

Roche's *Taq* patent 'obtained by deceit', rules US court

San Diego

A federal judge in San Francisco ruled last week that the patent for the naturally occurring form of the widely used reagent *Taq* DNA polymerase was fraudulently obtained and is thus invalid.

The decision could mean increased competition leading to cheaper reagent prices, as well as legal action to recover unnecessary costs. And, depending on future court rulings, the patent dispute may also undermine a related patent for the DNA-amplification process of PCR (polymerase chain reaction).

The judge ruled that the US Patent and Trademark Office was misled a decade ago by scientists from the Cetus Corporation, which was bought by the Swiss company Hoffmann-La Roche in 1991 (see *Nature* 397, 460; 1999). Roche purchased the *Taq* patent as part of the deal.

The ruling was issued in a long-running federal lawsuit in which Roche originally accused the Promega Corporation of infringing its patent by selling its own native *Taq* to researchers. This lawsuit began after a disagreement between Roche and Promega over *Taq* licensing terms. Promega, a privately held Wisconsin company, is also involved in challenging Roche's patent in Europe.

After hearing evidence earlier this year during a trial in San Francisco, US district judge Vaughn Walker ruled that there were eight instances in which Roche scientists had engaged in "inequitable conduct" with "intent to mislead" to secure the *Taq* patent.

These involved misstatements or the withholding of scientific information during the patent office's review process. They included withholding details about how *Taq* binds in a phosphocellulose column, misleading statements about *Taq*'s fidelity compared with previously described enzymes, and presenting a key experiment as having been performed when it had not been done.

In his ruling, Walker likened the conduct of Roche scientists to "scientific misconduct". Roche officials deny that their scientists engaged in impropriety, and say they plan to appeal. And they insist their other patents are not affected or threatened.

The judge will hold a hearing next month to begin the process by which Promega will seek financial remedies in the case. If his ruling stands, Roche's patent for native *Taq* will be void and unenforceable.

He ruled that all claims of Roche's patent are unenforceable. The patent includes three claims, one of which is for the native *Taq* and another for recombinant *Taq*. Therefore, Promega argues, Roche's patent covering both native and recombinant *Taq* is unenforceable.

Furthermore, because the judge has ruled that Roche's patent is unenforceable for *Taq*, Promega attorneys plan to argue that Roche's patent on PCR, which relies on the use of *Taq*, is also unenforceable. But Roche disputes this, saying the ruling only affects native *Taq*, which is used by a much smaller proportion of the research community for PCR reactions.

Among the issues expected to come out of the case are *Taq* pricing, the amount Roche is now alleged to have received improperly under its patent, and reimbursement plans.

For instance, *Taq* was sold by some biotech firms for around 16 cents per unit before Cetus was granted its patent in 1989. *Taq* is now sold for at least 30 cents per unit by companies licensed by Roche. These companies pay Roche 15 to 17 cents per unit, claims Promega attorney James Troupis.

The biotech community is speculating on who will try to recover what funds. US government agencies such as the National Institutes of Health (NIH), the National Science Foundation and the Department of Energy are huge purchasers of *Taq*, either directly or through grants to scientists and universities.

Taq is reportedly the most-purchased reagent under NIH grants. Agency officials decline to say what actions might be taken to recover any funds, pointing out that a decision on such legal action would come from the US Department of Justice. Justice officials were unavailable for comment.

Meanwhile, at least one other company, New England Biolabs of Massachusetts, is considering re-entering the market to offer *Taq* (see *Nature* 390, 327; 1997). Its decision, combined with the elimination of Roche's royalty fee, may lead to cheaper pricing for *Taq*. But Roche insists the judge's decision will have little financial impact because the company believes the recombinant *Taq* patent is unaffected.

Rex Dalton



Fair swap? In exchange for the Nova laser target chamber, France will help develop the NIF.

US sends Livermore laser target chamber to France on loan

Washington

The target chamber from the Nova laser experiment at the Lawrence Livermore National Laboratory in California was last week shipped to France. Physicists there plan to use it as an interim component of the Laser Megajoule, a huge laser facility to be built near Bordeaux.

Officials from the US Department of Energy say the chamber is on loan to France as part of a deepening collaboration between nuclear weapons physicists in France and the United States. In exchange for the loan, French scientists will deliver and develop a diagnostic system for the National Ignition Facility (NIF), the laser experimental facility currently under construction at Lawrence Livermore.

Not everyone at Livermore is happy to see the target chamber go. "It's part of a pattern that makes our people a little uncomfortable," says one official there. He points out that the dismantling of Nova and of another laser, the Beamlet, which has been sent to the Sandia National Laboratory in New Mexico, means that researchers at Livermore will have no machines to work on until the NIF is completed in 2003 at the earliest.

Many of the researchers are using the Omega laser at the University of Rochester, New York, a facility comparable in size to Nova. Operating time at Omega has been increased to allow more experiments from researchers displaced from Nova, the Department of Energy says.

Nova cost about \$150 million to build. But energy department officials say that the scrap value of its 5-metre-diameter target chamber — where ten laser beams



converge to heat a tiny target — was only \$30,000. A senior official values the radiation-temperature diagnostics system, which France will provide at the NIF in exchange for the chamber, at \$1 million.

Unlike the NIF, which was designed to be fully functional by 2003, the Laser Megajoule will be constructed incrementally, starting with a few lasers firing targets in the chamber borrowed from the United States, and later adding lasers and new target chambers to accommodate higher energies.

Both facilities aim to achieve 'ignition', at which the fusion of deuterium and tritium fuel inside the target provides enough heat to sustain itself for a short period.

France and the United States have been working increasingly closely on using lasers for nuclear weapons physics since they signed an agreement to collaborate on this in 1994. It has been reported that the French demanded the agreement in exchange for making a commitment to stop nuclear testing.

According to Matt McKenzie, who monitors nuclear weapons research for the Natural Resources Defense Council, a Washington-based environmental group, the collaboration has moved beyond working together on laser equipment to the design of the targets, called hohlraums, which are heated by the lasers to reproduce conditions inside a detonating nuclear weapon.

Both the Laser Megajoule and the NIF are intended primarily to help train nuclear weapons physicists and to simulate conditions inside nuclear weapons. But they will also be used by plasma physicists to explore the feasibility of inertial confinement fusion as an energy source. **Colin Macilwain**

Germany's research agencies open up recruiting practices

Munich

All vacancies for scientific directors at Germany's Max Planck Institutes will in future be advertised, and a worldwide search for new institute heads will be coordinated by central search commissions, announced Hubert Markl, president of the Max Planck Society (MPS), this week.

The reform of the appointment system is one of the moves being taken in response to an external evaluation of Germany's main basic research organizations published last spring (see *Nature* 399, 395–396; 1999).

More than half of the MPS's 240 scientific directors will retire within the next eight years. "Systematic head-hunting" of leading German and international scientists is to begin at least three years before a director retires, according to Markl.

By increasing centralized control over appointments, the MPS is keen significantly to strengthen its influence on the areas of research at the 80 institutes. Adopting a more strategic approach to research funding was one of the principal suggestions of the international evaluation committee.

As for the Deutsche Forschungsgemeinschaft (DFG), Germany's grants agency for university research, the committee complained that its inflexible and conservative funding policy would tend to block promising new ideas.

After six months of intensive discussions, the MPS and DFG have now accepted in principle to put most of the committee's suggestions into action. But officials at both organizations stress that constant annual increases in their budgets — currently around DM2 billion (US\$1.03 billion) each



Markl: reform of recruitment system needed.

— are essential for the proposed reorganization.

Markl and Ernst-Ludwig Winnacker, president of the DFG, presented their organizations' final reports on the evaluation at a press conference this week. They announced plans to create better and more flexible career opportunities for young scientists and women. They also agreed

to cooperate more closely in the training of PhD students, and to promote innovative interdisciplinary research.

But the MPS added the qualification that the number of additional junior independent research groups at its institutes would be limited by the need to ensure an "appropriately high scientific level", as well as by the lack of "sufficient follow-up positions".

The DFG agreed to revise and speed up its peer-review system. It wants to limit the exclusive right of Germany's scientific societies to nominate referees, in the hope of increasing the number of younger scientists and women among elected referees. But it says it will not introduce a quota system.

The committee had recommended that the DFG should "actively influence the long-term developments of science", rather than just responding to them. But the agency argues that the panel "underestimated the DFG's actual strategic activities".

The MPS and DFG are calling on the government to help put the reforms into action by providing adequate finance and relaxing restrictive employment laws. **Quirin Schiermeier**

China and Hong Kong pool effort in high-tech projects

Beijing

China's desire to strengthen scientific links with its Hong Kong Special Administrative Region has been confirmed by the announcement of 14 jointly funded research projects.

The Natural Science Foundation of China (NSFC) and the Research Grants Council of Hong Kong (RGC) will finance the research over the next three years. The winning projects were selected from 229 applications by a panel consisting of six experts from the mainland and six from Hong Kong. The work will be funded under a joint research scheme established by the two research councils in November 1998.

Some RMB5 million (US\$604,000) will come from NSFC and HK\$10 million (US\$1.3 million) from RGC each year. The projects are in six fields: new materials, marine and environmental science, life science, management science, information science, and traditional Chinese medicine.

Surprisingly, only one application from the Chinese Academy of Sciences, China's leading research organization, was approved, compared to 11 approved applications from Chinese universities, including the prestigious Beijing University and Tsinghua University.

The NSFC says it has been paying attention to funding scientific exchanges between

mainland China and Hong Kong. About 300 such projects were supported by the foundation during 1991–98.

Before the establishment of the joint research scheme, cooperation between the two sides was sporadic and unorganized, without any security for intellectual property, according to Tang Xifang, an official in charge of the scheme at the NSFC.

"The central government asked mainland China to support the scientific research efforts of Hong Kong, so that Hong Kong can become a centre for high-technology development. The establishment of this grant programme is one step taken in response to the government's call," says Tang. **Tian Xuewen**