

Giving patients a say: how to work with patient advocacy groups

Anne-Laure Winkler & David Finegold

Working with patient advocacy groups poses many challenges to entrepreneurs, but the benefits can be substantial. Here, we examine the relationship between biotech PTC Therapeutics and Parent Project Muscular Dystrophy to highlight some key factors for success in such partnerships.

When a child is diagnosed with a terminal disease, parents will try almost anything to help. One direction in which they are increasingly channeling their efforts is to use their own money to fund early-stage research at companies. But what are the pros and cons for entrepreneurs of working with investors who have such a desperate need to find treatments? We looked at one such collaboration, Project Catalyst, which is a partnership between Parent Project Muscular Dystrophy (PPMD), a group of around 3,000 parents and relatives, 50 of which each contributed at least \$25,000 for research, and South Plainfield, New Jersey-based PTC Therapeutics. Based on our study of this successful collaboration, we offer tips for working effectively with patient groups and disease-oriented foundations.

Genesis of the collaboration

PTC Therapeutics was co-founded by Stuart Peltz in 1998 to commercialize his research on post-transcriptional control processes. PTC's first program was to discover a drug to treat disorders that occur as a consequence of nonsense mutations. After years of R&D on small molecules with the capacity to suppress premature polypeptide chain termination at nonsense mutations, PTC applied a set of criteria, including current knowledge of disease, strength of patient groups and the status of genotyping to choose two initial indications for its lead drug,

PTC124: cystic fibrosis (CF) and Duchenne muscular dystrophy (DMD).

Sometime shortly after, H. Lee Sweeney, chair of the University of Pennsylvania School of Medicine's department of physiology, introduced the PTC management team to representatives of PPMD, a grassroots organization focused on finding treatments for DMD. Sweeney had built independent relationships as a scientific advisor to PTC and a scientific director for PPMD and brought the two together when he felt the time was right. For PPMD's founder Patricia Furlong, who lost two sons at the ages of 15 and 17 to DMD, "it was like a dream come true." Not only did PTC124 offer a potential lifetime therapy for some individuals with DMD, but also the company's technology could be used to develop other novel treatments. DMD is a progressive muscle disorder that causes the loss of both muscle function and independence. Because the DMD gene is found on the 'x' chromosome, the disorder manifests primarily in boys. PTC124 addressed only a small subpopulation of DMD patients, those with specific nonsense mutations; however, the majority of DMD patients have other types of mutations. PTC's senior vice president of corporate development, Cláudia Hirawat, relates what happened next. "Pat [Furlong] said, 'I'm so glad that you're working for 15% of the boys [with nonsense mutations], but that's just not good enough. I've got 85% of the boys we've got to do something for. We know you have this technology and we want you to do this.'"

In 2003, PPMD formed Project Catalyst to support PTC's screen of five targets relevant to all boys and young men with DMD, in the hopes that at least one of these would yield a clinical candidate (according to industry averages for attrition). To fund the work, PPMD

pledged to raise \$1 million from parents, and PTC contributed with its internal resources. Unexpectedly, four of the five targets yielded positive results. That posed a dilemma for the partners: each target represented a different, complementary approach to treating DMD, yet the costs of pursuing all four targets would be substantial—an estimated \$1.7 million for hit-to-lead efforts and \$15 million for lead optimization. It was at this point that the partners applied to the US National Institutes of Health (NIH) for funding, which in July 2007 awarded the research collaboration between Sweeney and PTC a grant of \$15.4 million (see **Box 1**).

Benefits of partnership

This partnership has benefited both sides in many ways (**Table 1**). Most important for PTC, the deal secured additional funds for risky, early-stage research, typically the most difficult to fund. This enabled PTC to expand its pipeline without diluting the company's ownership. This type of financing is becoming more popular with life science companies. US disease foundations are slated to invest \$75 million in company drug development in 2007, a tenfold increase from 2000 (ref. 1).

PPMD is also a powerful force in the education of policy makers. When patient advocacy groups trust a corporate partner, they can be a strong voice for more government resources and more rapid US Food and Drug Administration (FDA) drug approval. Parents with sick children carry an intense emotional weight and even small patient groups can be very effective advocates. Furlong worked with a lawyer member of the organization to help pass the MD-Care Act in 2001 that mandates that the NIH promote research for muscular dystrophy.

*Anne-Laure Winkler and David Finegold are at Rutgers University, School of Management and Labor Relations, Janice H. Levin Building, 94 Rockefeller Road, Piscataway, New Jersey 08854, USA.
e-mail: awinkler@eden.rutgers.edu or dfinegold@smr.rutgers.edu*

Box 1 The NINDS program for translational research in neurological diseases

Recent progress in disease mechanisms offers unparalleled opportunities for treatment of neurological disorders. Five years ago, the National Institute of Neurological Disorders and Stroke (NINDS) committed to reduce the burden of disease through an integrated program for identification and preclinical testing of new therapies (*Nat. Neurosci.* **5**, 1029–1030, 2002). Facilitation of applications and progress by NINDS staff, special review environments and milestone-driven funding plans are key elements of this program.

In November 2005, NINDS partnered with the National Institute of Arthritis and Musculoskeletal and Skin Diseases to launch initiatives specifically for muscular dystrophy in association with the existing NINDS translational research program. As John Porter, a program director at NINDS, explains, this program for muscular dystrophy supports both academic and corporate researchers for preclinical development of drug and biologic therapies. The program currently funds a broad range of therapeutic strategies, from drugs that mitigate progression of the disease to gene modification or gene therapy approaches that may cure the disorder. Partnering is the key to success in translational research. Porter states that “the collaboration between patient groups, companies, academia and government, exemplified in the recent award to Lee Sweeney and PTC Therapeutics, may be the best way to go for a rare disease.” More information on the NINDS support for translational research in muscular dystrophy can be found at <http://www.ninds.nih.gov/funding/research/translational/index.htm>.

Another benefit is the insight patient groups can provide. Working with patient groups in the drug discovery stage enables a company to gain a much deeper understanding of the disease and can have a major impact on how it markets its drugs. In the case of Project Catalyst, input from parents and patient groups was invaluable in shaping the DMD research program, even before it reached the clinic. Working with disease foundations can yield similar, nonmonetary benefits. For example, by virtue of reviewing 800 academic and industry grants a year, the Michael J. Fox Foundation for Parkinson’s Research understands where the science is, and “what’s hot, what’s tired,” says Sohini Chowdhury, the foundation’s associate director of research programs.

PTC always understood that patient groups offered a bridge to researchers, clinicians and patients. Access is critical in rare diseases, where only a handful of medical experts may focus on a specific disease, and patient groups will naturally build close relationships with these specialists. “As a company, you need to work with those scientists and you need the blessing of the patient organization to do so,” observes Abbey Meyers, founder of the National Organization for Rare Diseases.

Finally, working with PPMD in Project Catalyst and interacting with individuals with the disease has helped instill a sense of urgency in researchers at PTC—the employees at PTC are exposed to both DMD patients and their parents on a regular basis. PTC scientists

Ellen Welch and Sergey Paushkin say that they “never feel more motivated” then after their contact with the DMD community. Likewise for Sweeney, this type of applied research offers the chance to “do something that might change someone’s life. You feel you’re doing something for these families, for these kids, for society.” This kind of commitment helps sustain efforts during the inevitable setbacks in the long drug development process.

For PPMD, the partnership also gets the parents closer to their main objective: finding new treatments for their sons. By targeting its resources at the hard-to-fund translational phase of research (between government funding for basic science and later-stage clinical trials where startups can often identify a large partner to fund), even a small group like PPMD was able to have a significant influence on PTC’s choice of development priorities. And through collaborations with drug companies, patient groups can educate their members on the latest scientific and clinical progress in their disease area and the development process itself. Companies also offer a set of general business and organizational capabilities that can provide support for patient groups, many of which rely heavily on volunteers. PTC has offered its patient groups access to experts and to the development of materials and help in increasing their public exposure (see **Box 2**).

Partnership issues and their management

A company should strive to have a cohesive strategy for managing its relationship with each patient group. According to Mark Krueger, a leader in this field whose consulting company advises companies in their relationships with patient advocacy groups, this should include a clear definition of milestones, appropriate financial management and appointment of a single contact person. Project Catalyst established a milestone-based approach, which clarifies what each party is to contribute in resources, to expect in outputs, and when. Project spending and dedicated staff are carefully monitored, and regular meetings enable the partners to track progress and keep members focused. PTC has gone so far as to establish a patient and professional advocacy group to communicate with PPMD and the other patient groups it works with, such as the Muscular Dystrophy Association in Tucson, Arizona; the Spinal Muscular Atrophy Foundation in New York; Fight SMA in Richmond, Virginia; and the Cystic Fibrosis Foundation in Bethesda, Maryland.

Regarding money, foundations and parent groups can structure their funding to companies in many ways: from no-strings-attached grants, to interest-free loans, to equity or

Table 1 Benefits of company–patient group partnerships

Benefit	To company	To patient group
Financial	Increased access to funding, which can often stimulate other sources of financing	Money directly employed in finding treatments; broad exposure and successful efforts often lead to additional funding in area
Public and political profile	Advocacy power useful for interactions with FDA and other regulators	Group recognized as contributor to search for new treatments
Advice and expertise	Increased access to patients, investigators and thought leaders	Receive information and nonfinancial support from companies
Research	Increased scientific knowledge in areas of commercial interest	Increased scientific knowledge of disease
Products	Opportunities to expand indications and markets for products that were previously unanticipated	Increased likelihood of products in disease areas of interest
Motivation	Human element inspires scientists to overcome challenges of drug R&D	Empowers patients to feel they are directly contributing to search for a treatment.

venture capital-like investments. The social venture capital approach offers clear benefits (that is, increasing accountability by holding companies to clear milestones and providing a potential return that can be reinvested in the search for future treatments). But it can also raise issues: funders may be perceived to be too closely tied to a single company and not objective in evaluating all proposals, whereas companies may be less interested in giving up significant royalties or equity to pursue small-market indications. In the case of Project Catalyst, although the funding is a grant, it is treated with all the rigor and accountability of an investment. For a research foundation like the Michael J. Fox Foundation, which has a wider spectrum of corporate partnerships, it tailors the type of investment to the level of involvement and stage of research. It says it views its grants as investments, but it is not in the business of getting returns. It simply wants research to go faster.

In their zeal to pursue a research program or to keep their business going, companies may overstate the potential of a new technology. Desperate to treat patients, PPMD fell victim to this early in its history when it bought into the potential for a quick cure through gene therapy. As an advisor, Sweeney views it as his job to ask the hard questions of companies or scientists who may be too optimistic when making presentations at patient meetings. Although PTC is eager to find a treatment for DMD, the company stays cautious in its communication with PPMD and its stakeholders.

Although there are many advantages to having an expert intermediary like Sweeney work closely with patient groups and the companies they fund, there are also inherent potential conflicts of interest built into that dual role. Sweeney says that the potential conflicts arise because he's trying to look after the best interests of both sides, and at times it is not possible to do something that is of maximum benefit to everyone. Without NIH funding, Sweeney would have needed to advise PPMD to fund the target that was as disease specific as possible, leaving the company to use its own money to do things of more value to the company. When these conflicts of interest cannot be avoided, the best bet is to fully disclose potential conflicts and to have clearly defined guidelines for resolving them.

PTC and PPMD were fortunate that the promising results of their initial research led to the NIH grant, because without that substantial funding, they might have been forced to make difficult choices about which of the badly needed complementary approaches they could afford to fund. As their experience (and that of other industry projects funded by disease foundations) suggests, it is vital that the partners plan

Box 2 Illustration of the benefits for the larger company: Genzyme

As Elliot Hillback, senior vice president of corporate affairs for Genzyme of Cambridge, Massachusetts, notes, "strong relationships between companies and patient groups can be formed more easily and are likely to be stronger in disease areas where there is a chronic condition, which lasts a long time and the outcomes are somewhat predictable, such as with genetic diseases and multiple sclerosis. There's an evolving course of action, and you can build long-term relationships with those [patient] groups and work on long-term treatments and hopefully eventually a cure."

Genzyme had to figure out a sustainable business model to treat very small patient populations with their orphan drugs, while also developing ways to work with the health care systems in areas of the world where there is no support for the treatment of a rare disorder. Genzyme's collaborative efforts worldwide with patient groups in the lysosomal storage disorder area have helped. As a result, Genzyme's internal patient advocacy group based in Cambridge has grown from one to five dedicated members to build relationships in different regions in the world across different diseases. It has created a global patient guidance document that helps clarify expectations for employees working with patient groups around the world.

Patients and Genzyme also work on access to therapy and reimbursement. Hillback says his company seeks to align with patients in helping all the parties in the health care system understand the disease and therapy as accurately as possible so that doctors will be full partners in optimizing the patient's care and the drug will be reimbursed in an appropriate way.

But perhaps the greatest benefit comes during difficult periods. When Genzyme faced a supply shortage of its drug, Myozyme (αglucosidase alfa) for Pompe disease, the company was very forthcoming and worked closely with patients to obtain the best possible outcome, with some patients willing to skip a dose periodically to try to ensure the company could treat everyone, says Hillback.

early for what will happen at later stages in the pipeline. What strategies will they use to fund subsequent stages of development? And what will happen if a company is unable to or chooses not to continue with the development program? In the latter case, funders sometime retain the rights to take the potential treatment elsewhere for development.

Key success factors

Several factors determine the success or failure of a partnership with patient advocacy groups (Table 2).

Early start to partnership. Working with patient groups in the drug discovery stage enables the company to gain a much deeper level of understanding of the disease and can have a strong impact on how a company mar-

kets its drugs. "Companies are going to realize that they need to collaborate with patient groups earlier, that this is an investment in the relationship and that it has a very deep commercial impact later on," says Hirawat, adding, "When you can marry patient advocacy with later marketing effort, you can see a significant payoff because you are viewing the patients as your customers, and as such they are important stakeholders and the best source of information."

Supportive top management. The bond between the partners is likely to be stronger if the leaders of the company have signaled that it is a business priority and an activity to which they personally devote energy. PTC's business leaders, Peltz and Hirawat, regularly participate in the meetings with PPMD.

Table 2 Factors and working strategies in successful collaborations

Factors for success	How to tackle issues
Early start to partnership	Plan the partnership
Supportive top management	Choose the right form of funding
Open and honest communication	Manage expectations
Shared goals and empathy	Perceive potential conflict of interests
Trusted intermediaries	Plan for success
Strong commitment to overcoming roadblocks	

Open and honest communication. A strong collaboration starts with frank dialog and mutual respect. “We keep the communication lines open; issues arise when people are not in the loop,” notes Peltz. The relationship has actually helped enhance the company’s communication strategy. Although it is necessary for biotech companies to be optimistic about the future, they also have to be cautious about what they communicate—according to PTC’s Hirawat, this approach helps the company manage the expectations of both patients and other stakeholders.

Shared goals and empathy. Sometimes when working with patient advocacy groups, companies can end up viewing the patients only as funders or customers. That is a mistake. Krueger notes, “PTC teaches us that treating groups with respect, as equal partners, is essential.” From the start, PTC approached its collaboration with PPMD by trying to understand the needs of its partner. The key from the patients’ perspective is that the company listens to their input and incorporates it into decisions. In fact, Kimberly Galberaith, PPMD’s executive vice president, says her group isn’t “used to people talking

to us as if we know anything.” In Project Catalyst, though, everyone works together—the patient group, the company and the investigators. Once a drug is approved, then a fourth player enters the dialog: the payer.

Trusted intermediaries. Finding the right people to connect with in organizations is critical for a collaboration’s success. Sweeney emphasizes, “It’s all about personalities, about trust. I thought [a potential relationship with PPMD] would be a natural fit with some companies, but there was no fit with the people.”

In Project Catalyst, Sweeney’s own personal interest and the role he has played in bringing PTC and PPMD together have proved vital to creating a strong partnership. Although Sweeney’s dedication to both sides may be unusual, Krueger notes that the existence of committed, caring top-level scientific advisors is a key bridge between patients and companies in many other disease areas.

Strong commitment to overcoming roadblocks. The people and organizations involved in these collaborations are deeply committed to successful outcomes. The

strongest test to commitment is revealed in the efforts and creativity the partners invest to overcome obstacles. Committed partners tend to deviate from the norm of business as usual. To progress as far as it has, PTC has also had to pioneer new funding strategies, approaching patient organizations that didn’t typically partner with industry before, such as the Muscular Dystrophy Association. And it had to be willing to commit a high percentage of its resources to multiple treatments for DMD, a rare disease that is currently considered untreatable.

Conclusions

Partnerships between biotech companies and patient groups offer an opportunity for win-win collaborations: biotech companies can get much needed funding, valuable information and support for their research, development and commercialization efforts, whereas patients are likely to get the new treatments they seek more quickly than through funding of academic research.

1. Gambrell, S. Venture philanthropy is on the rise. *Thomson CenterWatch, Clinical Trials Today*. <http://www.clinicaltrialsday.com/centerwatch_clinical_trial/2007/08/venture-philant.html> (6 August 2007)