

Stanford sells gene-splicing licences

Boyer, Cohen patent may yet be challenged

Washington

In a move expected to bring in annual royalty payments of over a million dollars within the next four or five years, Stanford University announced this week the terms under which it is prepared to let commercial companies use the gene-splicing techniques developed in the early 1970s by Dr Stanley Cohen of the university's medical school and Dr Herbert Boyer of the University of California in San Francisco.

The techniques have since become the basic tools for many widely used genetic engineering processes. University researchers who wish to use them may continue to do so free of charge, but companies marketing products based on their use will be required to pay a royalty fee varying from one per cent of net product sales below \$5 million to 0.5 per cent on annual sales of over \$10 million.

Before reaching the commercial stage, any company wishing to use the techniques in its research can purchase a non-exclusive licence from Stanford for an initial fee of \$10,000, and an annual sum of the same amount. An incentive offered to those who act quickly is that any company which signs up before the end of 1982 can credit five times the licence fee against future royalties, up to a maximum of 50 per cent of the royalties earned in any one year.

Stanford will deduct 15 per cent from fees and royalties earned to servicing the licensing arrangements. After that the remaining sum will be divided equally between Stanford and the University of California. Stanford's share will be further divided, with a third going to the university's medical school and a third to its departments of medicine and genetics. Dr Cohen, who holds joint appointments in the two departments and who would under the university's normal rules be entitled to the remaining third, has assigned his share back to the university, to be divided between biomedical research and support for postdoctoral fellowships. Dr Boyer has also waived any rights to personal royalties.

Despite being one of the leading research universities in the United States, with an annual research budget of over \$100 million, Stanford has so far lacked any major money-spinning patents comparable, for example, with the widely-used dental fluoride developed at the University of Indiana. University officials are hoping that the income from the patent on the Cohen/Boyer techniques, filed in

1974 and granted last December, will change this, although president Donald Kennedy says he does not anticipate that royalty income from this source "will significantly alter our present financial projections".

The patent granted by the Patent Office is broad, covering the series of steps used by Drs Cohen and Boyer to replicate and express exogenous genes in microorganisms. It describes the techniques used to cleave a plasmid or virus DNA, to insert a new gene to provide a biologically functional replicon, to place the latter in a microorganism cell, and finally to isolate the transformants in order to produce cells in which the DNA molecules in the modified plasmid can be replicated and expressed.

The breadth of the patent — and the ubiquity of the techniques' current usage — means the university is expecting a large number of licensing requests. In a statement issued on Monday it estimated that more than 200 companies in the United States may already be involved, and that half may sign up for the licences in the near future.

Chevènement wins control of science

France's civil science is now almost totally in the hands of one man, Jean-Pierre Chevènement, the left-wing minister of state for research and technology (see *Nature* 2 July, p.3).

Chevènement has been battling for weeks with other ministers — notably two successive ministers of industry — for the power he believes he needs to direct France's scientific future. Now he has won.

A decree published last week gives him control of the budget for all government-funded civil research, development and technology. The budgets of all public bodies concerned with such matters will henceforth be ascribed to his ministry, giving him around FF20,000 million (£2,000 million) to play with each year.

Nevertheless, the formula which gives Chevènement these powers is complicated, and is likely to be read very closely by all concerned.

Chevènement will, however, have total authority over the Centre National de la Recherche Scientifique (CNRS), which plays the leading role in supporting basic science in France. CNRS has 1,200 laboratories (including a third of all university laboratories) most of them managed jointly with the universities or other institutions but 250 of them completely independent. CNRS is a dominating influence in basic research in France, with the possible exception of mathematics; it has a staff of 25,000, of whom 8,000 are researchers.

Previously CNRS was under the authority of the ministry of universities,

At the same time, this breadth could lay the patent open to challenge from other scientists who claim to have made significant contributions to the results which were patented by the universities solely in the names of Cohen and Boyer. Murmurs of possible legal challenges have surfaced in the past, although the relatively low licence fee — as well as the fact that the royalties will go to the universities and not to the individual scientists — may well dampen any conflict.

Stanford is requiring that any company obtaining a licence must agree to use the techniques in compliance with the guidelines for physical and biological containment of experiments drawn up by the National Institutes of Health.

The university has also welcomed a recent ruling by the International Trade Commission forbidding the unlicensed import of goods made abroad with techniques patented in the United States. Previously it had been feared that companies might try to avoid the licensing fee and royalty payments by setting up production facilities in other countries.

David Dickson

and some now think that the separation from that ministry may complicate the management of joint laboratories: Chevènement is primarily interested in science as the driving force of industrial development, which may not match the views of some university departments. But he has also described science as an essential element of "culture" (music to the ears of President François Mitterrand) and wishes further to improve the international standing of French science.

Other bodies over which Chevènement will have total authority are the Délégation Générale à la Recherche Scientifique et Technique, which will act as his secretariat; the Agence Nationale pour la Valorisation de la Recherche (aimed at turning government-sponsored research into industrial innovations, through venture-capital grants); and two ministerial services, the Mission Interministérielle pour le Développement de l'Information Scientifique et Technique, and the Délégation à l'Innovation et à la Technologie.

Over other organizations, such as the Commissariat à l'Energie Atomique and the Centre National d'Etudes Spatiales, Chevènement will have control through the indirect (but powerful) lever of the budget; and also, if the relevant paragraph in the decree is so interpreted, through appointments.

This paragraph gives Chevènement the task of undertaking "all reform" of public bodies concerned with research, including "all measures have an impact on the