

Innovation Leadership in Drug Development

Jennifer Chase

A “sea change” in the biotechnology and pharmaceutical industries is leading established players to recruit a new type of drug-development leader. Disruptive innovators such as LG Life Sciences, Google, and Nestlé are challenging established life-science companies to be nimbler, more creative, and more adept at applying new and emerging technologies. To spur creativity and entrepreneurship in research and development, smaller companies and Big Pharma corporations alike are recruiting leaders from different fields both inside and outside the life sciences. They want leaders who are comfortable pushing complex boundaries, who have emotional intelligence and soft skills, and who exercise vision and risk-taking in addition to their scientific knowledge.

The new drug development leaders are skilled at negotiating codependencies between small and large companies. Start-ups and emerging companies often rely on Big Pharma for funding, robust analytics, and distribution and commercialization capabilities — yet they want to maintain their agility and autonomy throughout early development stages. Many entrepreneurs believe that large-company scientific executives are constrained by bureaucratic processes and rules that infringe on their creativity, so they try to limit Big Pharma’s involvement in codevelopment contracts until after phase 1 trials and good laboratory practice (GLP) toxicity studies.

“Companies of different sizes face different economics and vary in their ability to innovate,” points out Bernard Munos, founder of the InnoThink Center



for Research in Biomedical Innovation. No matter the size of the organization, he says, its ability to innovate repeatedly generally is unproven.

For that reason, both small and large companies are taking advantage of unique open-innovation (OI) models that foster unprecedented conversations, collaboration, and timely funding throughout early stage development. In the work I do as an executive recruiter, I have found that both fledgling and established life-science companies are challenged to identify and retain executives who can spearhead innovation within increasingly open business models. One reason for that is today’s need for leaders with stronger soft skills and self-awareness than in the past. I interviewed three respected innovation leaders about best practices in their work and about what types of life-science leaders are needed in an environment that prioritizes innovation.

Encouraging Audacity

As a PhD and head of immunoncology research and translation at CRISPR Therapeutics, Jon Terrett is an example of a prototypical early stage innovation leader. His advice to his innovation

team is, “Forget everything you have been taught; it is just theory. Now, think of the most audacious thing we can do, and do that.”

Terrett has a successful track record of bringing new drug targets to clinics. He believes that through an open-innovation model such as that at CRISPR Therapeutics — one that strives to be truly agnostic and open to opportunity — a company can build its pipeline of transformative medicines. With the understanding that people are the key to innovation, his greatest passion is to improve patients’ lives dramatically. “We [in the pharmaceutical industry] have missed many opportunities,” he says, “for reasons that may be more related to people than to science.”

Leaders in an innovative environment must lead by example, Terrett believes. He encourages open debate and joint ownership of projects, hoping to prevent issues with ego and lack of focus that often derail innovation. He is dedicated to training people who are “good enough to lead” but not necessarily compelled by ego to do so. His leadership focuses on supporting groups that are not “blinded by data” but built around transparency and the rapid sharing of information that can demonstrate both success and failure.

“Rapid failure is not a bad thing,” he says. “We just have to get rid of it quickly and move on.”

In building innovative talent with the above qualities, Terrett emphasizes training and mentoring. For today’s open-innovation business models, there is a limited pool of proven, successful innovation leaders/drug developers who can help companies navigate through the complexities of drug development.

In Search of Soft Skills

Like Terrett, Pravin Chaturvedi has participated in discovery and/or development activities for many new chemical entities (NCEs), culminating in the successful commercialization of several drugs currently on the market. He too, is determined to recruit and develop innovative drug-development leaders in an environment where they are hard to find.

Chaturvedi is astute at recognizing individuals who have the courage and fortitude to lead and foster innovation in drug development. He believes that he can spot such potential within the first 10 minutes of an interview by asking three questions that he believes provide insight into an individual's mind, heart, and gut:

- (Mind) "What do you know?" The response should be brief, direct, and clear. If the candidate's answer is long-winded and unclear, Chaturvedi knows that the candidate does not have the requisite self-awareness and knowledge that he seeks in innovative drug development leaders.

- (Heart) "Why do you do what you do?" The candidate's response should be linked to the true mission of drug development: solving unmet patient needs. Innovative leaders require personality traits that balance their passion and creativity with the requisite humility and fear to prepare for the obstacles and potential risks of failure.

- (Gut) "How will you get up every morning to try again?" This question is about working in face of adversity. The response will give insight into a candidate's reasoning and ability to deal with the challenges of slow progress and to lead teams despite the potential risk of failure.

In addition to asking those questions, Chaturvedi looks for other qualities. He says that innovative leaders learn to maneuver through the realm of constant ambiguity and possible failure by readjusting clinical strategies, reevaluating safety studies, reformulating plans in light of new developments, identifying gaps, and so on. But they always remain focused on solving patients' unmet medical needs.

Effective leaders maintain an openness to changing paths as new

The Market for Innovation Leaders

To attract and retain excellent innovative leadership, companies must demonstrate agility in managing the uncertainty of innovation development as new data are uncovered. Factors in the current environment driving innovation—e.g., a sense of mission, trust, autonomy, risk-taking, and tolerance of failure—all must be part of an innovation leader's personality profile and the overarching company culture.

One new role in the biopharmaceutical marketplace is the "head of open innovation" (or similar title). For such a position, candidate remuneration varies among companies, depending more on experience and what someone brings to driving innovation rather than the responsibilities of the role. Open-innovation leaders at the vice-president level in large pharmaceutical corporations drive early stage projects and could earn US\$200,000-300,000 annually, with bonuses ranging from 40% to as high as 100% of their base compensation. Additionally, long-term equity based on milestone achievements could yield as much as 1.5x the annual base salary.

For smaller and more nimble companies hoping to enter into new markets, open-innovation leaders generally are

interpretations of evidence are generated. They never "fall in love" with one project or technology or assume that the current path is the best and only one toward a solution. They constantly seek more quickly and efficiently solutions for unmet patient needs.

Achieving that level of innovative leadership takes a deep understanding of both oneself and one's working environment. Chaturvedi emphasizes the following qualities for innovative drug development leaders, especially those who operate in an open environment. Innovation leaders

- Maintain focus on the goal of solving unmet needs for patients
- Possess a holistic passion for benefiting all stakeholders rather than a motivation for personal gain or profit
- Have a healthy but balanced ego (they overcome self-centeredness and ensure that their group's ideas are understood and furthered)

- Ask the right questions of the team and work comfortably with constant risks and unknowns associated with solving unmet needs

remunerated with higher base salaries if they have previous experience as start-up founders, chief executive officers (CEOs), and fundraisers. Long-term equity typically requires innovation executives to hit scientific milestones that are considered to be critical to a company's success.

To recruit innovative talent, some large pharmaceutical companies have brought in people from academic medicine and start-up biopharmaceutical companies. Executives with academic medicine backgrounds generally earn less than those from private industry, and they require more time to understand the complexities of a Big Pharma organization before they can serve as effective, innovative leaders.

Compensation alone, however, will neither attract nor retain innovative talent to a company. These executives are first and foremost motivated by the science that drives innovation and a company culture that supports their ability to contribute to making breakthroughs. Innovation leaders can get "itchy feet" if they feel that a company or organization cannot instill an innovative culture that embraces ambiguity and uncertainty.

- Maintain empathy to ensure that teammates and colleagues feel empowered to act on their proposals and ideas

- Delegate effectively and don't do the work for those who are qualified and supposed to do the work themselves (while allowing "head room" for such people) so that they can influence and motivate others to perform better

- Openly communicate with all stakeholders who possess different expertise, skills, and backgrounds to develop a strong collective understanding of patient needs and how a given solution fits into the environment

- Never believe that a given technology or drug will be the "unique" solution for a disease or condition — biotech leaders need to develop drugs that treat living organisms that constantly evolve and are guaranteed to become refractory to intervention.

These qualities always have been important, but they are essential today. Finally, Chaturvedi believes that innovative leaders are not people who

seek consensus — which usually leads to compromise and settling for less, he says. Instead, they seek agreement on decisions so that a team can work cohesively on those agreed-upon decisions.

Of course, it is impossible to achieve disruptive innovation in drug development alone. As Chaturvedi emphasizes, innovative leadership requires creating a collective culture that challenges itself constantly which ultimately outweighs an individual's "fiefdom" on solving unmet needs. Good leaders encourage coexistence among differing individuals and teams that will be fundamental to bringing drugs from concept to market (bench to bedside).

Creativity for Big Pharma

Different research and development (R&D) approaches can bring drugs to market successfully. Innovation leaders in larger companies especially must understand and leverage the range of approaches, believes Robert Urban, retired former global head of J&J Innovation, LLC.

With plentiful resources, many Big Pharma leaders have shown a willingness to embrace the ambiguity of innovation and create new models or approaches that could stimulate exchange between in-house and external drug developers. For example, Johnson & Johnson's chief scientific officer, Paul Stoffels, is known to leverage external drug developers who are part of an extended J&J Innovation network and the JLABS community. To make such networks effective, their leadership must place a premium on collaboration and building strong relationships — empowered through an overarching culture of trust and honesty. The basis of such a highly collaborative operating model is a candid, general understanding of the low probability that any large company's internal R&D organization can discover a sufficient number of highly effective drugs on its own.

R&D leadership within established firms need to work to break down barriers of communication and develop trust with their smaller partners. Big Pharma teams must be trained to

understand how to work within the context of confidentiality and encouraged to exchange the appropriate types of information when helpful.

Urban explains that the key to developing an effective collaboration model is to "develop relationships in which interdependency is needed . . . to work on things together that neither party could not do alone easily . . . and to develop governance models that facilitate and simplify the communication and decision-making process."

As relationships are simplified and communication improves across ambiguous frontiers, the opportunity for disruptive innovation increases. For instance, to simplify their Big Pharma model, J&J technical experts are located across four "innovation centers." They openly communicate to facilitate codevelopment relationships with entrepreneurs at three distinct stages:

- Incubation (entrepreneurs/innovators apply for JLABS collaboration and partnership, which offers easy access to present projects in core areas of interest to J&J technical experts)
- Selection (J&J technical experts meet entrepreneurs for open conversations to determine whether a given start-up becomes a JLABS partner and attempt to accelerate production and research needed to spot faster optimal innovation alliances)
- Transition (JLABS projects achieving specific milestones to be incorporated into J&J's development process).

Like Terrett, Urban believes that innovative leaders must create interdependence across their internal and external networks through intensions that are greater than their own individual gains. Strong innovation management rests on each individual understanding his or her own contribution to the team and its overall goal, on defining who owns what, and on allocating responsibilities to appropriate team members.

To date, more than a quarter of JLABS projects have been transitioned into J&J, which has been a significant driver of success in the corporation's innovative model. Only time will prove the ultimate success of that model and

the ability of those integrated JLABS members to contribute to J&J's overall number of new product approvals.

Fostering Fearless Innovation

Although the cost, scale, and distributed nature of innovation projects differ across the biotechnology and pharmaceutical industries, business models based on networks of innovators have become commonplace in both. As more and more biopharmaceutical CEOs at both small and large companies move boldly to create "fearless" corporate cultures, they must find and support innovation leaders across a wide range of key functions. They need to take risks while working across complex boundaries and establish collaborations among research consortia, joint ventures, strategic alliances, and subcontractors. As Terrett, Chaturvedi, and Urban believe, both small and large companies must find and empower innovative leaders who can help them disrupt existing markets and value networks, ultimately to displace established market leaders with new drugs that may have been unimaginable in the past (e.g., regenerative medicine).

Successful modern drug development is attributable not only to strong clinical evidence but also to the best leadership for open environments. For leaders, this requires great self-awareness, emotional intelligence, and a commitment to personal and professional growth. One very important characteristic of an effective open-innovation leader is a willingness to question, self-examine, and learn from others. For such leaders, the journey is as important as the outcome.

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