



Innovation: INCUBATORS

As the industry looks for new avenues to fill its pipeline, the incubator model provides speed, innovation, and results.

In November 2013, Wellspring Biosciences discovered small molecules that bind irreversibly to a common oncogenic mutant, K-Ras G12C, one of the most promising approaches to target K-Ras yet reported. The finding was facilitated by Wellspring's participation in Janssen Labs' incubator program at its West Coast Research Center, which provides a capital-efficient, resource-rich environment for independent emerging companies to progress their research. Within this innovative environment, Wellspring was able to achieve this discovery in a matter of months instead of years.

Such results illustrate that the culture of innovation and support created by incubators is a viable option for building the industry pipeline while contributing to the overall advancement of biotechnology. Incubators are commonly used at the very beginning stages of research and discovery, and often pair veteran entrepreneurs with scientists to help guide them toward commercialization. Incubators focus more on providing resources in the form of lab space, equipment, and knowledge, often with no contractual ties or requirements for an intended outcome. Also feeding this innovation are outsourcing, crowdfunding, seed funding, and accelerators.

According to Bernard Munos, founder of the InnoThink Center for Research in Biomedical Innovation, incubators nurture a culture of innovation that is essential to today's research and discovery.

"I believe that models that foster bold thinking and cross pollination should be part of the architecture of successful drug companies," he says. "Incubators are not the only way to create innovation, but they have unique attributes and should be part of the mix."

Some of those unique attributes include speed to discovery, as well as to market; a culture that thrives on free-thinking; shorter

term business and investment commitments; and mentorship. According to Diego Miralles, M.D., global head, innovation, Janssen Pharmaceuticals, incubators may be the one setting in the industry where the discovery process happens fast and efficiently. Setting up a life-sciences company from the ground up takes a lot of work, investment, and effort. Much time is spent finding a suitable space, purchasing equipment, acquiring permits, and establishing SOPs before researchers can even start developments in the lab, he says.

"Our entrepreneurs tell us that they have accomplished in three months what it would have taken 12 or 18 months to do on their own," Dr. Miralles says. "At Janssen Labs, researchers sign the lease, go through orientation, and the next day are in the lab — this is unheard of anywhere in the world."

Janssen Labs is not the only industry organization that has recognized that incubators can stimulate meaningful innovation. Bayer has also invested in an incubator, the CoLaborator in San Francisco, to offer biotechs the lab space, shared facilities, and resources necessary for discovery. Merck established the California Institute for Biomedical Research (Calibr) and Pfizer initiated The Pfizer Incubator and The Centers for Therapeutic Innovation (CTI).

"The pressure on pharma companies has emboldened them to try many new things, and some of them are really good and likely to succeed," Mr. Munos says. "Pfizer's CTI program is a great example. It embeds Pfizer's scientists within academia, creating a model that fosters unfettered thinking and cross-pollination. Other interesting models include Merck's Calibr, Janssen Labs, and the open innovation initiatives at Lilly and GSK."

Incubators work because they foster innovation by providing an environment free from control and restrictions often present within industry labs. Therefore, companies that decide to sponsor or become involved in an in-

Innovation Incubators

BAYER'S COLABORATOR

At Bayer, collaboration is an essential way to bring new therapies to the patient. This philosophy led the company to open the CoLaborator, a unique incubator space for start-up companies next door to its U.S. Innovation Center in the Mission Bay neighborhood of San Francisco. Located in the heart of the city's thriving life-sciences cluster, the CoLaborator is within walking distance of UCSF, QB3, the Gladstone Institutes, several venture capital groups, and more than 60 emerging life-science companies, making the Mission Bay location well-suited to support the success of a start-up company.

The CoLaborator's design is a flexible, open-floor plan with 6,000 square feet of shared, rented lab space designed to house startup life-science companies whose technology platforms, drug targets, or drug candidates may align with Bayer's interests. The environment fosters opportunities for idea exchange by bringing researchers together in a common space.

The CoLaborator includes basic equipment for life-science start-ups to quickly begin putting their ideas to the test. Bayer support includes Environmental Health & Safety and Biosafety licenses, and access to nearby UCSF core services such as imaging, bioinformatics, and proteomics. Partnering with Bayer can also provide access to the global expertise and equipment of Bayer's research network.

▼ For more information, visit colaborator.bayer.com.

THE CALIFORNIA INSTITUTE FOR BIOMEDICAL RESEARCH

The California Institute for Biomedical Research (Calibr) is an independent, not-for-profit organization established to accelerate the translation of basic biomedical research to innovative new medicines. Scientists at Calibr work together with investigators at other academic institutions and nonprofit foundations to advance exciting research discoveries and technologies to new medicines for the treatment of human disease.

Calibr's scientists have extensive drug discovery expertise and state-of-the-art drug discovery infrastructure including uHTs automation and technologies, high content screening platforms,

medicinal chemistry, protein chemistry, pharmacology chemical and protein libraries. Calibr also has depth across a variety of platforms and modalities including protein therapeutics, small-molecule therapeutics, antibody conjugates and bi-specifics, and cell-targeted therapies.

Calibr has ongoing scientific collaborations in cancer biology, degenerative diseases of aging and regenerative medicine, autoimmune, cardiovascular, and metabolic disease, as well programs focused on orphan and neglected disease. Calibr actively engages investigators with innovative new approaches to human therapeutics. The incubator also tightly integrates its broad drug discovery platforms and technologies, in-house expertise, and academic collaborators to rapidly advance innovative new ideas toward the clinic.

▼ For more information, visit calibr.org.

JANSSEN LABS AT SAN DIEGO

Janssen Labs is a life-sciences incubator created by Janssen Research & Development (JRD) at its La Jolla-based West Coast Research Center. By providing emerging healthcare companies with many big company advantages, Janssen Labs offers a capital efficient way for companies to discover and develop solutions to the healthcare challenges we face today. This model is intended to give companies the opportunity to invest their capital in research instead of infrastructure and to focus resources on progressing science instead of day-to-day operations.

The Janssen Labs companies reside in modular and scalable lab units, designed to grow with the companies, while access to core research facilities with specialized equipment and administrative areas make it easier to do business. Through this "no-strings attached" model, JRD does not take an equity stake in the companies occupying Janssen Labs and the companies are free to develop products either on their own, or by initiating a separate external partnership with JRD or any other company.

Janssen Labs is looking for high-potential companies from diverse healthcare sectors including biotech, pharmaceuticals, medical devices, instrumentation and diagnostics to be a part of Janssen Labs. Companies are selected

based on the following criteria: compelling and credible science and/or technology, area of significant medical or market need, and demonstrated financial solvency.

▼ For more information, visit janssenlabs.com.

PFIZER'S CTI

Launched in 2010, Pfizer's Centers for Therapeutic Innovation (CTI) is a unique model for academic-industry collaboration, designed to bridge the gap between early scientific discovery and its translation into new medicines.

A key aspect of CTI are its four biomedical research hubs that enable Pfizer and academic teams to work side-by-side, blending the research expertise of academics in disease biology, targets, and patient populations with Pfizer's developmental expertise and resources. This model represents a significant departure from the traditional lengthy and linear process of target discovery to eventual drug development. Pfizer funds preclinical and clinical development programs and offers equitable intellectual property and ownership rights and access to antibody libraries and other proprietary technologies.

With locations in Boston, New York, San Diego, and San Francisco, CTI's open innovation model puts Pfizer scientists in the lab with academic investigators, where they share their understanding of target biology and translational medicine. Pfizer provides access to select compound libraries, proprietary screening methods, antibody development technologies, and dedicated resources and support from Pfizer experts. The ultimate goal of each collaborative project is to validate a drug candidate that can be moved into further clinical testing.

CTI now has more than 23 academic institutions in its network, with a portfolio of 25 projects across a variety of disease areas.

Launched in 2007, the Pfizer Incubator (TPI) offers scientist-entrepreneurs an opportunity to bring their medical innovations to patients. In TPI, scientist-entrepreneurs contribute innovative ideas and the ability to solve complex scientific and technical challenges, while TPI provides all necessary resources to move ideas forward into practice. If the idea is proven and is ready to be commercialized, it can be incorporated into Pfizer's powerful life-sciences research, development and marketing infrastructure.

▼ For more information, visit pfizer.com.



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HALLE TECCO / Rock Health

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DIVYA NAG / StartX Med



cubator need to leave the “what’s in it for me” at the door. While the end result may be a marketable new drug, innovators need to be free to follow their own mandates, and not someone else’s.

“We have made it clear that our program is completely open and I believe that is the reason for our overwhelming success,” Dr. Miralles says. “We understood that entrepreneurs want to be free to pursue their work so there are no strings attached.”

The incubator model allows bold innovation to take place outside the corporate structure, which is often inhospitable to free thinking, Mr. Munos adds.

“Innovation, if it is successful, will obliterate and replace the drugs that corporate marketers are carefully nurturing and growing,” he says. “Innovation is essentially disruptive. It cannot thrive upon law and order. There is inherent tension between the two.”

Incubators, because of their ties to academia and their ability to create a hospitable cli-

mate, tend to attract innovators and allow them to thrive.

“Innovation is strictly a by-product of culture, not a by-product of process, organization, or R&D spend,” Mr. Munos says. “It’s a virtuous circle.”

At Janssen Labs, there are no contractual scientific agreements between the entrepreneurs until later in the process, and they are determined on a case-by-case basis. Janssen has made a “significant deal” with Well-spring, but other companies in the program may actually end up doing business with competitors, Dr. Miralles says.

“This is part of the novelty of what we’ve done — it’s not about control,” he says. “It requires a different mentality about relationships and building something together.”

Stanford University’s incubator StartX Med maintains the same policy with its six-month program. Start-ups admitted to the sessions get free office space, instruction on business formation and financing, and industry mentors and StartX Med doesn’t ask for any ownership stake in the companies it nurtures.

“The culture of innovation that is created by bringing together passionate, ambitious, and brilliant minds is hard to find anywhere else,” says StartX Med Co-founder Divya Nag. “It’s truly unique.”

A couple years ago, Ms. Nag was one of those bright young start-ups herself, trying to set up her own biotech company Stem Cell Theranostics at the age of 20 straight out of the Stanford School of Medicine.

“Neither I, nor any of my three co-founders — one of whom is an M.D./Ph.D. candidate at the Stanford School of Medicine, and the other two of whom are professors — had any idea on how to successfully take our research out of the laboratory setting and help it realize its full potential of helping patients,” Ms. Nag says.

She and her colleagues saw a need and created StartX Med to help many other scientists who faced the same problem.

“We looked around and saw that many scientists had invented amazing, potentially life-changing technologies, but due to the fear of the unknown — they never ventured to try commercializing them,” she adds.

The decision to start involving pharma into the incubator program was a no-brainer.

“Pharmaceutical companies have an incredible wealth of knowledge in each of their departments, everything from overcoming regulatory barriers to sizing the market of different disease areas, to establishing a business model around a medical product,” she says. “Our mission at StartX Med is to empower medical scientists to develop as entrepreneurs through the vehicle of commercializing their technologies. We couldn’t think of a better group of individuals to help our founders through this journey than big companies that have a proven track record of successful commercialization.”

Johnson & Johnson and Merck are currently partnering with the StartX med program.

Ms. Nag is grateful that Johnson & Johnson and Merck saw the value in partnering with StartX Med, as she feels that often the industry has the wrong idea about incubators.

She believes there’s a common misperception within the pharma industry that healthcare accelerators are filled with 20-something-year-olds, who are hacking medical solutions



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DR. DIEGO MIRALLES

Janssen Healthcare Innovation

Tecco describes Rock Health as a full-service seed funding company that provides personalized support along with providing significant funding.

to problems as a hobby out of their dorm rooms.

“While we do have some truly exceptional founders in our program who may fit that description, the vast majority of teams in our accelerator have developed innovative technologies, often with millions of dollars of grant support from agencies such as the NIH,” she says. “On average, our StartX Med founders have been developing their products for more than two years in the university setting before joining the program. Our founder demographics are dominated by Ph.D. candidates, post-doctoral researchers, and professors from Stanford School of Medicine, many of whom are well-known thought leaders in their fields.”

Several successful ventures are already emerging from the StartX Med program, including Gauss Surgical, which developed an iPad app that can be used in operating rooms to measure blood loss during surgical procedures and has FDA clearance as a medical device. Also in the StartX Med lineup is NuMedii, which uses bioinformatics to repurpose FDA-approved drugs for new targets; Spire, the creator of a wearable device to monitor breathing; and Genapsys, which is in the process of commercializing its revolutionary third-wave DNA sequencing technology to enable a paradigm shift in genomic diagnostics.

Beyond the realm of medical science, the incubator model is also creating significant innovations in the healthcare technology space, which is dominated by Rock Health, considered in 2011 to be the first incubator for healthcare technology. The company was founded by MBA Harvard grad Halle Tecco, a former Apple employee. Not only does Rock Health provide resources for disruptive healthcare technology, it has also rewritten its own role as a supporter of technology startups. Ms.

“Our support is personalized and tailored to our portfolio companies to help them scale,” says Ms. Tecco. “There is no time-frame for our support, and we now fund companies year round.”

Ms. Tecco says from the beginning her goal has been to serve the most talented entrepreneurs — those with a vision for dramatically changing healthcare for the better.

“Our resources, curriculum, and community have evolved since our first class of entrepreneurs, but we have always worked one-on-one with each team to best understand their unique business challenges,” she says.

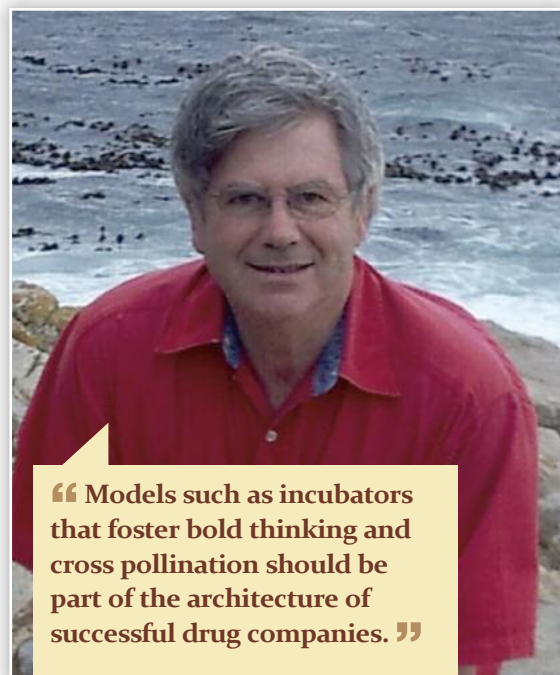
Through their program, Rock Health provides crucial funding; mentorship, access to a network of prestigious partners from healthcare and beyond, hands-on support from staff, clinical expertise and guidance from medical partners, and access to co-working space in its brand new office in San Francisco’s life-sciences hub, Mission Bay. Rock Health periodically has entrepreneurs-in-residence (EIR) who provide support to the portfolio and staff, and work out of the Rock Health offices.

“Our EIRs provide invaluable expertise and knowledge of the healthcare landscape,” she says. “They are familiar with the challenges healthcare entrepreneurs face and can provide support and feedback.”

The Broader Picture

While incubators provide space and resources for motivated start-ups, the bigger picture is how these enterprises support the biotech industry overall, Dr. Miralles says. Keeping the biotech industry robust is key for the success of all healthcare stakeholders.

“Many of the drugs available today around the world came from the biotech sector, and it is critical for us as an industry to maintain the



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BERNARD MUNOS

InnoThink Center for Research in Biomedical Innovation

health of this sector,” he says. “Think of it like a field or garden that needs to be fertilized and watered so the fruits will grow, and then the whole industry can reap those fruits and bring them to the market to the people who need them.”

And nurturing innovation takes more than money, Dr. Miralles says. Pharma companies have other resources that they can contribute to sustain the biotech industry. It was this type of thinking that led to the creation of Janssen Labs’ incubator.

“We wanted to use our resources — beyond money — to help the many entrepreneurs out there who have great ideas, and if we don’t support them, the whole industry will be in trouble,” he says.

As the R&D landscape struggles with today’s challenges, the industry needs to look elsewhere to fill its pipeline. There are several other avenues the industry has been exploring, such as venture capital investment, collaborating with academia, joint licensing, and sponsorships in the form of grants. Studies show that businesses that spring from incubators are more likely to succeed than those that did not.

“Our industry is an incredibly resourceful one that has made a huge difference to the world and to be able to continue to make such a difference, we definitely have to figure out how to do things differently and adapt,” Dr. Miralles says. “We must challenge ourselves continually on how to do things differently and execute.” **PV**

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