

Partnering With Pharma

ENTREPRENEURIAL SCIENTIST PLAYBOOK

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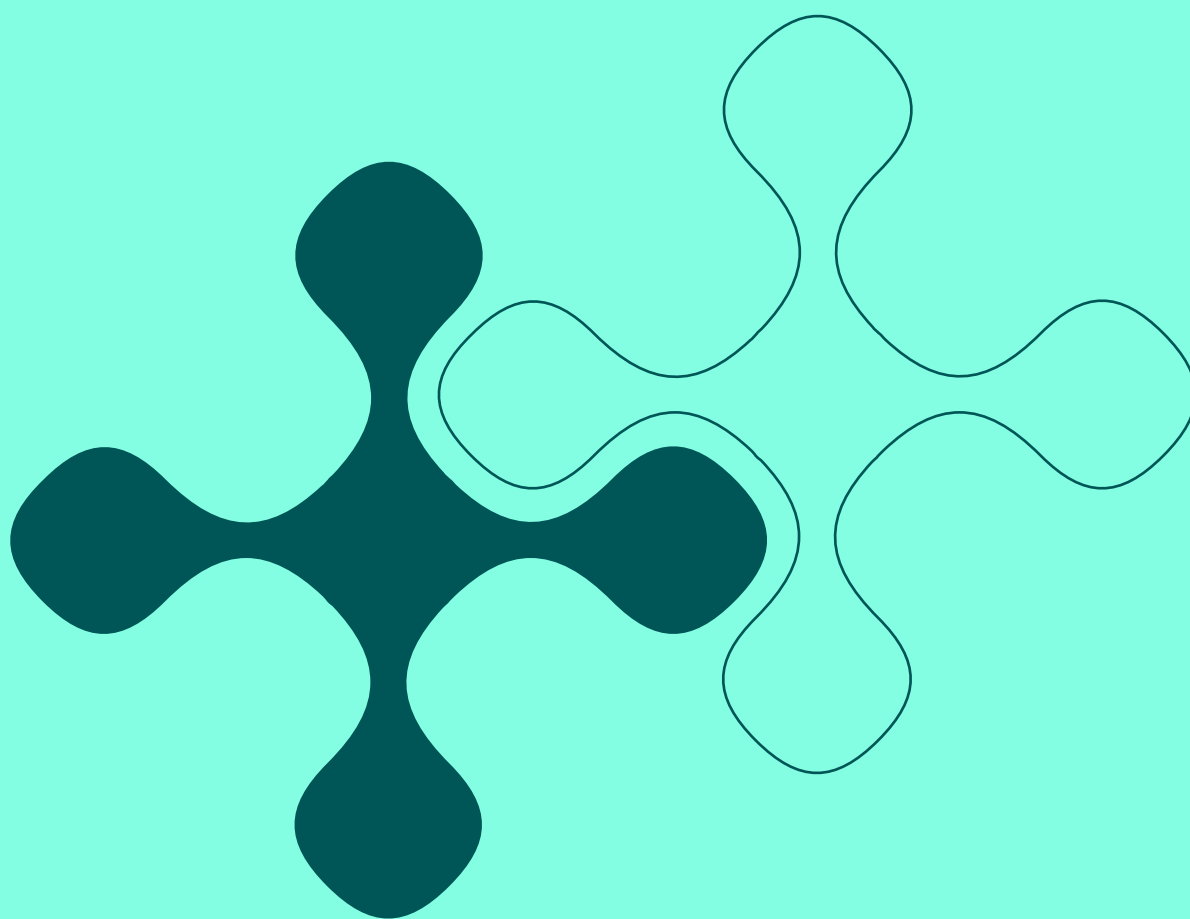


Table of Contents

Foreword	03
Motivation + Methodology	04
Chapter 1. Introduction to Biopharma Partnerships	05
Chapter 2. Partnership Initiation: Biopharma Motivations and Sourcing	09
Chapter 3. Building an Alliance	15
Chapter 4. Partnership Structure, Terms and Management	21
Chapter 5. The Startup Perspective of Motivations and Process	27
Chapter 6. Case Study: Recursion and Roche and Genentech	31
Chapter 7. Final Advice	36
Partners	40
Nucleate Mission & History	41
Nucleate Team	42
Acknowledgements & Contact Info	43

Foreword

Welcome to Nucleate's Partnering With Pharma Entrepreneurial Scientist Playbook, one of the first three playbooks to be produced by Nucleate's Research Initiative and supported by Schmidt Futures. This playbook explores the process of creating partnerships between pharmaceutical companies and startups from the first meeting to past the term sheet.

Nucleate is a nonprofit organization committed to educating today's academic trainees and empowering tomorrow's biotech leaders. Together with the *Operationalizing Your Company* and *Licensing from a University* Playbooks, this playbook aims to address the key knowledge gaps that PhD students and post-doctoral fellows experience when transitioning academic lab projects to viable companies.

We are excited to provide open-access resources to the community through the Nucleate Research Initiative, a global effort that provides context and understanding to the complex landscape of biotech education. In line with Schmidt Futures' mission to support exceptional people working to solve hard problems in science and society, we aim to support the next generation of life science talent from academic labs worldwide to tackle the world's pressing biomedical and ecological challenges.

We hope this playbook finds its way into the hands of startup founders and becomes a valuable resource for those wishing to explore *partnerships with pharma*.

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Motivation + Methodology

Partnerships between startup companies and large pharmaceutical companies are a main driver of innovation and fuel improvements in care outcomes across the biotechnology industry. A 2023 report from Deloitte showed that in the past five years, the majority of the revenue of the top 20 leading biopharma companies has come from externally sourced assets, including acquired companies, co-developed therapeutics, joint ventures, and in-licensed technologies¹.

Our goal is to demystify the process of these partnerships, such that early-stage innovators can understand:

1. If partnerships with pharma are a good choice for their strategy
2. How to initiate and facilitate collaborations
3. What pharma companies are looking for
4. Deal structures relevant to their business model

Within this report, we seek to provide a clear overview of the partnership process, consolidating information from across the landscape and from the sources at companies themselves. The information contained inside this report was sourced from hour-long structured interviews with business development professionals at ten large-cap biopharma companies and four startups conducted over late 2022 and early 2023. Many of our interviewees requested anonymity to discuss the process their companies take candidly, so quotes or information found in this playbook may be anonymized and company specifics not discussed for this reason. From the interviews, we sought to

learn as empirically as possible the ins and outs of the pharma partnership process from both the perspectives of both sides of the partnership. We also scoured publically available guides from pharma companies and other resources. Here, you will find our results, which include perspectives from the pharma buy-side and startup sell-side.

We explore:

- Why partnerships are advantageous for both sides;
- The buy side motivations;
- How to connect with pharma;
- The steps of building a partnership;
- What to expect at every stage of the deal;
- Term sheet and deal structure specifics;
- Startup perspective of working with pharma;
- A case study of a real deal between Roche, Genentech, a Member of the Roche Group, and Recursion;
- Advice from professional pharma partners.

Of course, this playbook would not be possible without our **sponsor Schmidt Futures** and **industry partners Roche and Genentech**. We are grateful for their support and that we are able to provide you with this resource.



¹ <https://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/measuring-return-from-pharmaceutical-innovation.html>



Chapter

Introduction to Biopharma Partnerships

Introduction

Partnerships with large pharmaceutical companies are advantageous for early stage biotechs and startups for these companies to gain access to world class expertise and resources. Similarly, partnerships with early stage biotechs and startups are advantageous for large pharma as a means to augment and accelerate company strategy. Within all biopharma companies, large and small, the division of Business Development (BD) is responsible for forming these mutually beneficial partnerships. In large pharma companies, BD teams work across their organizations to establish growth strategies, identify and assess gaps in the research pipeline, and determine new therapeutic areas to enter.

“The fastest way to become a leader in a specific therapeutic area is to partner with companies making the best advancements in that space that work with our pipeline”

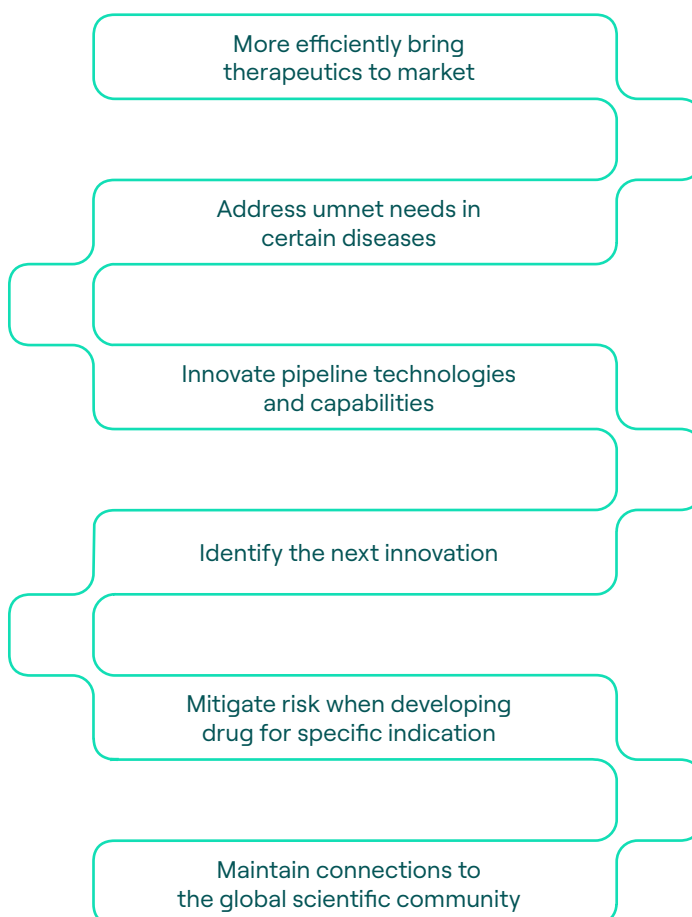
–Executive at Top Pharma Company

Drivers of Biopharma Partnerships

Biopharma companies, large and small, may be driven by a multitude of factors when establishing partnerships with outside companies (Figure 1). Large pharma companies regularly conduct internal and external assessment of disease areas or platform capabilities. During these evaluations, biopharma may identify gaps in their clinical or preclinical pipelines and capabilities, or opportunities to accelerate their internal efforts, and search for outside innovation that fills such a gap or enables such acceleration in line with their research strategy. In this way, biopharma

Figure 1 : Main drivers of partnership for all companies.

Identifying outside sources can accelerate the process of bringing therapeutics to market rather than developing solo from the ground up. External innovation can provide unique approaches to targeting rare and challenging diseases in order to address unmet needs in those areas. Strategic alliances help complement internal capabilities and innovate pipeline technologies. Large companies want to stay on top of the ever-changing biotech market and identify the next innovation, therefore running multiple approaches in parallel can improve outcomes for a successful therapeutic and mitigate risk. By partnering with a more established company, smaller biotech companies can mitigate risk that would be incurred by going down a specific path alone. Lastly, large biopharma also wants to remain connected to the global scientific community and the broader innovation ecosystem.



can increase their internal innovation by leveraging external innovation, especially for specific indications that will progress their research and development (R&D) strategy. More specifics on drivers of partners for large pharma are detailed in Chapter 2 of this playbook. Smaller biotech companies have many reasons to pursue business development opportunities with large biopharma companies, which are thoroughly outlined in Chapter 5 of this playbook. Partnerships provide smaller players with the opportunity to reduce risks in their pipeline by obtaining access to specific resources or capabilities. These motivations could be in order to seek financial capital, scientific collaboration, commercial/operational capabilities, or external validation.

The timing of business development activity is considerably variable. There can be specific time periods where the current strategy and capabilities are evaluated to determine if external innovation can bolster the research and development pipeline. In other cases, large companies may continuously evaluate their pipeline to make decisions as to whether external innovation could support their strategic goals. In addition, large pharma BD teams often conduct disease/market mapping exercises to evaluate the general landscape of technologies or platforms and determine if new therapeutics or technologies could support their R&D strategy. In order to progress the goals, revenues, and long term innovation of a biopharma company, strategic partnerships can help to advance the pipeline through novel innovation.

Points of Contact into Biopharma Partnerships

After BD teams at large biopharma companies have decided to seek outside innovation to complement the research pipeline, the Search and Evaluation (S&E) branch of BD will begin due diligence on smaller companies and their capabilities. While this is the most common touch point for startups or small biotech companies, biopharma has many additional ways to interact with and connect with prospective biotech partners (Table 1). These various groups within large pharma companies have different strategies for initiating partnerships.

Search and Evaluation Team

S&E teams may use databases, recent scientific journals, conferences, and inbound meeting requests to initiate talks with startups. This branch of BD can be a central point for contact in generating partnerships for biopharma companies. Depending on the large biopharma company, the point of contact in S&E can be the point of initiation or can quarterback the partnership from start to finish.

Innovation Hubs

These hubs within biopharma operate in with slightly different model. Innovation hubs often specifically seek out companies with specific expertise in line with the large pharma's research goals and aim to co-create therapeutics and technologies with these external companies (see Chapter 3 inset box).

Corporate Venture Capital (VC)

While startups can obtain seed funding from standalone venture capital firms, many large biopharma companies also have their own corporate venture capital arms. Within the last five years, corporate investors have participated in 41%² of US, EU and UK private VC-backed biopharma deals. These corporate venture funds can invest in early biotech companies, including startups and spinouts, and bring attention to partnership teams within the large biopharma company. However, not all large pharma VCs are alike or have the same strategy in mind. Some large pharma VC arms are strategic VCs: that they will do investments with the company strategy in mind, and a partnering deal might have both an equity component from the venture fund and a non-dilutive capital component from BD. Other large pharma VCs operate more like traditional standalone VCs: although they chat with the BD team and are aware of company strategy, their mandate is more financial in nature while the BD team's mandate is more strategic in nature. In this model, you will rarely see a deal that has both an equity component and a non-dilutive capital component; VC investments will remain separate from BD deals.

Incubators and Accelerators

These programs are an additional way to get a foot in the door at specific companies. Applications for incubators and accelerators can be on a rolling basis or time sensitive to bring in cohorts of early stage biotech companies. While accelerators typically jumpstart ideas from concept to company through investments, mentorship, and networking, incubators additionally support the development of technologies and assets through physical office and research facilities. Partnerships can spin out from these programs and are a great resource for networking in the biotech industry.

Open Innovation

Lastly, another option to make contact with biopharma companies is to answer open innovation calls. Biopharma companies can post a scientific question open to the public on social media and companies with the expertise to tackle this question can be given an opportunity to partner and solve it.

² www.svb.com/industry-insights/healthcare-life-science/corporate-investors-remain-key-pillars-of-life-sciences-and-healthcare

Table 1

Collaborative Models in Biopharma	Description	Examples
Search and Evaluation Team	Teams scout external partnering opportunities that fit in their company's research strategy	BD teams at major biopharma companies often have dedicated S&E teams
Innovation hubs	Innovations hubs seek companies with certain capabilities and work together to develop technologies and assets	Novo Nordisk Bioinnovation Hub, AstraZeneca's BioVentureHub, Abbvie Open Innovation Portal
Venture Capital	VC arms invest in R&D in companies with technologies or assets of interest	Roche Venture Fund, Pfizer Ventures, Merck Ventures, MedImmune Ventures (AstraZeneca), Novartis Ventures Fund
Incubators & Accelerators	Incubators provide lab space and can support early stage companies with investments, mentorship and industry connections	J&J Innovation JLABs, Alexandria LaunchLabs, Illumina Accelerator, Biolabs
Open innovation	Companies can release an open call to solve a question using your technology	Can broadcast questions on social media to generate discussion in the scientific community and connect with companies with certain capabilities

Adapted from Conicella et al. 2021³

³ www.researchgate.net/profile/Fabrizio-Conicella/publication/351577834_Collaboration_with_Startups_in_Pharmaceutical_industry_emerging_Open_Innovation_models/links/610a5a121ca20f6f86fd327d/Collaboration-with-Startups-in-Pharmaceutical-industry-emerging-Open-Innovation-models.pdf



Chapter

02

Partnership Initiation: Biopharma Motivations and Sourcing

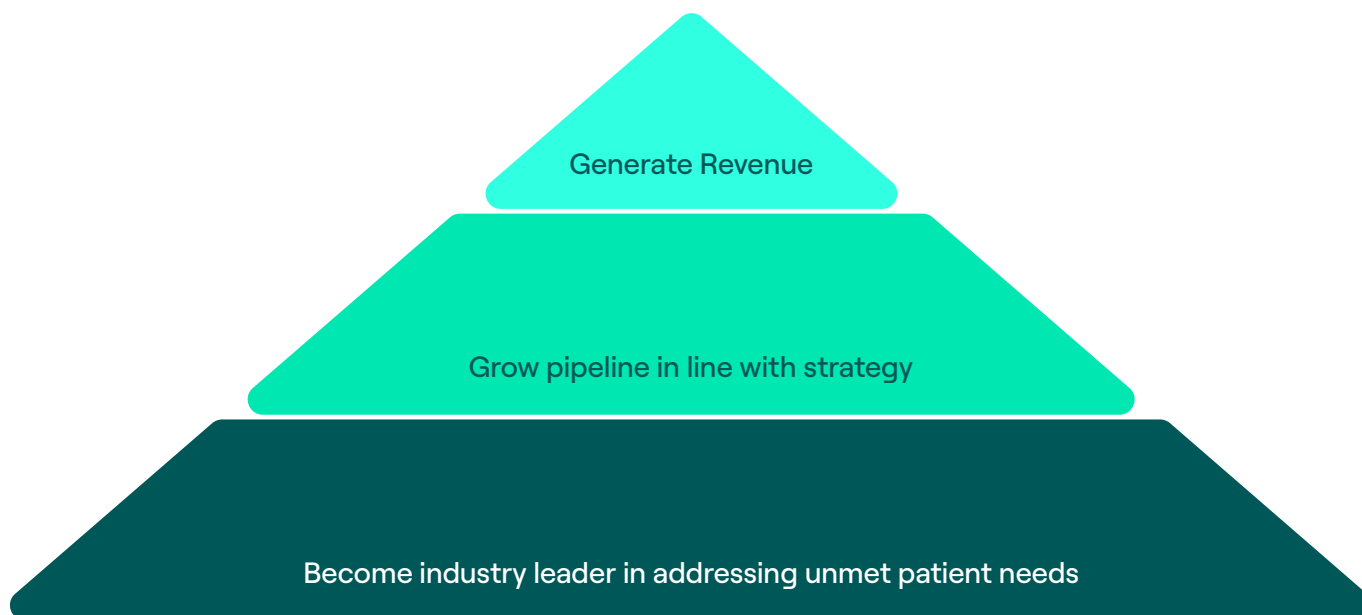
Biopharmaceutical companies are motivated by various factors to establish partnerships (Figure 2). One of the motivating drivers is to generate additional revenue: R&D of new therapeutics is the growth engine for large pharmaceutical companies. However, it is expensive and time consuming to develop therapeutics from scratch, starting from *in vitro* assays through clinical development. Identifying outside sources of therapeutics and technology helps companies accelerate innovation. Therefore, when seeking a partnership with a biopharma company, *it is critical to establish how a novel therapeutic or technology will be profitable in the long run.*

Many biopharma companies have targeted areas of research and capabilities in specific disease areas. When creating a short list of companies, the technology or therapeutics of potential partners need to align with their current research strategy. To this end,

biopharma seeks partnerships that can grow and augment their pipeline in line with their research and development strategy.

Biopharma companies striving to become industry leaders will look to external partnership opportunities to help them to grow their pipelines and maximize their chances of developing a successful therapeutic. In biopharma companies with the largest R&D budgets⁴, over half of the therapeutics in their pipelines are sourced externally; these drugs tend to have a greater chance of clinical success compared to therapeutics developed internally (Figure 3). To improve the success of drug development, biopharma companies often develop multiple therapeutics in parallel to mitigate risk since many will not succeed through clinical trials. Biopharmas are driven by a desire to make as large of a difference as possible for patients in need; this is the foundation for many partnerships.

Figure 2: Leading motivations for biopharma to establish partnerships



⁴ www.mckinsey.com/industries/life-sciences/our-insights/innovation-sourcing-in-biopharma-four-practices-to-maximize-success

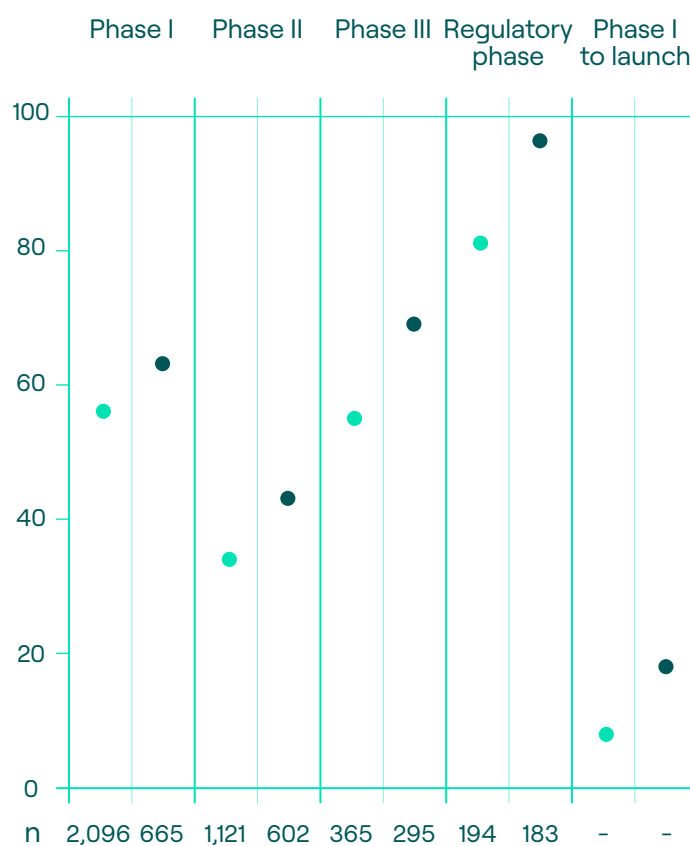
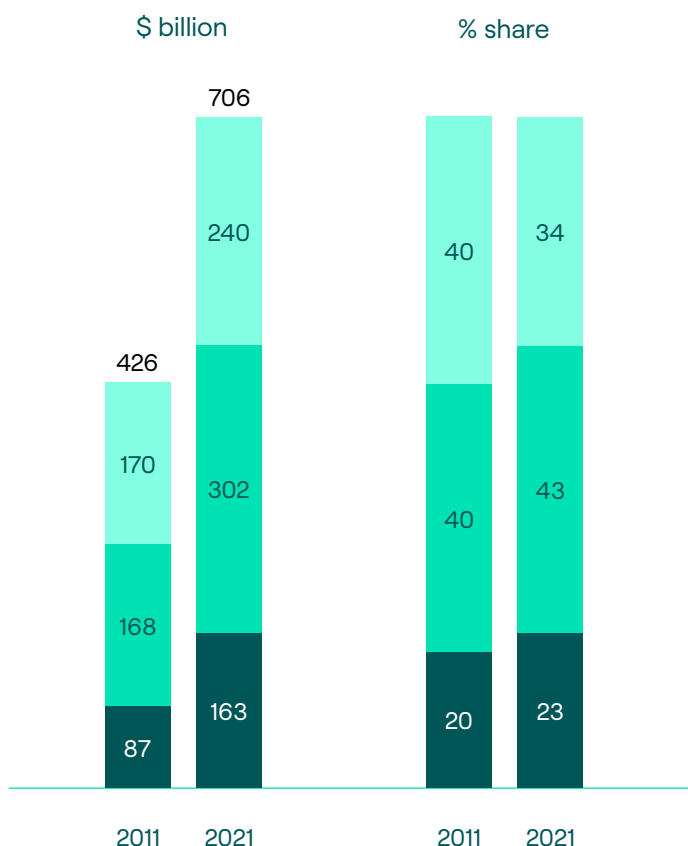
Figure 3: Externally sourced drugs often have a greater chance of clinical success than those developed internally.

Industry revenue from new molecular entity products by sourcing strategy

Industry probability of technical success by phase, %

● Partnered⁵ ● Acquired ● Organic

● Organic or acquired ● Partnered⁵



Source: EvaluatePharma, 2022; Pharmaprojects; McKinsey analysis

Characteristics of companies that lead to partnerships

Biopharmaceutical companies have different research strategies that can dictate what type of partnerships they pursue. There are specific characteristics of startups and small biotech companies that biopharma identified during our interviews that will facilitate the successful establishment of partnerships (Figure 4).

1. Alignment With Strategic Objectives

Large biopharma have existing pipelines and expertise in disease areas or technologies to help bring therapeutics and diagnostics to market. Therefore, these companies will seek therapeutics, diagnostics or technologies that bolster their

existing pipelines which is important when considering which companies to contact for partnerships.

2. Data and IP

If a therapeutic or diagnostic aligns with research strategy, then biopharma examines the intellectual property (IP) and data. Strong IP is critical to ensure that the biopharma company can invest in a technology or program that will be protected through exclusivity and freedom to operate if brought to market. In the world of biopharma, **"Data is King"**. The data needs to be compelling *and* contain evidence for translation

⁵ In-licensing or codevelopment

into humans. Many companies encourage early contact to ensure that the investment into experiments being performed aligns with what needs to be shown to secure a partnership. Some may even prefer to confirm some of the experiments in house to confirm the data.

3. Clear Operationalization Goals, Value Proposition and Desired Partnership Structure

To establish serious talks around the possibility of a partnership, the large biopharma company needs to ensure the technology or asset is sound and aligns with their strategy. Perfecting the pitch and narrating a compelling story will allow the biopharma company to envision the startup's technology or program in their pipeline and can help move the process forward. Startup companies can prepare for initial meetings with potential partners by understanding the type of partnership that would work best for their technology or asset, and by delivering a solid value proposition in their pitch. It is important to establish an understanding of how a technology will be brought from concept through clinical phases and how a partnership with a particular biopharma company will enable that success. People at large biopharma

companies that take initial meetings and quarterback deals may have to pitch your science further up the chain and provide a strong argument for partnership in order to enable the path forward, therefore, it is very valuable to provide these BD individuals with a clear partnership vision and a compelling value proposition. It has been suggested that sourcing advisors and members of the board who are sophisticated investors and with experience structuring partnerships with biopharma greatly benefit the scientific founders and help move the partnership process from start to finish, as they have exposure to jargon and technical aspects that may be new for scientific founders.

4. Talent and Reputation

Lastly, the talent and reputation of potential partners is important to biopharma. Strong and involved founders are the type of leadership biopharma wants to see at the helm. A company with a dedicated founder, backed by strong advisors who are respected in the field will add value both in warm introductions to BD teams and validation for moving forward with a partnership.

Figure 4: Ranked order of characteristics that large biopharma seeks in companies when establishing partnerships.



Ensuring Successful Partnerships From The Beginning

Even if a small biotech or startup has an innovative technology or program that fits into a large biopharma's research strategy, there are various aspects that will ensure the success of a partnership forming. Prospective partnerships can be shut down when there is a lack of progress or clear path forward due to lack of experience moving through these negotiations. Having advisors on the team of an early-stage company with expertise in biopharma BD will help progress partnership talks and solidify a deal. Many large biopharma companies encouraged prospective partnership companies to *reach out early and often* to ensure long term goals align in terms of data collection and technology application. It is important to have the correct type of data that biopharma companies will require in order to consider the viability of the technology: they recommended ensuring early on with the large company contact that the correct experiments are being conducted and in the correct model.

"Many large biopharma companies encouraged prospective partnership companies to reach out early and often to ensure long term goals align in terms of data collection and technology application."

Establishing Partnerships

Search and Evaluation

While there are numerous ways to get in contact with biopharma companies about a potential partnership, the most common path is through the S&E teams that are a key part of a biopharma company's business development team. This group performs comprehensive landscape analyses to stay informed about new trends in their field of research and identify emerging companies that are of interest.

Typically, S&E teams are composed of PhD scientists who evaluate the validity and application of novel science in the context of their research strategy. Depending on the company, S&E can initiate talks and hand off the company to a more formal partnership team, or carry out the process of negotiating a partnership from start to finish. Overall, **the goal of S&E is to identify new potential partners and which fit best with the research strategy of their company.**

Companies set goals for internal strategy and which programs to accelerate on a rolling basis or at set intervals: S&E identifies external innovation to achieve this goal and will use internal databases to track companies of interest. They will receive information on companies of interest through internal or external VC, news articles, applications on their websites and scientific or business conferences. For example, when a startup publishes press releases on their groundbreaking advancements, the S&E team would take note of this information and proactively reach out to initiate discussions if the science aligns with their research strategy.

Given the volume of companies that are being evaluated at any given time by the S&E team, it is less likely to establish contact via applying through the website for a partnership. There is far more incoming than outgoing correspondence and the best way to get in touch with S&E is through warm introductions through VCs, people with influence in the field, and the conferences.

⁶ www.lek.com/sites/default/files/insights/pdf-attachments/LEK_Step-by-Step-Guide-to-Partnering-Conferences.pdf

The Conferences

The BIO and J.P. Morgan Healthcare conferences are unique and well established cases of how to establish contact with biopharma companies to discuss funding and partnerships. These conferences occur annually and attract BD from across the biopharma industry. Many startups and small biotech companies use these conferences as their entry way to talks with large biopharma and both conferences are distinct in their approach to how to land a meeting.⁶ Scheduled one-on-one meetings that occur at these meetings can be brief and therefore it is important to have a succinct presentation of the company and product ideally tailored to each prospective partner. Due to the fast-paced nature of the conferences, it is typically advised to have a tight group of expert colleagues in a meeting, although it may be beneficial for a larger group to attend in specific circumstances where there are many experts needed. Both BIO and JPM are an entryway to establish relationships in the biotech industry and it is imperative to follow up to have further talks on partnerships. It is worth noting that in addition to BIO and J.P. Morgan, potential partners can be found at domain-specific scientific conferences, although meetings and introductions will be less structured and individual experiences will vary.

BIO Conference

The BIO Conference⁷ has a world renowned business forum, hundreds of exhibitors, educational sessions, and is a main facilitator for establishing relationships with biopharma business development. Typically held in June in a different city every year, this conference requires registration to gain general access and premier registration to engage in the BIO One-On-One Partnering. The in-person partnering meetings are 30 minutes and occur over 3.5 days of the conference. These meetings are scheduled using their online One-On-One Partnering system⁸ where you send tailored meeting requests with companies of interest. If meeting requests are accepted, BIO will create meeting schedules based on mutual availability of both parties. This portal typically opens 3-4 months ahead of the conference where biotech companies can begin to schedule meetings. Each registrant will make a company profile that should be detailed for biopharma companies to find and learn about your company. Companies that start sending requests earlier (>8 weeks from the start of the conference) on average have more meetings scheduled. It is important to continue monitoring the Message Center if new companies register for the conference who are interested in a meeting or to follow up with a company that has not responded to your meeting request. Additionally, meeting schedules may change, so regularly check for the itinerary.

The online system should not replace warm introductions: meetings can and should be scheduled outside of the portal. To avoid a conflict of these meeting times with those scheduled by the online portal system, both parties should block out this time on the schedule in the portal.

J.P. Morgan Healthcare Conference

The J.P. Morgan Healthcare Conference⁹ is the largest healthcare symposium in the industry and helps to establish connections with investors and partnerships with biopharmaceutical companies. Typically held in January in San Francisco each year, registration for this conference is for clients of the firm and by invitation only. However, unlike the BIO conference, *formal registration is not required to make meetings with companies of interest*. Instead, meetings are typically scheduled outside of the conference in surrounding hotels and restaurants. The key to this conference¹⁰ is to *reach out ahead of time to see if companies of interest are going to the conference and if they would like to set up a meeting*. Again, send tailored meeting requests a few months in advance with details including what you are looking for as a partner, your strategic fit with the partner, your technology, and the company's developmental stage. It is important to stay in contact with prospective partners leading up to the conference to confirm interest and finalize meeting schedules. In addition to the closed one-on-one meetings, there are numerous networking events that are fortuitous for happenstance meetings. These conferences can be packed with meetings, but leaving some time open for impromptu connections can also be advantageous.

⁷ www.bio.org/events/bio-international-convention

⁸ www.youtube.com/watch?v=bGttkdji6VA

⁹ www.jpmorgan.com/solutions/cib/insights/health-care-conference

¹⁰ www.engage.hoganlovells.com/knowledgeservices/news/jpm2023-will-be-an-event-like-no-other-how-can-you-make-the-most-of-it



Chapter

Building an Alliance

Past the Talking Phase

Biopharmaceutical companies search for promising products and technologies in the startup space that align with their internal R&D strategy and portfolio. If there is mutual interest in a partnership, the next step is to ensure a successful deal for both parties following steps shown in [Figure 5](#). This involves an internal review of the startup's data and technology by business development and a due diligence team. Decision makers then assess the findings of the review and determine whether to move forward with the partnership. While the process varies among biopharma companies, we found commonalities in each case during our interviews outlined in this chapter. Our discussions with large company representatives revealed an expectation of a baseline level of knowledge about the process from potential partners. Here, we provide context for each step of the way so that startup companies can come prepared to the partnership discussion table.

Stages of Building a Partnership: Initial Meeting to Term Sheet

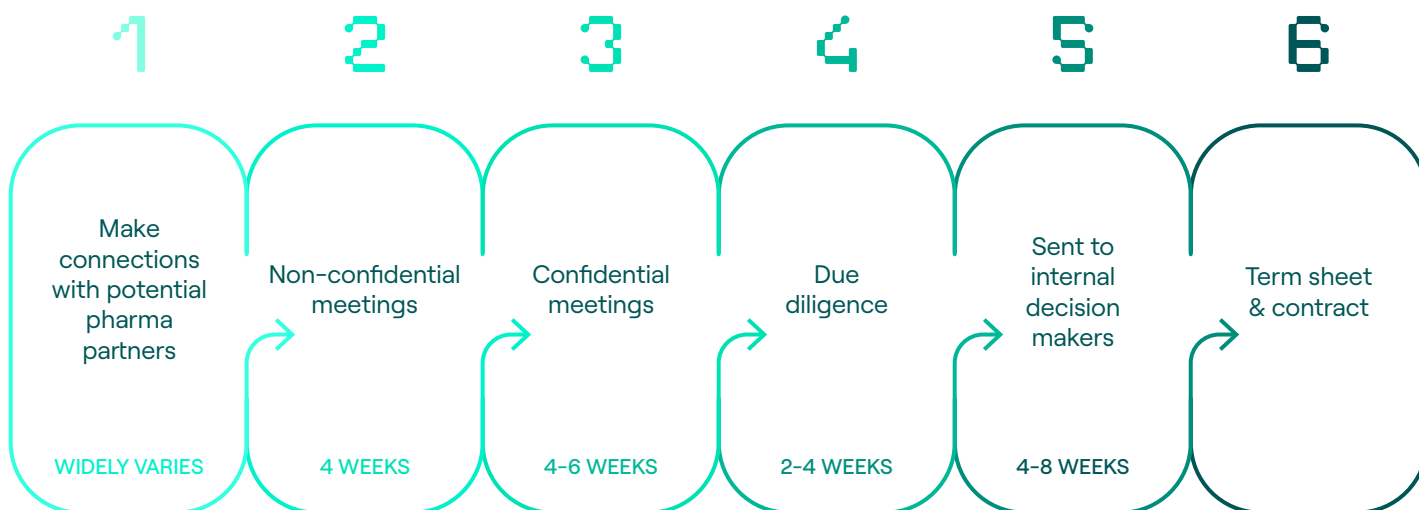
Non-Confidential Meetings

Timeline: 1-2 meetings over a month

The first discussions when building a partnership are non-confidential and primarily science focused small meetings intended to build interest. During non-confidential meetings the large biopharma company is focused on the strategic fit: evidence that the sell side smaller company has enough data to move forward; application of the technology or program that aligns with the buy side larger company's strategic goals; and building familiarity with the team.

Internally, the large biopharma company will decide on any key discussion points that need to be investigated further prior to a partnership. If the startup hears back that the biopharma company is not ready to partner at this time, they should not be discouraged. This is a common occurrence and does not necessarily close any doors for a partnership in the future. Ultimately, the decision lies with the buy side biopharma company, who has a deep understanding of their strategy and needs. Attempting to

Figure 5: Steps in the creation of a partnership prior to term sheet negotiation



persuade a potential partner to continue discussions when they have indicated that they don't see a path forward for a partnership at that time is not recommended and may reflect negatively on the startup innovators. Alternatively, if the large biopharma company has reviewed non-confidential data and is interested in learning more, talks will move to confidential meetings.

Confidential Meetings

Timeline: Several calls over 4–6 weeks

Confidential meetings will be scientific, and may focus on specific aspects of the science (e.g. safety) or legal (e.g. IP) in nature. To facilitate confidential discussions with the startup company, the pharma team will request that the innovators sign a **Confidential Disclosure Agreement (CDA, see inset box)**. Once the CDA is signed, the biopharma BD team will gain access to the innovator's datasets, allowing them to evaluate the efficacy and safety of the dataset. To ensure clarity in their presentation during confidential discussions, founders of early-stage companies should be attentive to how they present their confidential deck, which typically contains the company's best data. Founders should be open, genuine, and transparent about their data and experiments. Confidential decks should avoid obscuring underlying details of the data, as large biopharma partners will discover any negative aspects of experiments during the diligence process. Failure to provide clear explanations for nuances or unclear experimental results could lead to concern in moving forward from the biopharma side.

By this point, it is important that the smaller biotech team know their end partnership goal so that they can work towards deal negotiations while disclosing their scientific information. Towards the end of confidential discussions, before embarking on a full

due diligence, it is recommended to begin having deal concept discussions. Key topics for deal concept discussions can include what the partnership will look like and what the roles and responsibilities of each party will be during the duration of the collaboration.

Due Diligence

Timeline: 2–4 weeks for diligence, more if MTA engaged

The diligence process is focused on reviewing the smaller biotech company's data and intellectual property. At this stage, platform technologies should demonstrate how they have applied their technology to a specific disease indication or disease target to show proof of concept. The larger company may require a **Materials Transfer Agreement (MTA, see inset box)**. Under an MTA, the small biotech will ship specific materials to the biopharma partner's labs, and the biopharma partner will conduct experiments according to a mutually agreed upon research plan. The goal of an MTA is to ensure that the data revealed in confidential discussions is replicable and to generate additional data that the large pharma requires to move forward in the diligence process. Typically, there is no money exchanged in an MTA.

During diligence, the larger biopharma partner is specifically looking for evidence that the technology or asset presented is reliable and replicable. For example, science teams from the biopharma side may probe the animal models used and if they were appropriate for the indication or examine what contract research organizations (CROs) the startup worked with and if they were reputable. For therapeutics, an example of diligence would involve scrutinizing what types of experiments took place and how well they were done. For drug discovery platforms, diligence could validate what samples the startup had access to and how they are processing them through the platform.

What is a CDA?

Confidentiality Agreements, which include Confidential Disclosure Agreements (CDA) or Non-Disclosure Agreements (NDA), play a crucial role in safeguarding intellectual property when sharing confidential research and ideas. These agreements are critical for protecting the rights of the disclosing party, as they establish the conditions and limitations of the disclosure of confidential information, such as research data, trade secrets, or product plans. Startups should be fairly cautious when entering into confidentiality agreements, taking measures to ensure that the agreement adequately protects their intellectual property. While pharma companies usually offer boilerplate agreements, startups are advised to consult their legal advisors to review any CDA before signing.

What is an MTA?

Going through due diligence can often require sharing materials with potential partners for continued validation of reported data. The companies involved will want to have written agreements establishing a mutual understanding of how the materials can be used. Material Transfer Agreements (MTAs) are legal contracts that protect intellectual property rights such as ownership, publication, permitted use, and liability related to the transfer of research materials. These materials may include samples, reagents, chemical compounds, antibodies, plant- and animal-derived materials, or software, among others. The purpose of a MTA is to ensure confidentiality and prevent any unauthorized use or distribution of the transferred materials. Similar to a CDA, although engaging a MTA is a common practice, any company should consult their legal advisors to review any MTA before signing.

Alignment of Decision Makers

Timeline: 4–8 weeks

Once the scientific team has completed their thorough due diligence, or often in parallel with due diligence, the key decision-makers within the biopharma leadership will be engaged to weigh in on the possibility of a strategic partnership with the startup company. This occurs internally within the biopharma, with key decision-makers typically including scientific, clinical, and/or commercial leaders depending on the nature of the potential partnership. These internal meetings will serve as:

1. A review of the due diligence, including information on the technology, safety, efficacy, IP portfolio, and/or core biology, as relevant,
2. A discussion of the strategic fit and value-add of a potential partnership, and
3. Discussion of the deal concept, including structure of partnership, roles/responsibilities of each party, and potentially preliminary deal financials.

It is advised that startups work closely with their BD counterpart at the large pharma to ensure that the BD counterpart has all of the input they need to optimally facilitate this alignment of key decision makers and build a partnership that is mutually beneficial; e.g. answering follow-up scientific diligence questions, sharing the startups priorities for a partnership such as capital or external signaling, discussing high-level financials and other deal terms.

Through these discussions, the pharma team will come to the consensus of moving forward with a term sheet or the decision to move away from the partnership.

Expression of Partnership Interest

Overall timeline: Initial contact to expression of interest can be 6 to 18 months

After the large partner has made a decision to move forward with partnering discussions, the business development teams on either side of the deal will get together to iterate on deal structure and terms. These talks often include iterations on a few slides (concept sheet) building out the high-level version that was likely used in the previous step (Alignment of Decision Makers). After alignment is reached, the large biopharma company will typically present a term sheet based on the concept sheet. The parties will typically go back and forth with requested redline edits to the term sheet. Once both parties agree to the term sheet, they will proceed to drafting and subsequently negotiating the full agreement contract. Throughout this process, both parties' BD teams will likely be receiving guidance and approval from various governance committees and boards of directors.

Factors That Affect Timelines

It is important to note that the timing for each stage of a deal can vary significantly. The timelines for each stage of a project are typically determined by the respective teams involved, taking into account factors such as priority (is this a high priority partnership for the large pharma) and scheduling constraints (this can be a real hurdle when scheduling large meetings with many busy individuals). During interviews, many interviewees agreed that having good legal and business teams with clear goals can help to expedite the process. Scientists with lack of business expertise leading the process on the startup side can require more guidance and support, which may extend the timeline. Founders should maintain regular communication with their contacts at a pharmaceutical company during the stages of building a partnership. It is perfectly fine and even recommended for biotech startup teams to inquire about the large company's progress in the partnership process. Inform the large biopharma BD team if there is a need to move quickly: it is essential for startup founders to communicate if the space is competitive and if they are considering other offers.

Communication is Key

When it comes to building partnerships between biopharmaceutical companies and startups, most biopharmaceutical companies emphasize the importance of clear, efficient and transparent communication between the two companies' BD teams. Many business development professionals expressed that negotiations that lack coordination and clear communication from the startup's end can potentially stunt the process. For example, if the CEO of the startup tells the large pharma BD lead about a partnership preference, and the startup BD lead tells the large pharma BD lead a different partnership preference, this will lead to confusion and slow down the process.

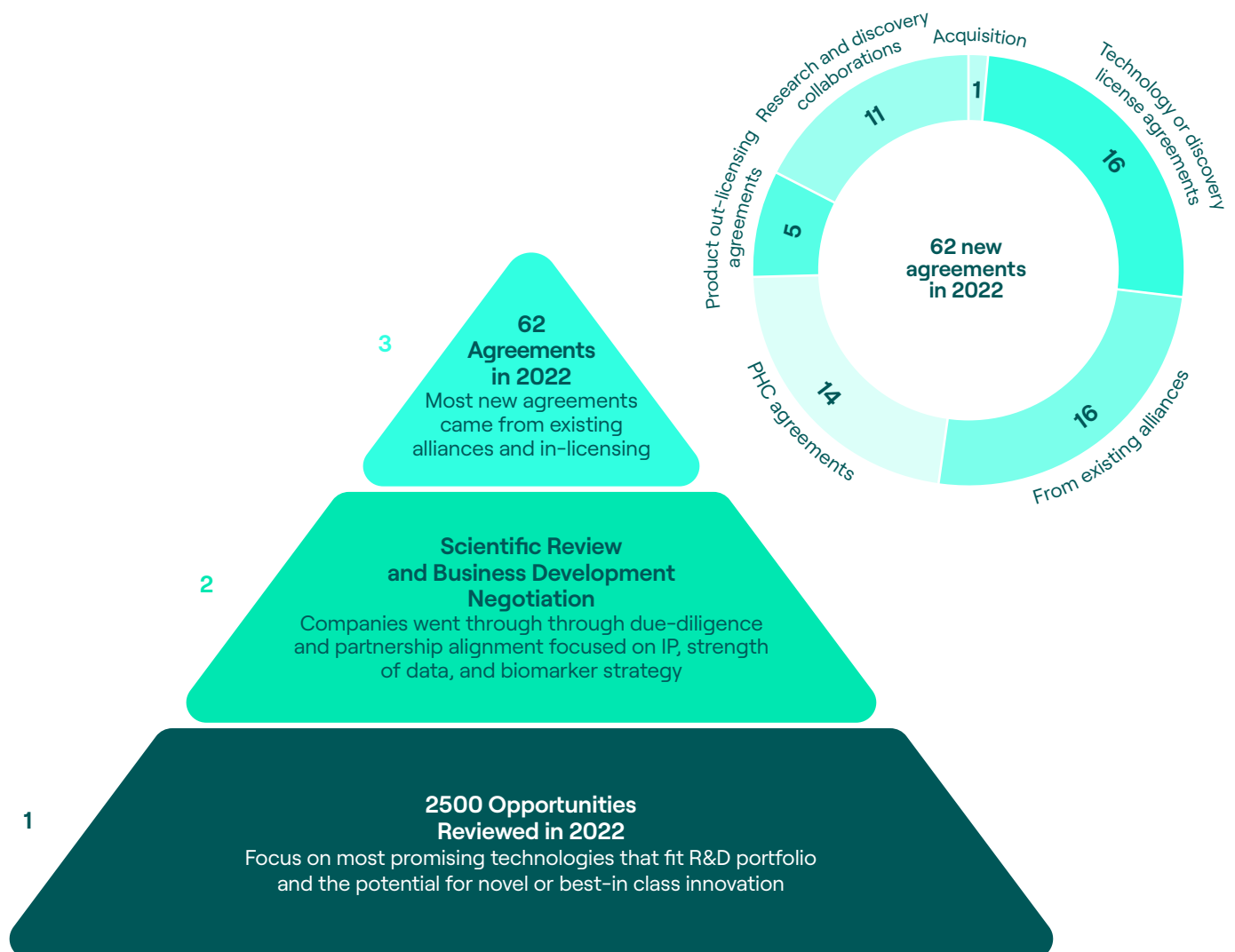
It is also important to note that *each large pharma company has its own strategies and practices for building partnerships*. This often involves engagement from multiple teams on the biopharma side, with information typically shared through a designated point of contact. In some cases, this point of contact remains the same throughout the entire process, while others may switch after the search and evaluation phase. To ensure a clear understanding of the process and who they will be communicating with, potential sell-side partners should inquire directly about the large pharma's process.

Example: Building A Partnership With Roche and Genentech By The Numbers

The BD team across Roche and Genentech provided us with insight at how the review process moves at their company (Figure 6). At Roche and Genentech, up until the partnership contract is signed, potential partners will usually interact with the same business development professional who brings the deal through all the Roche and Genentech teams and phases necessary to complete the agreement. First, the startup partnership opportunity is subject to internal evaluation which checks if the opportunity is within the scope of the companies' R&D strategy, if it has robust patent coverage, and has the potential to bring novel or first-in-class innovation into Roche and

Genentech. After assessment from experts in the relevant R&D units, due diligence can begin. Similar to other large pharma BD, the funnel is steep. At Roche and Genentech in 2022, **around 3% of reviewed opportunities resulted in a new partnership**: ~2500 opportunities that were reviewed resulted in 62 agreements. Deal structures are flexible and tailored to the specific shape of each partnership at Roche and Genentech. Potential partners can expect an alliance manager to serve as a single point of contact after deal execution, with this individual typically joining discussions several months prior to deal execution.

Figure 6: Roche and Genentech Partnership Statistics. From the Roche and Genentech partnering overview, the metrics of agreements and general partnership strategy in 2022.



Considerations of Sell-Side Company Size

The large biopharma business development team may not be involved in decisions regarding partnerships with pre-seed or seed companies. Instead, the R&D scientific teams of biopharma companies, who often have a budget to partner directly with smaller companies, may be responsible for these decisions. Once these smaller agreements have proven successful or if a company has progressed to the more mature series A or B stage, partnership decisions would then be led by the business development team. Nascent companies can also partner with a large company's biotechnology hub, a co-creation venture which focuses on bringing new innovations to the landscape (see **Pharmaceutical Bio Innovation Hub inset**).

PRO-TIP

It is recommended that early stage companies begin to develop a relationship with large pharma business development teams early, with introductory meetings 1-3 years prior to engaging potential business development partnership discussions.

A Unique Pipeline: Pharmaceutical Bio Innovation Hub

Not every company focuses their partnership strategy solely on the traditional business development structure. Several large biopharma companies have taken on a differentiated model in addition to a traditional business development stream – having an arm that focuses on biotechnology co-creation, creating innovation that otherwise would not exist. One of our interviewees, from a biopharmaceutical company in the top 20 market cap, was part of a **unique innovation system**. Likened to venture creation firms, the business development innovation team of these hubs are specially focused on co-created innovative therapies. Innovation teams address gaps in the company's high level R&D strategy by placing *risky bets on imaginative tech, talented entrepreneurs, or unique indications*. They work together with smaller companies and co-create new technologies or assets through continuous conversations, at which point the biopharma team can decide to move onto a term sheet with various partnership plans that reflect the unique nature of the collaboration. Due to the focus on co-creation, the bio innovation hub team works with their partnership companies closely from the initial meetings up to the clinic. The structure of innovation hubs can make them a good partnership choice for younger or more distinctly innovative startup companies. These innovation creation teams at biopharma companies can be found through their venture capital or incubator partners, broadcasts on social media, or simply asking the traditional business development team if it exists.



04

Chapter

Partnership Structure, Terms and Management

Introduction

After completing due diligence and aligning on strategic goals, the partnership discussions progress to the term sheet phase. As one of the key aspects of the biopharma business development process, this involves formalizing the partnership structure, establishing the deal terms, and outlining the management of the alliance. The overarching goal of this exercise is twofold:

- a. Extract meaningful long-term value for both parties in the form of economic considerations, scientific milestones, and overall business growth and
- b. Create an enduring relationship that can support the terms of the agreement.

Based on these objectives, there are a wide variety of partnership structures, with no “one-size-fits-all” blueprint. Consequently, the deal terms of each partnership must be customized to the specific arrangement, especially from an economic and R&D perspective. Ultimately, the term sheet process helps calibrate the risk-reward parameters for each group and can be broken into three distinct stages: pre-term sheet, term sheet, post-term sheet.

The following sections will dive deeper into the three phases mentioned above and will examine them from a biotech startup perspective. It is important to note that these sections are heavily adapted from a comprehensive resource¹¹ developed by the venture capital firm a16z. In order to not “recreate the wheel” this report has extracted key pieces of information from the a16z guide and overlaid it with insights gained from additional primary research.

Pre-Term Sheet

As is the case with any deal, the first step is to establish a game plan that will serve as your guide throughout the partnership development process. The initial step is to identify and connect with key “champions” at the counterparty’s company. These stakeholders should come from two different domains: the science and the business development teams. The scientific champion can either be an executive leader or R&D team member. The primary motive of this person is to ensure that the deal has positive momentum throughout the partnership process by actively engaging on the scientific front. The BD champion will play a similar, but more holistic role, in which the individual will “quarterback” the entire deal, from initial outreach to executed agreement. This will involve collaborating with the right stakeholders, helping frame the deal parameters, and serving as the startup’s primary point of contact.

Based on the insights provided by the champions, it is important to draft an initial internal deal plan, which outlines the high-level parameters of the agreement. This involves:

- a. Establishing the overall goal of the joint venture,
- b. Delineating the contributions from each party (scientific IP, R&D activities, clinical/regulatory work, commercial resourcing, and financial terms),
- c. Determining the roles and responsibilities of each group throughout the partnership,
- d. Specifying project timelines along with the nature and timing of critical milestones, and
- e. Quantifying any budgetary considerations and cost-sharing frameworks.

Concurrently, it is also crucial to establish and potentially signal the boundaries for the deal. These can include scientific, clinical/regulatory, and commercial considerations that are out-of-reach, as well as economic terms that are unfeasible.

¹¹ Jorge Conde and Becky Pferdehirt, *Anatomy of a Biotech Business Development Deal*, https://intersectjobsims.files.wordpress.com/2023/04/anatomy-of-a-biotech-business-development-deal_-_andreessen-horowitz.pdf

The internal deal plan can become the basis of a concept sheet, which is a one or two slide document that outlines all the high-level parameters. Both parties often iterate on this concept sheet as it can set the foundation for deal terms and the overall term sheet. Therefore, by clearly defining these stipulations, the startup will be better prepared and more disciplined throughout the negotiation process.

Term Sheet

Common Structures

At a high level, there are three common deal structures that involve a partnership between a biotech startup and a more established biopharma company. These are collaboration deals, licensing agreements, and co-development. Although varied in nature, each structure is ultimately an allocation of risk.

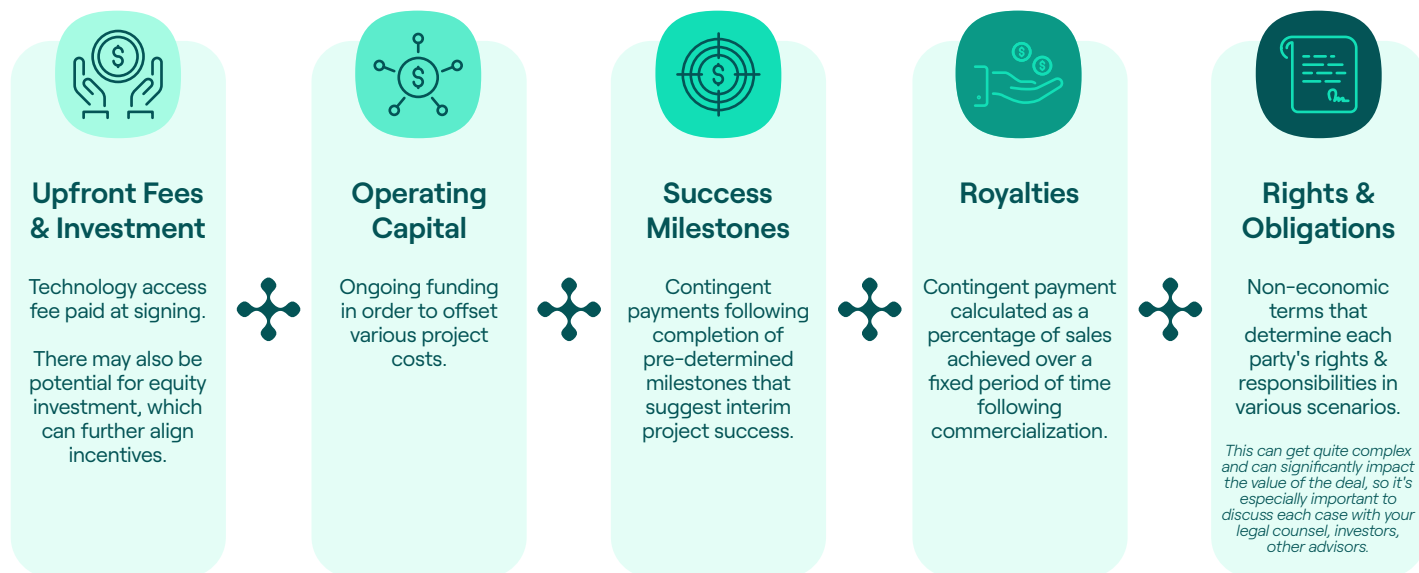
Collaboration agreements are partnerships focused on early-stage research that pairs together two needs: a specific disease or indication of interest with a specific technology, capability, or expertise that can be applied to this research area of interest. In many instances, this involves sharing data and resources to further the drug discovery process. Within these agreements, it is common for the resulting intellectual property to be either shared between the two parties or even for the larger biopharma to outright own the patent rights, with the goal of funding further research and clinical development (this involves a handoff point, where the biopharma partner is solely responsible for future activities). Collaborations are beneficial to smaller biotech companies as they provide immediate capital, as well as the potential for future payments based on asset or target validation. The typical financial structure entails an upfront payment, with subsequent success-based milestones and royalty payments. Furthermore, it can enable smaller players to gain access to the resources and expertise of larger biopharma companies. This structure is appealing to larger companies as it allows them to access external innovation to augment their internal pipelines. It is worth noting that platform companies are often natural collaboration partners as their technology is broadly applicable across many different diseases and modalities. This enables biopharma to access the output of a platform technology, while leveraging its own clinical and commercialization capabilities to progress potential drug candidates.

Licensing agreements are another common deal structure and usually occur when a more established biopharma company has identified an asset of interest. This is an effective way for an emerging biotech company to monetize its IP (thus generating future cash runway) as well as provide optical validation to the broader market. In this type of deal, the licensor (typically the biotech startup) grants the licensee (usually a larger pharmaceutical company) the right to use its technology or

develop and commercialize its asset in return for financial value (i.e., an exclusive license). These economic incentives are typically in the form of upfront and/or milestone payments, along with the potential for future royalties. If the larger player takes full control of the asset, then it is also responsible for developing and commercializing the product, which can include conducting clinical trials, obtaining regulatory approvals, manufacturing the drug, and ultimately selling the product. Biopharma companies view licensing agreements in favorable terms as they often provide full control of the asset and are easier from an alliance management perspective (simple analogy: it can be much easier to own and manage a house outright vs. own a house with a partner).

Lastly, **co-development agreements** involve both parties collaborating on drug discovery from early research through commercialization. As a result, these partnerships are slightly more complex in nature. There are several deal permutations possible in this framework, but at a high-level, each company contributes resources/expertise to the project, while sharing in the economics. The agreement typically defines the responsibilities of each party, including research and development activities, project costs, and ownership of the resulting intellectual property. It is worth noting that in a co-development scenario, the larger pharma handles commercialization, while in a co-development and co-promotion agreement both parties collaborate on both clinical development and commercialization. In the situation where the co-development is between a smaller startup and a larger company, the larger biopharma typically provides capital (upfront payment, and contribution to R&D budget), with the potential to license the asset after it has been validated. It is also possible that the startup may financially contribute to drug development, and this is an important consideration for the smaller player. In addition, co-developments often have future economics as part of the deal, with clinical/regulatory milestones and potential royalty payments. Lastly, since co-developments are long-term in nature, there is typically a joint-steering committee that acts as a governing body throughout the alliance (as in our previous analogy, this is similar to owning a house with a partner).

Figure 7: Pricing Your Deal



Adapted from a16z Bio + Health



Deal Terms 101

Based on these structures, the term sheet outlines the key parameters and financial terms of the deal; thereby serving as a blueprint for the final, legally-binding deal agreement. The main considerations of the term sheet are highlighted in [Figure 7](#).

As with any contractual framework, there are several elements of a term sheet (typical term sheets often have a mix of these elements, rather than all of them). The following section will highlight key aspects:

- **License:** As part of the agreement, the large biopharma will usually either:
 - Receive an outright license for a set of IP or a therapeutic asset or
 - Have the option to license that property at a later date (license option).

For example, the startup may contribute a new modality that has existing intellectual property, while the biopharma company will bring a drug target with pre-existing IP to the partnership. During the collaboration, a new therapeutic candidate may emerge as a result of the same drug target. Depending on the licensing agreement, the biopharma company might already have the license to the new therapy

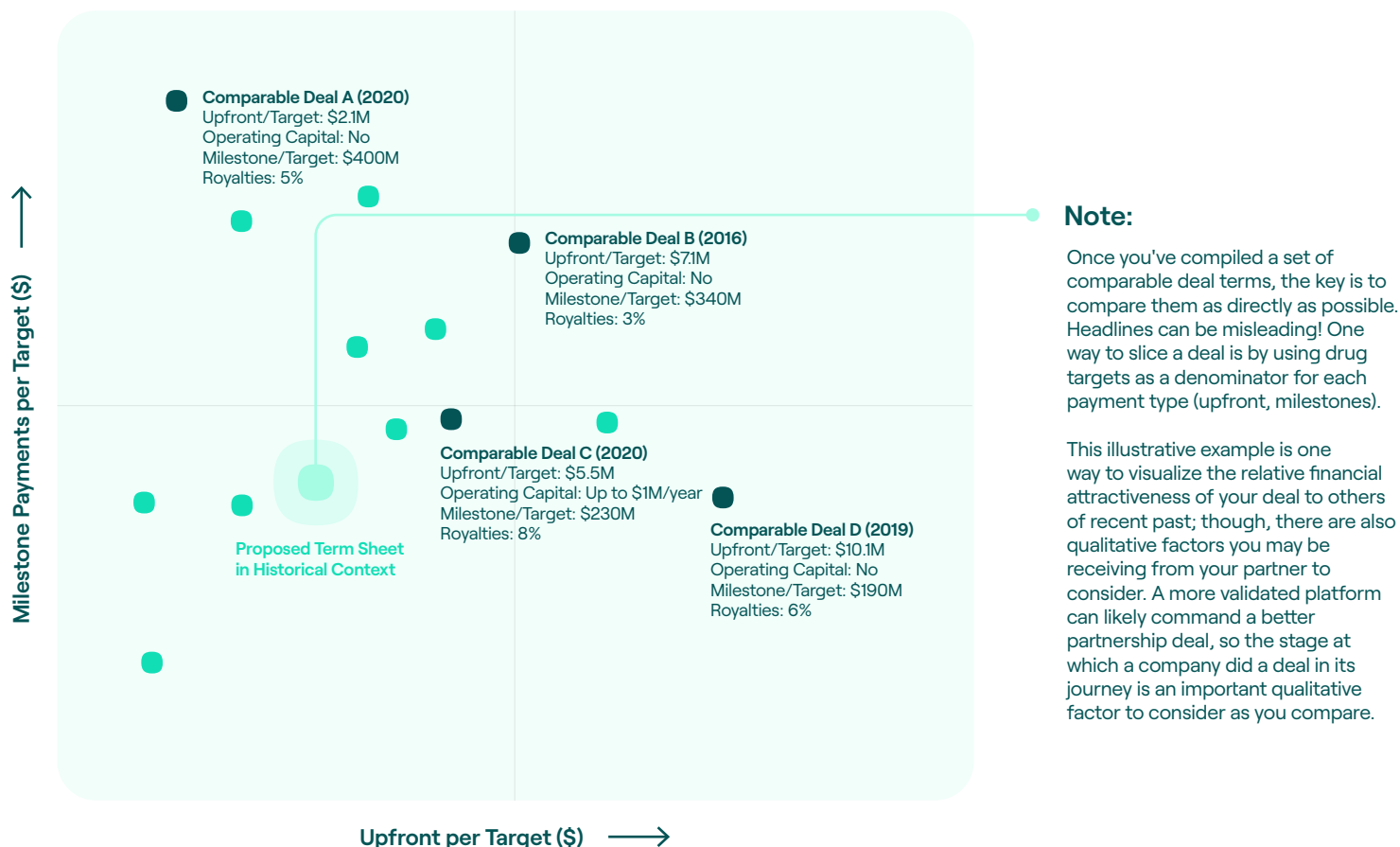
or have the option to license it based on data. This option structure is an appealing mechanism for biopharma companies as it reduces the upfront payment and defers the financial burden to a later time when the scientific risk has been mitigated.

- **Exclusivity:** Licenses can be restricted in terms of the number of companies that can have access to the specific IP or asset. Since exclusivity can confer a competitive advantage to a larger biopharma, companies are often willing to pay a premium (usually in the form of an upfront payment) for proprietary access. Startups can use this interest as a point of leverage during negotiations. Exclusivity in collaboration deals is focused on predetermined disease areas or targets, while exclusivity in license-based agreements can be carved out based on field (disease area and/or indication) or territory (sales geographies). Almost 100% of business development deals have some element of exclusivity.
- **Preclinical/Clinical Development, Regulatory and Manufacturing:** This section outlines the drug development plan, in terms of who is responsible for conducting work during the various stages, and which party is responsible for funding it. This can include preclinical R&D, investigational new drug (IND) filing, clinical trials (Ph. 1 through Ph.3), and drug

candidate manufacturing. It is important to establish not only the project owners and capital responsibility for the various activities, but also the number of full-time equivalent (FTEs) from each side that will be dedicated to executing the project.

- **Commercialization:** Similar to the section above, this part of the term sheet formalizes which party will be responsible for commercial activities and which party will be responsible for funding. Since most biotech startups do not have internal commercial capabilities (expertise and resources), the larger biopharma companies tend to own sales/marketing activities. However, sometimes there is the possibility for a co-development/co-commercialization arrangement, in which the startup can share development and commercialization costs in return for the financial upside from therapeutic sales. This can potentially be risky for a startup given the capital required; however, there are mechanisms to mitigate this risk, including deferred payments and reduced future milestones.
- **Economics:** This section outlines the financial terms of the partnership. When negotiating the various economics, a startup should think critically about the risk vs. reward of the deal, both over the short, medium, and long term. At a high-level, deal economics should reflect the risk-adjusted probability of a successful partnership (Figure 8). There are five main levers that can be pulled as part of this process:
 - **Upfront payments:** This is the most common type of financial fee and reflects the R&D work that the partner has done. The more robust the IP is, the more a company can demand in terms of an upfront. An upfront payment is guaranteed regardless of future asset performance. From an overall financial perspective, upfronts must be balanced against future payments (i.e. milestones and royalties); therefore, a higher upfront can be offset by lower milestone payments. Ultimately, the startup should consider immediate cash needs relative to future economic payouts when considering the magnitude of an upfront payment.
 - **Option Exercise:** This is a one-time payment that reflects the exercise of an option license and confers complete control of the IP or asset to the licensee. This is not relevant in all deal structures, only in option deal structures.
 - **Milestone Payments:** Milestone payments are paid based on achieving pre-set objectives and are an effective way to align incentives between parties. They are designed to give flexibility as the structure reflects the de-risking of an asset over time. If the upfront payment is not as high as expected, milestones can be an effective tool to claw back some of the uncaptured value. The earliest type of payments are in the research/technical category, in which milestones are dependent on hit identification, drug candidate nomination, and IND data package creation. The second are clinical achievements such as the start of various clinical phases (and sub-goals in each of these phases such as dosing the first patient). Third are regulatory hurdles, such as FDA filings and/or non-US regulatory approvals. Lastly, there can be milestone payments based on specific sales targets, such as the first \$1B in sales.
 - **Royalties:** Royalties are periodic payments that stem from a percentage of the sales of a therapy and are paid by the commercial entity (often the biopharma company) to the BD partner (often the biotech startup). Most royalty structures are based on a tiered system – the final royalty payment is dependent on the cumulative annual sales, which are then multiplied by the prearranged royalty rate for each sales tier. For instance, a biotech company might earn 4% royalties for sales less than \$100M, 8% for sales between \$100M and \$500M, and 12% for sales exceeding \$500M within a year. The royalty rates per tier are typically in the low-single to low-double digits. The ultimate percentage of royalties is influenced by variables such as the development stage of the IP at deal completion (proxy for how de-risked the asset is), the terms of exclusivity, and the overall market opportunity.
 - **Profit Sharing and/or Co-Development:** In many of the co-development deal structures, there is a profit sharing agreement where a percentage of profits are returned to a certain stakeholder based on shared development costs. Similarly, it is also possible that the larger partner will reimburse operating costs (FTE expenses, project expenses, or both) during a collaboration in addition to the upfront fee. Although these reimbursements have a financial ceiling, it is crucial that both parties implement a process to track the type and magnitude of this expenditure over time.

Figure 8: Contextualizing Your Deal



Adapted from a16z Bio + Health



As an aside, it is important to briefly discuss equity provisions (and potential merger and acquisition [M&A] implications) as part of term sheets. Although they are not a foundational tool, it is becoming more common for larger biopharma companies to take an equity stake in a partner in order to create aligned incentives. It is worth noting that equity, unlike other economic levers, is dilutive in that it causes the founders to own a smaller percentage of their own company; therefore, should not be viewed as analogous to an upfront payment. In terms of future M&A optionality, most biopharma companies prefer equity financing as it allows them to track companies with the option to acquire an asset to gain inroads into a therapeutic area, thus ultimately strengthening the biopharma's pipeline. In addition, M&A is often viewed as a way to acquire value – data, technology, talent, manufacturing, new markets, etc. – and only occurs when some form of value has been created in the target.

Post Term Sheet

At this point, there are a few final steps required to fully formalize the partnership. The first is to use the term sheet (non-binding) as the basis for a full and final contract (binding). If the term sheet is comprehensive and has alignment from both parties, it can greatly accelerate the deal process. After the partnership has been finalized, it is important to coordinate on deal publicity as the motives for each party could be different. Many times, larger biopharma companies are hesitant to have any press since it can either unveil a competitive advantage or invite more investor questions than warranted. On the other hand, smaller biotech companies are eager to press release the partnership as it provides external validation to the market. Lastly, and most importantly, the alliance management structure should be implemented as this will govern a successful working relationship. This involves forming a joint-steering committee, aligning the various stakeholders involved, establishing communication cadences, and creating an overall project management structure.



Chapter

05

The Startup Perspective of Motivations and Process

Leading Motivations

There are various reasons to engage in business development from a sell-side perspective (i.e., startup biotech company); however, the underlying thread is that partnerships are advantageous as they enable smaller players to de-risk their pipeline by gaining access to a particular resource or capability. The motivations can be categorized into four broad groups: financial capital, scientific collaboration, commercial/operational capabilities, and external validation.

Financial Capital

The most prevalent motivation behind a biopharma partnership is access to financial capital. Funding for startups is an extremely vital, but scarce resource. As a result, a partnership can provide non-dilutive financing that can keep the company alive and the innovation on-going. Relative to venture funding, partnership generated capital is advantageous for two reasons:

- a. It is not expensive in terms of ownership dilution, and
- b. It can be orders of magnitude greater than the funding provided by venture capital.

Financial capital is especially valuable in the world of drug development, as the process from early research to full commercialization can be prohibitively long and expensive. Hence, this type of funding can enable the maximization of the pipeline potential; moreover, it can accelerate a company's growth, technology, and overall platform.

Scientific Collaboration

Although scientific collaboration is not often the primary motivation behind partnerships (from a startup point-of-view), it can sometimes provide access to capabilities that an emerging company might not necessarily have. This includes proprietary research data, scientific expertise, and R&D equipment. This

also extends beyond pure science as biopharma companies have deep knowledge regarding the regulatory process, from preclinical research to clinical trial execution. This enables a less sophisticated partner to successfully harness the potential of early scientific research and translate it into future therapeutics.

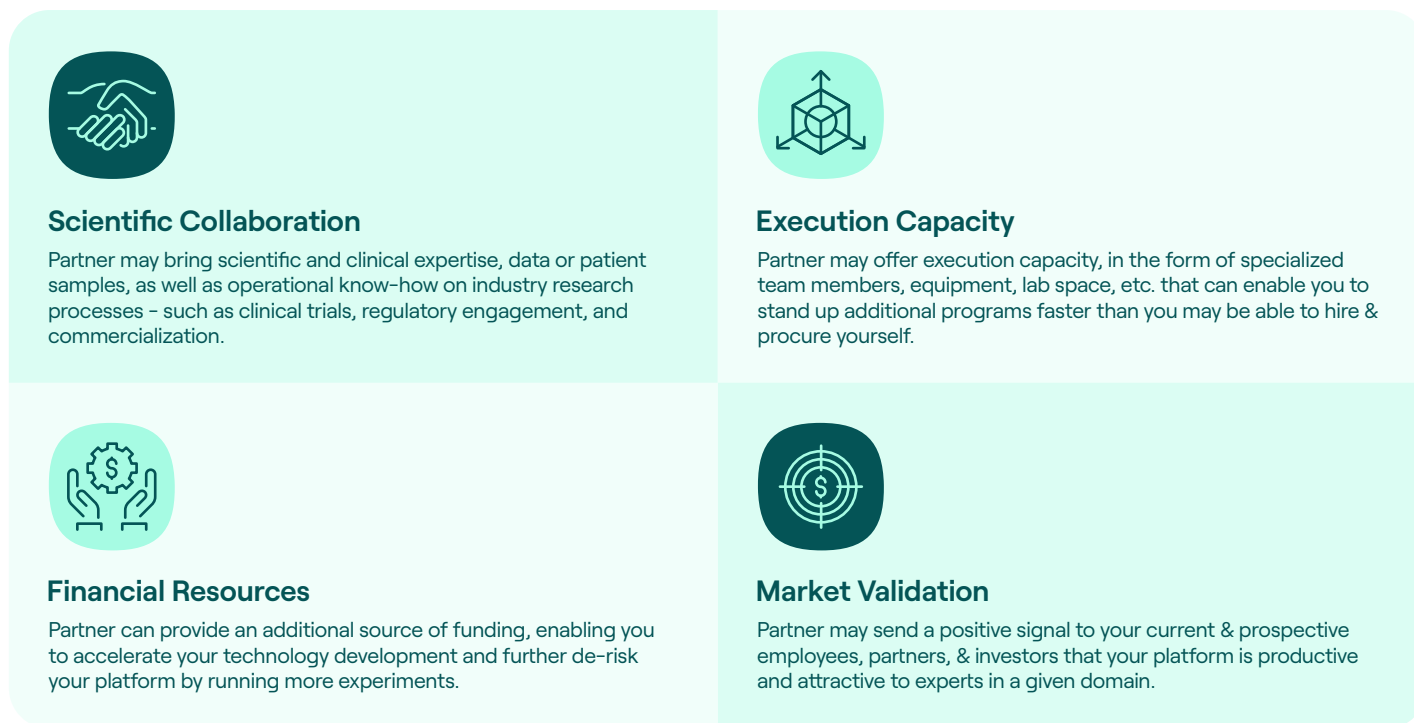
Commercial Capabilities

In a similar vein, startups can also benefit from partnering with larger players that have proven commercial capabilities. This allows an emerging biotech company to potentially bring a drug to market by leveraging the sales and marketing capabilities of a more established biopharma. This includes being able to successfully market the therapy, engaging with key participants across the commercial stakeholder continuum, having a deployable sales force, and understanding the international commercial processes (i.e., reimbursement). This partnership can also extend to other operational capabilities, including manufacturing (especially from cell and gene therapies). It is common for smaller companies with assets that are ready to enter the clinic to engage in these commercial-oriented types of deals.

External Validation

Lastly, a partnership can provide an external signal to the market in the form of validation. Since biopharma companies have the ability to perform rigorous due diligence, a business development deal demonstrates to the life science community that a startup's asset or platform is legitimate. This can be an important indicator in terms of establishing partnerships with other biopharma companies and future investors, alongside attracting key talent to the company. Although external validation should never be the primary motivation behind a partnership, it can help create a positive flywheel for future business development activities.

Figure 9: The Value of the Pharma Partnership



Adapted from



Process (Partnership Initiation Deep Dive)

It is critical that a startup biotech company establishes a robust, repeatable, and scalable business development process early in its operational journey. One of the most important aspects of this exercise is developing a strong partnership initiation strategy. To increase the probability of getting on a biopharma company's radar, it is crucial to employ a proactive approach as most companies do not receive significant inbound requests from larger players. However, before engaging in any type of outreach, *preparation is key*.

Preparation

The preparation process begins by conducting a thorough market landscape analysis. This involves understanding the major companies that are developing therapeutics in disease areas that are complementary to the technology/assets that a startup owns. For example, a company developing breast cancer therapies should research partners that are specifically focused on that area, as opposed to any company that has an interest in cancer. Moreover, it is important to not only understand

the companies active in that disease area, but also identify the therapeutic approaches of each player. To extend on the previous example, if a startup is developing an immunotherapy approach to breast cancer, it will be more effective to reach out to biopharma companies that have an active breast cancer immunotherapy pipeline. After this market landscape research phase, the team should map out challenges faced by each potential partner and understand how the startup's technology can help address this problem. Lastly, it is also beneficial to identify the resource capacity of each potential partner, both from a funding and capabilities (scientific, clinical, operational, and commercial) perspective. This can help curate the optimal set of collaborators, thereby enabling the startup to craft a robust and persuasive pitch as part of the initial outreach. In terms of gathering this information, it can be accessed through a combination of resources, including scientific publications, life science news publications, primary company research, sell-side reports, and various biotechnology-specific databases (i.e., Evaluate Pharma, Biomedtracker, etc.).

Customize Outreach

After synthesizing the market landscape, the next step is to create a deal thesis for each potential strategic partner. This will be an integral part of the initial outreach (via email, LinkedIn, phone, etc.) as it outlines the reason behind the strategic fit and demonstrates an understanding of a partner's needs. Moreover, the startup should highlight the value proposition in its initial outreach/discussions as a biopharma partner will be keenly focused on this point. Given the intense level of competition for business development deals, the only way to stand out in the outreach process is to develop a bespoke communication strategy. Boilerplate emails are not effective and have minimal impact; therefore, outreach has to be highly tailored to the respective audience. Along with outlining the deal thesis, it is often helpful to provide a non-confidential slide deck that provides an overview of the company's assets or technology. Furthermore, having a strong initial outreach serves as a positive springboard for the next round of conversations, including management presentations, confidential discussions, and the formal deal process. In terms of the actual form of communication, any type of warm introduction greatly maximizes the chances of an initial meeting. Therefore, leveraging one's network to facilitate connections is essential. In addition, in-person networking and meetings also greatly improve the chances of a partnership. Although JPM and BIO are necessary events to attend (as described in Chapter 2 of this playbook), satellite conferences that have specific focuses (i.e., ASCO), can also be great places to meet BD teams.

Timing

In determining the ideal time to reach out, the unequivocal answer is to establish the relationship as early as possible. Even if the technology or clinical data is in its earliest stages, it is never too early to reach out. By forming a relationship early on, the biopharma partner can provide valuable feedback. This includes suggestions on the work plan, pre-clinical research methodology (i.e., animal models, dosage curves, etc.), and the overall R&D approach. It can also help build trust in the relationship, especially if the feedback is incorporated into the startup's strategy as it moves forward (the importance of establishing a relationship early in a company's lifecycle is highlighted in this report's case study). Thus, having a successful outreach strategy can set the startup for success down the road.

After initiating the partnership, it is common for the larger biopharma company to lead the process towards its conclusion (in-depth process details are described in **chapter 3**). Although this is the case, it is important for a startup to play a proactive role to ensure that its own strategic goals are met. In order to accomplish this, the following are key axioms that can prove to be helpful:

1. **Be flexible** – both in terms of the scientific objectives and economic terms as it might ultimately lead to positive outcomes for both sides,
2. **Protect oneself** – do not give up too much (i.e. data, resources, etc.) in pursuit of the partnership as that might hamper the ability to do other partnerships and/or the long-term success of the company,
3. **Preparation is key** – anticipate the needs of your partner and provide innovative solutions that address those challenges, and
4. **Relationships matter** – establish a strong relationship with the BD counterpart as that person will quarterback the entire deal and can ultimately be a startups' strongest advocate.



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Chapter

Case Study: Recursion and Roche and Genentech

To contextualize the information explored in this playbook we sat down with **Matt Kinn**, Senior VP of Business Development at Recursion, and **Marissa Pettit Jones**, Director of Business Development at Genentech, to discuss the large-scale partnership they established between their companies in late 2021^{12,13}. While Matt and Marissa were not the only people involved in making this deal happen, they were two of the key players on both sides. *Note that unless there is a passage in quotes, the body of the text is paraphrased with permission.*



Matt Kinn
Senior Vice President,
Business Development & Corporate Initiatives
Recursion



Marissa Pettit Jones
Director,
Business Development
Genentech

Matt leads business development and pharmaceutical partnerships at Recursion. For the Roche and Genentech collaboration he was involved in initially pitching the collaboration, defining the value proposition and points of differentiation, designing a high level collaboration structure, helping draft initial term sheets, and negotiating the finer points of the final agreement with external counsel. Now that the deal has been signed, Matt leads the delivery anchor for the partnership and has stayed involved in collaboration, resourcing, setting annual objectives, and contract interpretation.

As a Business Development Project Lead, Marissa leads project development, due diligence, deal structuring and deal term negotiations in close collaboration with her colleagues in Roche and Genentech Pharma Partnering. Marissa was the Project Lead for the Recursion deal, beginning with non-confidential deal discussions. She worked closely with Matt and Recursion for the entire process, bringing together relevant teams, subject-matter experts, and leadership at Roche and Genentech along the way.

¹² <https://ir.recursion.com/news-releases/news-release-details/recursion-announces-transformational-collaboration-roche-and>

¹³ <https://www.roche.com/stories/recursion/>

Introduction To The Deal

In December 2021, Recursion announced a transformational collaboration with Roche and Genentech to accelerate the identification of novel targets and advance medicines. Under the terms of the agreement, Recursion received an upfront payment of \$150 million and is eligible for additional success-based milestone and royalty payments which could total up to or exceed \$12 billion. Recursion, a clinical-stage biotechnology company, utilizes machine-learning algorithms to identify relationships across biology and chemistry. The long-term partnership draws upon Recursion's technology-enabled drug discovery platform combined with Roche and Genentech's single-cell data generation, machine learning capabilities, and extensive biology expertise paired with drug discovery and development capabilities. The companies together leverage human cellular biology maps, generated from their collaboration, to identify novel drug targets and expedite the development of new small molecule medicines in key areas of neuroscience and a specific area of oncology. Pre-existing programs at Recursion in this specific oncology indication or neuroscience are not part of this collaboration, bringing the scope of the project into unexplored territory for Recursion.

Partnership Strategy

To begin, we were curious why Matt and Marissa's companies sought partnerships in general and especially with each other. Motivations behind partnerships in general have been outlined in Chapter 1 of this playbook and Roche and Genentech's general partnership strategy more specifically has been defined in this playbook previously in Chapter 3, but we were eager to hear motivations related uniquely to this case. Both Matt and Marissa agreed that the partnership between Recursion, Roche and Genentech originated from a shared vision. Partnerships promote diversity of thought, which is essential for the continued advancement of complex fields and to bring revolutionary treatments to patients. In this case, by combining their technologies and expertise, the companies together have the ability to deeply understand human biology and related drug mechanisms which would not be possible otherwise.

Matt: While pharma partnerships do provide valuable non-dilutive capital, Matt was very clear that Recursion was seeking a specific type of partner: one that could allow them to move into new spaces that their company may not otherwise have explored due to the risk and cost of entering a new market. Any potential partner had to share their vision and help advance Recursion's mission - *decoding biology to radically improve lives*. Recursion had done smaller scope collaborations before and were ready as a company to move into something larger and more catalytic. Recursion was scientifically excited about partnering with Roche and Genentech because they brought computational

and scientific expertise that was complementary to Recursion's technology. Recursion aimed to build proprietary data assets and multimodal applications, leveraging Roche and Genentech's proprietary data to develop a novel approach to problem-solving. Furthermore, the company sought partnerships for external validation as well: as an emerging biotech company working with Roche and Genentech is a huge stamp of approval when trying to differentiate from other companies.

Marissa: She expressed that Roche and Genentech seek partnerships where both parties bring capabilities and expertise to achieve goals that are more than the sum of their parts. In this case, Roche and Genentech sought to partner with Recursion due to a shared vision. Both companies were motivated to accelerate research and development through machine learning for drug discovery. Recursion's unique platform presented an opportunity to work with a partner who shared Roche and Genentech's goals and could complement their internal capabilities.

How The Alliance Was Initiated

As described in Chapter 2, there are many ways to begin relationships between companies that will lead to fruitful collaborations. In this case, Recursion had done smaller biopharma partnerships in the past and had taken previous initial interest meetings with Genentech. The relationship that was established from the previous meetings paved the way for the partnership they successfully attained.

Matt: Several years prior to the deal, Recursion took initial meetings with Genentech at the 2017 JPM conference. While it was not the right time to enter into a collaboration; the two companies shared a mutual interest in working together when the technology matured and was a better strategic fit.

Marissa: In mid-2020, Recursion and Genentech reconnected as Genentech's R&D strategy began to further focus on machine learning for drug discovery. Marissa joined the deal conversations in late 2020, aware of the previous introduction meetings that had taken place years ago, and led the partnership process from there. She pointed out that it's not uncommon to find the companies that establish significant partnerships with Roche and Genentech have initiated talks years beforehand.

When should a startup company generate additional data for a potential partner?

Startup companies should exercise caution when expending effort at the request of a prospective partner. We sought Matt's opinion on when it becomes acceptable to conduct additional research in pursuit of a partnership contract. According to Matt, companies should be cautious of performing pilot projects without a clear line-of-sight to a full collaboration. Most early discussions do not materialize into formal partnerships, so investing significant resources to generate data in the anticipation of a deal should be undertaken thoughtfully, even if specifically requested by the prospective partner.

Instead, it is possible to generate new insights from existing data that could satisfy potential partners until more formal due diligence is conducted. The level of effort and data generated should be proportional to the progress of the deal. For instance, in the case of the Recursion and Roche and Genentech partnership, Recursion had to show additional applications to instill confidence in their platform. Producing new data and generating new insights from existing data was worthwhile for them, given the momentum of partnership talks after months of diligence.

Building The Partnership

Once they had initial meetings and established mutual interest in pursuing a partnership, Matt and Marissa began to work closely together. Their process essentially followed the structure laid out in [Chapter 3](#), where the teams met for non-confidential meetings, followed by confidential meetings and due diligence, and then many iterations of meetings to find alignment on a term sheet and final contract.

Matt: On Recursion's end, the basic structure for the partnership began with leadership meeting on both sides to develop a collaborative vision with scientific teams coming together for due diligence in parallel. Following successful talks on the partnership structure and results of the due diligence, there was a series of deal proposals that were reflected in a term sheet. The team on the Recursion side was small including Matt, a limited number of senior executives, and their external counsel, with additional support from internal counsel on IP matters. Recursion's board of directors was consistently informed about the deal, with a formal board meeting prior to finalization of a contract with Roche and Genentech. The heavy lifting of drafting the initial contract following term sheet alignment was done by Roche and Genentech. This was followed by a month of negotiation of finer points of the deal, which Marissa noted was faster than average for this type of project.

Marissa: While Marissa led the deal process as the Business Development Project Lead, she worked very closely with a team of over 100 people from Roche and Genentech. With the extensive 10-year scope of partnership, Roche and Genentech dedicated significant resources and effort to building the collaboration. The entire process took approximately 14 months from the beginning of non-confidential deal discussions to deal signature. Due to COVID-19 restrictions, the two companies were unable to meet in person and had to resort to a virtual tour

of Recursion's facilities, but Marissa noted that the majority of deals do involve comprehensive site visits.

From Marissa's perspective, the process involved multiple key steps:

1. Leadership from both companies came together to set the vision for the collaboration.
2. Scientific teams talked to each other, resulting in Marissa building a formal due diligence team to evaluate Recursion's platform and proof of concept data.
3. Business development teams iterated on the deal structure, exchanged schematics, and discussed terms. This was primarily led by Marissa, the Head of Research Technologies Pharma Partnering at Roche and Genentech, and Marissa's colleague in the Roche and Genentech Transactional Excellence Group, but many other people were involved including scientific teams familiar with the indications of interest.
4. Deal terms were discussed around IP, financials, upfronts, downstreams, and more. This started with a one-slide concept sheet presented by Recursion and eventually both sides aligned on a 20+ page term sheet. This process took about three months. A full deal team was involved in this process, including transactional legal, intellectual property legal, business development finance, and alliance management.
5. Functional teams on both the Roche and Recursion sides planned detailed research and implementation logistics.
6. Roche sought approval from governance committees and Roche leadership for the deal, including financials and terms.

7. The final contract spanned over 100 pages. The full Roche and Genentech deal team worked together closely to build and negotiate the contract in collaboration with Recursion.

Finding Deal Terms and Structure

Following strong interest to enter into a partnership, Recursion, Roche, and Genentech focused on shaping the terms and structure of the deal. The collaboration focuses on advancing therapies in 40 programs with the Recursion Operating System (OS). The OS is a comprehensive system for analyzing large biological and chemical datasets, combining wet-lab and dry-lab biology to digitize and industrialize drug discovery. Roche and Genentech contribute single-cell perturbation screening data, and the parties work together to develop advanced machine learning algorithms for detailed maps of human cellular biology. The insights gained from these maps are used to accelerate the discovery and development of medicines targeting novel targets in neuroscience and oncology for a period of at least ten years.

Under the terms of the agreement detailed in the press releases, Recursion received an upfront payment of \$150 million and is eligible for additional performance-based research milestones. Under the collaboration, Roche and Genentech (combined) may initiate up to 40 programs, each of which, if successfully developed and commercialized, could yield more than \$300M in development, commercialization and net sales milestones for Recursion^{14,15}. In addition, Recursion could receive tiered royalties on net sales.

Matt: Recursion acknowledged their team gave considerable thought to the length and exclusivity they entered into with this collaboration. Per the terms of the deal, Recursion will work exclusively with Roche and Genentech in the fields covered by the partnership during the term of the collaboration. Recursion took this into consideration when negotiating the overall upfront and downstream economics included in the financial terms.

Notably, they negotiated an upfront technology access fee to account for the substantial scale-up efforts required on their part to fulfill the research plan obligations. This included hiring new employees and investing in equipment to meet the collaboration's demands. Recursion also negotiated significant near-term research milestones for achieving material technical proof-points, which ensured Recursion had "skin in the game" and ensured Roche and Genentech would pay only in the event of successful delivery.

In addition, the Agreement included customary development and commercial milestones, along with royalties which allow

Recursion to share in the upside when Roche and Genentech internalize programs and take them forward.

These negotiated terms were crucial for Recursion to ensure that they had the necessary resources and incentives to fulfill the partnership requirements while balancing their own growth and strategic objectives.

Marissa: This deal encompassed collaboration in neuroscience and one area of oncology, involving R&D efforts from both Roche and Genentech, as they have separate R&D organizations. The overall scope of the deal was to jointly develop data-intensive approaches for identifying and analyzing novel drug targets and small molecule hits, with the goal of accelerating the drug discovery process in these areas of high unmet medical need. Roles and responsibilities were clearly defined for each partner within the scope of the work. If a drug target or small molecule hit was identified through the partnership analyses, the contract detailed how the parties would collaborate to progress such insights. To ensure that both parties were able to maximize the benefits of the partnership, the scope and timeline were increased, allowing for more comprehensive and in-depth collaboration.

This approach ensured that the partnership was focused on generating meaningful results and advancing drug development efforts in a collaborative and mutually beneficial manner. The clearly defined roles, expanded scope, and timeline adjustments were critical in driving the success of the partnership between Roche, Genentech, and Recursion in their joint efforts to accelerate drug discovery and development.

Final Takeaways

Both Marissa and Matt agreed – show up and develop relationships with your partner. Your relationship will carry through after the deal is made. It was clear Marissa and Matt had an enormous amount of respect for each other and rapport that was built over months of continued meetings. We are so grateful to them for sharing their time for this playbook, and we hope the insight we gained is valuable to early stage founders. Below are their recommendations to founders who seek to pursue a partnership with biopharma.

Matt: Get excited about the science before you push the conversation about the deal. Spending time on the science and navigating to the right scientific champions makes the deal process go a lot more smoothly.

Marissa: Seek a partner that is aligned with your company's strategic vision – a company that wants to run in the same direction as your company. Look for opportunities to bring something unique to the table, so that both companies can run faster together than either company could run alone.

¹⁴ <https://ir.recursion.com/news-releases/news-release-details/recursion-announces-transformational-collaboration-roche-and>

¹⁵ <https://www.roche.com/stories/recursion/>



Chapter

Final Advice

We asked our interviewees, “What is one piece of advice you would give to a startup that wants to establish a partnership with a pharma company?”. These are their responses.

ADVICE FROM BIOPHARMA TO STARTUPS

Data is King

The science data is key. Once the buy side company has the conviction to partner with a startup, be transparent about your data. If the pitch deck doesn't match the hard data- that doesn't set up for a successful partnership. In the end, you are selling your data package. It's worth talking to an experienced drug developer to get feedback on your data.

Timing

Know what your capabilities are and do as much as possible with venture money before forming a business development partnership.

It is never too early to begin talking to big pharma. Start now! The partnership process can take years

Ask!

Learn directly from potential partners about what they are looking for in a partnership.

Set clear expectations and ask clarifying questions from the very beginning. Deals can get shut down with too much back and forth when there is the lack of know how of getting through the process.

Focus

When you go to pharma to seek a partnership, do not be too broad. The first thing pharma will assess is your company's science. By this point, you should have a focus on a specific disease with a lead asset, and some decisions have been made on what to bring to market. Have a vision and a focus! Push for focus, even if it is painful, in order to get to the first human dose. Think about what the potential is of the product: how will we solve the patient's problem and how will we get it to market. There is much excitement about platforms - even if you have a platform technology you still need focus. Prove your platform in a specific drug candidate.

Build Your Team and Seek Advisors

Get advice early and regularly.

Don't build a team of just academics. After key science personnel, your next hire should be business professionals. Put people associated with pharma or from pharma on your team.

To make the partnership process smoother, hire an experienced consultant who can translate the process requirements from the buy side. Trying to build optionality into a deal is complicated, therefore having a business person who can help translate this to scientists is key.

Understand Your Potential Partner's Motivations

Have an understanding of the needs and motivations of the company you are meeting with. When you are going into a discussion, do some reading on the company and understand where they are investing.

Be honest to yourself about why you want the partnership. Come to the table with a good thesis on how you want the partnership to operate, but be flexible.

Build Your Network

Partnering is a people sport from start to finish.

This is a very social business and you need to make connections. Reach out, don't be shy, and connect. Many people are open to talk and chat about your technology. It is a human skill to create relationships, have empathy and understand the needs of the people you are talking with.

Long term relationship building is key - try to build a pharma network even if you aren't seeking partnerships yet. Then, meet and catch up once per year with your pharma network.

Go to conferences.

You may have to engage with many potential partners: get used to kissing frogs.

ADVICE FROM STARTUPS TO STARTUPS

Differentiate Your Product

Have a truly differentiated product.

Think about the competitive landscape earlier rather than later. When you are far from commercialization, the competitive landscape may not be on your mind. If you have a robust understanding of competitors and their development process, you can find where to position yourself.

Pitch To Your Partner's Pain Points

Ask yourself: What is the pain point that you can solve for your potential partner?

Whatever you think you understand about their pain point: spend the time to understand it 10x more. You want to make a case and spell it out why your company will solve their pain point. If you can't make a good case, you may not be a good fit.

Different pitch decks for VC and BD are important!

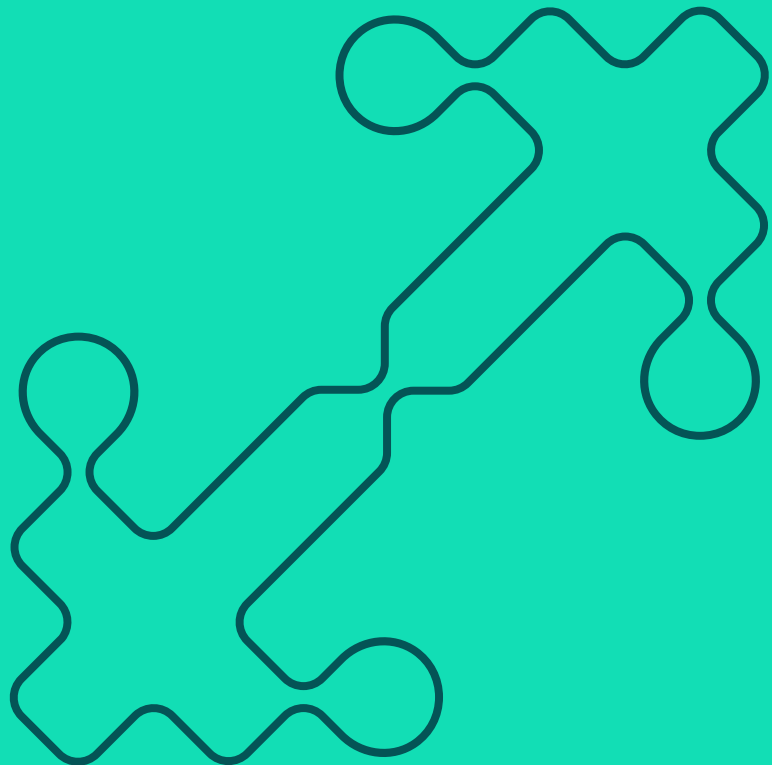
When pitching to VC, you pitch the commercial return of your company.

When pitching to a potential partner, the narrative of the pitch should be the adjacent applications and how you can solve the pain points.

Build Your Network

Network is the X-factor. Networking leads to the deal sheet and leads to the value in the deal itself.

Network is the most valuable asset, build a positive reputation for yourself.





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Nucleate Mission & History

Non-profit, trainee-led, educationally focused

Our programming is fully organized and executed by our student leaders, and supported by corporate and philanthropic sponsors. Our unique trainee-led structure allows us to execute on our educational mission without charging fees or requiring teams to give up equity in their companies to participate in our programs.

01 Mission

To empower academic trainees through open-access educational resources.

02 Vision

To solve the world's most pressing biomedical and ecological challenges by enabling the next generation of bio- and eco-entrepreneurs.

03 Origins

Nucleate, formerly Activate Bio, was founded in Boston in 2018 within the GSAS Harvard Biotech Club. We have a 501(c)(3) status and operate under a franchise model wherein our organization supports and organizes regional chapters. Nucleate's Activator program currently operates under seventeen cities across the US and Europe.

04 Leadership

Our leadership team is composed of 400+ diverse and exceptional academic trainees in PhD, MBA, MD, and JD degree-granting programs. Our leadership is passionate about bridging the gap between innovation and translation by helping to educate future founders and biotech leaders and build support systems to encourage the translation of groundbreaking scientific work. Our leadership team aspires to become future leaders in biotech through VC, BD, and entrepreneurship.

Nucleate Team

Playbooks Team

Committed to developing free and publicly playbook resources for the life science entrepreneurial community, addressing key knowledge gaps experienced by scientific trainees.

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