead, we recommend planning for a phase 2a study, allowing the phase 1b data to trigger deal discussions with the potential acquirer and then using the phase 2a results to support the proposition as they come in. This could end up requiring $30 million (series A) to

Table 2 | Top series A, B and C investors in oncology ventures in the period of 2015–2020

Series A		Series B		Series C	
Investor	**Total deals**	**Investor**	**Total deals**	**Investor**	**Total deals**
Alexandria Venture Investments	24	Orbimed Advisors LLC	24	Orbimed Advisors LLC	20
Atlas Venture Inc	17	Alexandria Venture Investments	20	Cormorant Asset Management LLC	15
ARCH Venture Partners LP	15	Cormorant Asset Management LLC	16	Boxer Capital LLC	11
Versant Venture Management LLC	15	RA Capital Management LP	15	Fidelity Management & Research Company	11
M Ventures	14	Celgene Corp	13	RA Capital Management LP	11
Orbimed Advisors LLC	14	Lilly Asia ventures	13	Rock Springs Capital Management LP	11
Canaan Partners	13	Nextech Invest Ltd	13	Redmile Group LLC	10
Osage University Partners	12	ARCH Venture Partners LP	12	EcoR1 Capital LLC	9
Boehringer Ingelheim Venture Fund	11	Casdin Capital LLC	12	Alexandria Venture Investments	8
Lilly Asia ventures	11	GV Management Co LLC	12	Foresite Capital Management LLC	8
Johnson & Johnson Innovation – JJDC Inc	10	New Enterprise Associates Inc	12	Lilly Asia ventures	8
MPM Capital Inc	10	Redmile Group LLC	12	Nextech Invest Ltd[a]	8

[a]Vivo Capital and Wellington Management Company also invested in eight series C rounds.

get to an IND and $40–60 million more (series B) if you end up with phase 2a data. As discussed earlier, in doing research on VCs, verify in what series they tend to invest and what they typically invest over the life span of a venture, and find out what type of exit they envision for your company.

Phase 3

The phase 3 study is the final confirmatory clinical study in which the standard of care for the target indication is compared with the experimental drug in a large number of patients. This phase has a reasonable success rate of 48% and takes 3.1 years on average to complete, varying by the size of the clinical trial and how fast patients progress to the clinical endpoints (Table 1).

Our data show that a phase 3 company is worth at least sevenfold more than a preclinical-stage company, and that differential greatly increased between 2015 and 2020 (Fig. 1). At this stage, only 13% of oncology ventures are acquired, but 61% of companies are publicly listed. Most biotechs will not choose to develop a drug all the way to phase 3, given that the capital requirement to exit at phase 3 increases to about $210 million of VC funding (Fig. 2). At this stage, a series C found of $60–90 million would be needed to complete phase 2b studies, which is in line with the $65 million that is typically raised in series C (Fig. 3). The pool of investors that can provide this large amount of funding is limited, as only 11% of oncology investors participate in series C rounds.

Roadmap to the exit

With all this information, bioentrepreneurs can build a roadmap to the exit (Fig. 4). Before starting on the drug-development journey, they should scrutinize their propositions with experts on three key criteria: whether there is a momentum around a current technology, whether there is industry acceptance of the intended drug modality and whether that product could truly transform the outcome of a disease with a high unmet need. Given that drug development is long, a thorough understanding of how a disease treatment landscape is changing is crucial. It is important to understand what the typical exit points are for investors in the target indications, and what is needed to get there. Our data can help, but bioentrepreneurs should analyze the stage at which previous, similar companies were acquired and the data packages that drove the acquisitions.

It would also be wise to conduct a historical analysis of deal-making in the target indication, followed by discussions with industry experts, pharma and VCs, all before even writing a business plan. Seed funding can be used to fund the killer proof-of-concept experiments that truly de-risk the proposition and support the key technology applications. That should help attract interest from VCs and pharma. Meanwhile, seek grants for higher-risk programs that are not mission critical.

Ideally, bioentrepreneurs should have a pharma partner in place before embarking on a series A campaign. In our experience, it can take up to a year to complete even a small deal with pharma, so we recommend engaging with pharma once your patents are in safe haven. Likewise, though fundraising can occur quickly if a proposition attracts strong interest, we typically account for 1 year. Raising funds when you are nearly out of cash decreases your odds of getting a good deal, so start the series A campaign when you have at least 1 year of runway.

In our experience, many VCs require the availability of a lead candidate to consider investing in a company because it takes 2 years from there to complete a preclinical package and file an IND. At this point, especially in the oncology field, the IND might be enough to earn an exit. If not, it will take another 3–4 years to acquire phase 2a data and reach a second chance at exiting. This means that within a time frame of less than 6 years, a company has two opportunities to exit, which fits within the 10-year term of a typical VC fund.

We would also recommend that bioentrepreneurs aim for a $20–30 million series A fundraising round. That should be sufficient to complete the preclinical phase. In recent years, the sizes of venture

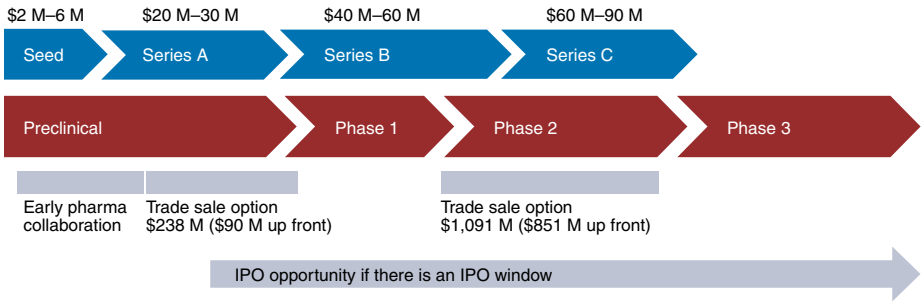

Fig. 4 | Roadmap to exit. Model depicts the required venture funding to get to certain points in development and where exits could take place.

financing rounds in life sciences have increased given the vast amount of capital that has flooded into the life sciences. This might seem attractive, but there are considerations bioentrepreneurs should be wary of. One is that founder shares will be more heavily diluted in larger rounds, so that the founders will be dependent on the willingness of the investor syndicate to offer a form of protection throughout future financing rounds. Also, in large rounds, smaller funds are less likely to participate. This reduces the quantity of possible investor syndicates and their configurations, and so you may miss out on a syndicate with more favorable terms. Expanding the drug-development pipeline comes at the expense of focus, which gets diluted over these programs, and also increases strategic and organizational complexity. Thus, "Focus, focus!" is a common mantra among VCs. Once the lead candidate has been identified, it's good to connect (or reconnect) with any pharma that has declared interest in your field—there might already be an opportunity to sell the company at this stage. If not, feedback from pharma will at least help you determine what sort of data package is likely to be needed to enable a trade sale.

If there appears to be an open IPO window, work on building a network with crossover investors and investment bankers to get a sense of whether an IPO is an option. We recommend that bioentrepreneurs run a series B fundraising campaign in parallel with reaching out to pharma, as it's difficult to predict which trajectory will be successful. Both sides will understand and accept this, but it's important to be transparent and inform both sides of any material developments. If the series B round is necessary, aim to obtain enough funds to complete a phase 1b study, and preferably a phase 2a study. That round should fall in the $20–60 million range. With the phase 1b data in hand, we recommend again connecting with pharma for deal discussions. If the data package is not sufficiently strong enough to trigger a deal, consider a series C fundraising round of $60–90 million.

Almost all drug-development paths are rocky. To prepare for this inevitability, make sure that your team, shareholders and other stakeholders are aligned on the exit strategy right from the start. Plan hard for each anticipated step, and keep all of those involved aligned through any deviations. If you do this all along the path, your chances of success are greatly improved. ❐

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Competing interests

All authors are employed by Aglaia Oncology Funds, which invests in oncology start-ups.