

IP/Technology Transfer

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▼ Marketing biotechnology with a Gallic flair

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Because French academic science has only recently become entrepreneurial, the challenge for technology transfer has been to market biotechnologies strongly to potential licensees and corporate sponsors.

France has a long tradition of excellence in science. For many years, however, the transfer of that science from state-financed research to commercial enterprises has been less dynamic than in the United Kingdom and the United States. There are currently more than 100 French biotechnology companies, and France occupies third place in Europe's biotech stakes. French researchers had little incentive to be entrepreneurial, however, and until the passage of the 1999 Law on Innovation, they were not allowed to own stock in companies that used their inventions. This contrasted with the situation in the United States, where over the past two decades lawmakers have given professors and universities financial incentives to license their inventions to companies.

Today, the situation is changing rapidly, as French lawmakers dismantle policies that previously discouraged the nation's scientists from starting biotechnology firms. France Innovation Scientifique et Transfert (FIST; Paris), the technology transfer arm of the CNRS, France's largest scientific research institute, is implementing several strategies to facilitate the commercialization of patented biotechnologies.

First steps

FIST usually starts working with scientists when their inventions are in their early stages, with patents often just filed or about to be filed. A French priority patent application is often filed, but a European or United States provisional patent may also be filed in specific cases where it is desirable for an English-language patent to be disclosed, for example. (Protection of the invention is extremely important both to prevent third parties from exploiting it with no return for the institution and to optimize the invention's exploitation by a potential licensee or permit the creation of a spin-off company.)

After the invention is protected, FIST determines a basic marketing strategy by performing a preliminary study to identify the potential market size, the players involved and the novelty of the invention in relation to existing technology. A more in-depth analysis is then carried out to assess the invented technology, the state of the art, patentability and freedom-to-operate issues, and the patent application examinations to decide whether to license the technology to existing companies or to create a spin-off company. Until this decision has been made, it is important to have an intellectual property strategy in place that keeps both options open.

Licensing

When the decision is made to seek a licensee, FIST undertakes a technical description of the technology, a marketing campaign involving direct and indirect mailing, and license negotiations with potentially interested partners.

Technical description.

In most cases, the invention is still confidential (that is, not in the public domain) at this stage. In marketing an unpublished invention, the first step is to draft a short, nonconfidential technical description in both French and English. This description is the basis of all marketing activities and initial exchanges with potential licensing partners. The technical description includes a nonconfidential description of the invention (7–10 lines) and its

industrial application (1–2 lines), and a description of the intellectual property (patent application, date of filing and names of assignees and inventors). For older patents, the publication date and any related patents already granted are also described. Finally, the name of the laboratory and the type of transfer (exclusive or nonexclusive license, collaborative research) are stated.

It is important that the technical description provide enough commercially and scientifically pertinent information to allow industrial partners to perform an internal evaluation. Our feedback indicates that potential partners are especially interested in knowing why the invention provides a technical edge over existing inventions, in any data proving feasibility, and in any existing prototypes. The description must be succinct and clear so that it can be read quickly by technical and intellectual property specialists. A background bibliography is sometimes provided, but there are no figures. This technical document is used in a direct mailing and is also placed online on FIST's technology transfer marketplace (<http://www.frinnov.com/>).

Direct and indirect mailing.

Next, the sector manager in charge of the file identifies potential industrial partners. This list is based on the information in FIST's internal database of more than 1,800 industrial contacts, as well as internet searches of companies in the sector (all entries include a contact person in either business development, licensing, R&D in the specific field, or intellectual property management). The list of potential partners will include between 5 and 30 international contacts. A short letter is then mailed out to these contacts, along with the technical description.

Once the technical descriptions have gone out, FIST sends reminders every two months until a negative or positive response is received for the project. Any specific information for a negative response is noted in the file. This can provide valuable information about the next steps necessary for the development of the technology, for example: "We have information that this technology is less effective than...", or about changes in strategy by the company contacted: "We are no longer in this field of research."

Frinnov, the online technology transfer site launched in December 2002, now has technical descriptions of nearly 250 technologies online and an average of 350 visits per day. Through it, one license has reached the final stages of negotiation and others are under discussion. The technologies can be searched by keyword or using a list of categories provided on the site, and FIST can then be contacted directly to begin the technology transfer process. Frinnov provides a new, interactive marketplace for innovative technologies, and interested parties can subscribe to the Frinnov newsletter to be kept up to date on the newest entries.

Negotiations.

FIST's goal is to obtain a response, or at least an expression of potential interest (material transfer, option to license, collaboration), within 30 months after the priority date, before the national (country-by-country) filings. This is an expensive step in the patenting process, and ideally, the decision about where and whether to extend the patent should go hand in hand with expressions of interest by industrial partners.

A company expressing interest in an invention must sign a secrecy agreement, after which FIST makes available additional, confidential information. This includes providing the patent or other confidential technical information and placing the company in direct contact with the research team. FIST can then negotiate the transfer of the technology and implement the entire process of transfer within the framework of appropriate contracts, material transfer agreements for evaluation of the technology, option to license and finally a license agreement. FIST has negotiated more than 600 licenses, and licensing revenue provided more than €40 million to the CNRS in 2002.

Spin-offs

FIST's experience in creating spin-offs began in 1999, when the Law on Innovation was passed allowing French government research scientists to participate in creating companies. This has provided an entirely new avenue for the exploitation and marketing of new technologies, and all of our experience in this field has come from technologies developed at the CNRS.

In technology transfer, inventors and licensors (the owners of the intellectual property rights) usually have a common goal: to find an industrial partner to transform the invention into services or products in exchange for a fair financial return, a share of which is then redistributed to the inventors and their institution. However, a spin-off's objectives may be slightly different. Although the goal of creating a spin-off is to find financial success through its products or services, creating a new company means that the academic organization must accept a fair level of risk. Realizing these additional goals—which include stimulating the economy, increasing jobs and developing new technologies and business sectors—requires that risk to be minimized by government policies that encourage innovation and entrepreneurship.

Intellectual property rights are a key factor in all technology transfers, and an important element in the preinvestment evaluation of the spin-off. Public research organizations should guarantee the quality of their patents and patent applications as much as possible, and maintain all the rights attached to the priority patent application (in the form of international

extensions) during the incubation period. Necessary analyses such as 'freedom to operate' studies must also be performed when necessary, by either the organization or the new company.

FIST decides to take shares in a new company in exchange for transferring CNRS intellectual property rights if two criteria are met: first, the CNRS intellectual property is a core technology for the spin-off; and second, there is an exit strategy for the shareholders in the contractual relationship. Otherwise, FIST may negotiate a regular license with the new company with terms that take into account the specific financial needs of a spin-off.

Conclusions

With several initiatives and legislative changes, the environment is now more conducive than previously to the commercialization of biotechnology research in France. Since 1999, FIST has negotiated the transfer of intellectual property to more than 70 new companies, 60% of which are biotechnology companies. FIST obtained shares in 15 of these spin-offs in exchange for granting the rights to CNRS-owned intellectual property, and as of March 2003 these companies have raised €65 million.

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