

Australian innovation covered by US patent

- 'Gene shears' invented in Colorado in 1986
- Commercial deal with French may be empty

Sydney

CLAIMS that a genetic-engineering technique, popularly called 'gene shears', may turn out to be one of Australia's most profitable scientific discoveries are turning sour, for the elementary reason that a US company filed for patent rights on the same discovery in 1986. And the dispute over priorities raises serious questions about the true worth of a A\$22-million (£11 million) commercial development deal that the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) made with a French company, Groupe Limagrain.

The ability of ribozymes to cut RNA molecules at specific sequences was discovered by Thomas Cech, working at the University of Colorado in the early 1980s. He made a broad patent application in 1986, although it may well be two more years before a US patent is issued, and even longer in Europe. Cech's technique was developed further in 1987 by Olke Uhlenbeck, also at the University of Colorado, using 'hammerhead' ribozymes. It is not known whether Uhlenbeck has applied for a patent on his part of the work.

In August last year, Jim Haseloff and Wayne Gerlach from the Plant Industry Division of CSIRO published a paper in *Nature* (334, 585-591), describing a refined version of Uhlenbeck's hammerhead ribozyme technique, able to act on a greater range of RNA sequences, and with greater specificity, than had been shown before. And in July this year, to much fanfare, CSIRO announced a joint venture with the French agricultural concern Groupe Limagrain to find commercial applications for the gene-shears technology.

Making no mention of Cech or Uhlenbeck, CSIRO announced that it held worldwide patents to the discovery, and that Australia would benefit from the numerous potential applications of the technology in medicine and plant and animal science. But lawyers for the US Biochemical Corporation (USB), which represents Cech and has sole rights to the technology he developed, responded quickly to the Australian announcements.

USB is so confident of the pre-eminence of its claim that it intends to announce, on 20 October, the formation of a new corporate subdivision dedicated solely to the commercial development of ribozyme technology. Earlier this year, USB announced the first product, RNAzyme-

Tet.1.0 Ribozyme, based on the new technology, and senior vice-president Vincent Kazmer says that the product would not have been launched "unless USB was confident of being awarded the patent".

Richard Warburg of Fish and Richardson, lawyers for USB and the University of Colorado, supports Kazmer's assertion, saying that Cech's patent application is broad enough to cover any ribozyme, and that any patent granted to CSIRO would be dominated by Cech's.

It now seems that Jim Peacock, head of the Plant Industry Division at CSIRO, had been advised by the Australian Patent Office (APO) that Cech's and Uhlenbeck's papers constituted 'prior art' as early as April this year, before he made widely reported claims that came out in July. "We don't think they [CSIRO] will get their patent", said Stephen Castle of the APO, which has given Uhlenbeck's paper a 'category X' classification, meaning that it is of the greatest relevance with respect to CSIRO's claim.

Peacock says that he was aware of the Cech patent application and the Uhlenbeck work when CSIRO applied for its patent. But he says he cannot remember the APO analysis, although it is automatic for APO to provide its recommendations when a group applies for an international patent through its national office.

CSIRO is about to publish the first example of gene shears technology used *in vivo*, in the *Proceedings of the National Academy of Sciences of the USA*. Because of the extent of Cech's possible patent protection, it is unlikely, according to Warburg, that even in this area of *in vivo* work CSIRO will be able to practise its technology without a licence. "Cech's application made broad and narrow claims. If CSIRO is entitled to anything it is to a narrow claim, the practice of which will still fall within the broader claims made by Cech".

Tania Ewing

Paris

Groupe Limagrain's legal adviser said last week that a literature search had been carried out before the agreement with CSIRO was signed, but added that he was in the process of studying the dossier on gene shears. He would not say whether Groupe Limagrain had decided to go ahead with the investment with full knowledge of the US patent. Last Monday, a company official said that the company had "no further information about this patent at the moment".

Peter Coles

ANTARCTIC RESEARCH

Greenhouse seen from South Pole?

London

A SIGNIFICANT loss of snow and ice near the British Antarctic Survey (BAS) base at Rothera has been recorded, according to a Natural Environment Research Council (NERC) report, but whether the inferred temperature rise is symptomatic of greenhouse warming or the result of a natural climate cycle is uncertain.

The report, primarily designed to assess the need for a new airstrip at Rothera, concludes that the importance of research into global climate change outweighs the damage to the environment that an airstrip would entail.

Since 1982, there has been a dramatic rise of 1°C in the mean summer air temperature during January and February, and Dr Lewis Smith, of the BAS, says that evidence of a warming had been recorded at Rothera since 1950. Although the recent rise may seem small, Smith added, it is significant for the polar regions where the ice-cover is very sensitive to temperature changes. The rapid recession of the ice-



Snow-covered mountains in Antarctica.

cover has occurred more swiftly in the South Orkney Islands.

But greenhouse warming is not the only explanation: the world is experiencing a natural warming cycle which is thought to be at a peak. Smith is concerned the greenhouse effect may exacerbate the cycle or delay the expected downturn in temperature.

Dr John King, an Earth scientist at the BAS, said one has to be "very careful before leaping in" and talking about greenhouse warming. Models predicting the environmental effect of a doubling in carbon dioxide suggest that there would be no detectable change in temperature. However, King said simulations of future climates indicate that the first areas to suffer would be the marginal polar regions where the temperature of sea ice is "closely tied up" with land-ice conditions. Ben Webb

■ A meeting of the signatory nations of the Antarctic Treaty started in Paris this week. Britain will oppose the plan to declare Antarctic an international wilderness reserve while France and Australia will urge that the Antarctic Treaty be replaced with a declaration to protect the Antarctic environment. □