BOTH SEEK BENEFITS

IMREG'S UNUSUAL ALLIANCE WITH TULANE

NEW ORLEANS—Imreg, a 3½-year-old, newly public biotechnology company here, is rewriting the book on industry-university relations. Its founder and president, A. Arthur Gottlieb, also serves as professor and chairman of the department of microbiology and immunology at the Tulane University School of Medicine. If the company and school can forge a lasting relationship from their occasionally divergent interests and goals, their arrangement could serve as a model for other biotech start-ups.

Two agreements mediate the interaction between Imreg and Tulane: The Tulane Research Contract and the Tulane Release Agreement. Under the research contract, which is renewable annually, Imreg pays Tulane \$100,000 each year to fund research and compensate for overhead at the medical school. "Admittedly, the work is oriented around the work of the company, and I really direct the work at both places," Gottlieb says.

Under the release agreement, Imreg has agreed to fund a chair in Gottlieb's department by donating 2 percent of all the company's after-tax profits until the fund equals \$750,000 or until Tulane releases the company from this obligation. In return, Gottlieb and Imreg receive all rights to technologies that Gottlieb has discovered and will develop at Tulane.

Imreg specializes in the development of immune system modifiers. The company is testing one of its immunomodulators, called Imreg-1, on more than 20 patients suffering from acquired immune deficiency syndrome. Imreg-1 amplifies the body's immune response by augmenting the ability of T helper cells (also known as T4 cells) to produce interleukin-2 and other substances. So far, the company reports, the tests indicate that the substance can induce defective immune cells to function more normally.

"In the emergence of a viable commercial company in this field, the tie to the university is important because this technology springs out, in many cases, from the university base—it did in this case," says Gottlieb. "I think if you try to develop a company like this—particularly one that depends on clinical material and on clinical testing—free of an association with a major medical center, it's very, very difficult, if not impossible."

"We believe that there was a technology that I at least pointed the

Scientist/entrepreneur Gottlieb

direction toward that would not have been developed without this industrial or corporate mechanism," continues Gottlieb. "And neither the government nor the university would come up with the kinds of monies that were required."

While the presidents of some other biotech companies—such as Franklin Pass of Molecular Genetics (Minnetonka, MN), Robert Nowinski of Genetic Systems (Seattle, WA), and Edward Penhoet of Chiron (Emeryville, CA)—maintain adjunct professorships at nearby universities, Gottlieb may be the only president of a public biotech firm to be the acting chairman of a department. As the company matures, however, the firm could find it difficult to remain so intertwined with Tulane.

Under the terms of the arrangement, both groups stand to gain. Tulane benefits monetarily and also academically if Imreg and the university become known for their immunological expertise. The company gets to use Tulane's facilities, has access to a volunteer population for clinicals, and is able to do some of its clinical work at the medical school.

"I've been very careful in all of this to adopt one principle: I don't want to abuse the rights of anyone else, and I don't believe we have in this arrangement," Gottlieb reports. "But, equally well, I want other faculty colleagues to respect the fact that I have my own right to make my own decisions."

Two-thirds of Gottlieb's salary from Imreg is deferred until he leaves the company—thereby giving

him a real stake in Imreg's success. In addition, this scientist/entrepreneur controls more than 2 million shares of Imreg stock, the over-the-counter price of which has been hovering between \$5 and \$7 a share.

John Clements, a Tulane researcher working on *E. coli* enterotoxins, views Gottlieb's actions as but one of the many ways for a scientist to get his research funded and his job done. "He certainly brings prestige to the university and department," Clements asserts. "I don't see any way the university can lose."

"I think the department at the school is strengthened by this association rather than weakened because we have an important resource in immunology in the company and in the expertise and technology it represents which would not be available locally were the company not here," Gottlieb says.

The two areas of possible conflict he perceives concern proprietary research and the question of publication. Graduate students must remain free to write theses, he says, so he does not assign graduate students to any proprietary topics. In fact, almost all the secret work is performed in 6,000 square feet of non-university space the company occupies in downtown New Orleans. This headquarters serves the second purpose, he reports, of limiting the degree to which corporate research can "metastasize" into other laboratories in his department. Gottlieb adds that publication of all but the most sensitive material—and the consequent scientific recognition and appreciation—is as important for a new company as for a purely academic laboratory.

"I don't think that everything is perfect," he says. "There are still some questions that can legitimately be raised, but it is a good model. I think what we try to do is, in good faith, to protect the interests of both the university and the company."

Gottlieb admits that he might not have been able to arrange such a set-up had he not been working at Tulane. "What you see here is a well-respected medical school that did not really think in an institutional sense about where this is going, and that developments of this kind might come about, and therefore was not in a position to develop policy in the same ways that Harvard or Stanford or some of the more powerful research institutions were."

—Arthur Klausner