

R&D alliances give biggest bang for buck

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ST. PAUL, Minn.—To some, the recent 10-year, \$300 million research and development (R&D) deal between Sandoz Pharmaceuticals (East Hanover, NJ) and the Scripps Research Institute (La Jolla, CA) is another sign that the major pharmaceutical companies have lost their lead in cutting-edge drug development efforts. Unable to develop new products in-house, these “dinosaurs” must rely on outside help to remain in business, goes such thinking.

But another way of looking at deals such as this—or Sandoz’s recent joint agreement with Magainin Pharmaceuticals (Plymouth Meeting, PA) and earlier deals with SyStemix (Palo Alto, CA), Cytel (La Jolla, CA), and Repligen (Cambridge, MA)—is that they represent the most efficient use of limited intellectual resources in state-of-the-art fields like anticancer drugs, gene therapy, and cellular therapy. “We see these agreements as cost-effective, low-risk ways of doing research in high-risk but innovative areas that are complementary to our in-house research efforts,” says Paul Nadler, vice president for scientific planning and evaluation of the Sandoz Research Institute. In other words, it’s a way for traditional pharmaceutical firms to get the most bang for their research buck.

Leveraging R&D

It would seem that Sandoz would need to get a huge explosion for its decade-long investment of \$300 million. But \$30 million a year would not buy nearly as much research in-house as it does when leveraged by the hundreds of millions of dollars that Scripps gets from more traditional funding sources, such as the National Institutes of Health (NIH, Bethesda, MD). In addition, there is the purely practical consideration that overhead costs—particularly the costs of staffs and facilities—are much smaller at a private research institute or university than at a large pharmaceutical company.

This is borne out in a study done by Rebecca Henderson, an economist at the Massachusetts Institute of Technology (MIT, Cambridge, MA) Sloan School of Management. She found that the cost per patent

for research done at a pharmaceutical company is somewhere between \$5 million to \$10 million. This compares to an average cost of \$2.5 million for patents that come out of academic institutions.

Another reason for the surge in pharmaceutical-company R&D partnerships may simply be one of available manpower. In a bygone era, when pharmaceutical research consisted largely of synthesizing thousands of compounds in hopes of finding one with medicinal value, major drug firms could hire any one of the multitude of synthetic organic chemists coming out of U.S. universities. Today, however, pharmaceutical research is far more sophisticated, and the number of specialists in any one discipline is limited. Scripps, for example, is home to perhaps the finest team of researchers exploring the boundary between chemistry and molecular biology, particularly as applied to carcinogenesis and antineoplastic pharmacology.

R&D philosophy

“To assemble such a group would be prohibitively expensive,” says Nina Siegler, president of Rock Creek Research (Kensington, MD), a consulting firm that specializes in licensing NIH technology. “So Sandoz did the next best thing, which was to, in effect, rent this expertise.” In 1991, Sandoz entered into a similar agreement, worth \$100 million over 10 years, with Harvard University’s Dana Farber Cancer Institute (Boston, MA).

Sandoz’s Nadler sees such agreements as critical to Sandoz’s overall research philosophy. “If you look at each of our external collaborations, you’ll see that they are synergistic with research we’re exploring inside the company,” he explains. In the area of anticancer drugs, for example, Sandoz has a number of in-house groups pursuing specific targets or families of antineoplastic drugs. “And yet we know that there are other avenues that we’d like to follow, but we don’t have the staff or the space to start such efforts in-house.

Obviously, so do the recipients of this largess. Jay Moorin, Magainin’s president and chief executive offi-

cer, says that his company’s deal with Sandoz gives it a chance to increase the potential payoff from its research on antibacterial compounds isolated from frogs and other water-dwelling animals. “Our focus is to develop novel antibiotics, but we’ve found that some of these compounds have anticancer activity, too,” says Moorin.

Growing projects

For a large company such as Sandoz, deals with biotech firms can also represent access to the latest in academic research. Lita Nelsen, director of technology licensing at MIT, says that her institution, along with most other major U.S. universities, do a disproportionate amount of licensing to small biotech firms, compared to large drug companies, because the number of bureaucratic layers in large companies makes it difficult to link those who know the science with those who have the power to make such deals.

“When we look for licensees, we’ve got to find someone in the company who understands the raw science, someone who has long-term insight regarding the value of the science, and someone who has power over the company’s purse strings. These usually aren’t the same person at a pharmaceutical company,” says Nelsen. “In a small company, that person is the vice president of business development.”

In fact, universities themselves increasingly see biotech firms as bridges between their research and the development clout of the big firms. “A small firm can grow a research project until it’s big enough to get the attention of the mainstream drug firms,” says Nelsen.

In a capitalistic system, this arrangement makes good sense. Risk capital—provided by venture capitalists or even the drug companies themselves in the form of R&D agreements—funds the initial, high-risk stages of research. When that research produces something that needs to enter the expensive process of clinical testing, the large financial and institutional resources of the pharmaceutical companies enter the picture.

—Joseph Alper