BIOTECH PATENT DISPUTE

EPO licensing talks break down

Washington

Cross-licensing negotiations over the US rights to erythropoietin (EPO), a kidney cell glycoprotein that stimulates red-blood-cell production, broke down last week, leading Genetics Institute and its licensee, Chugai Pharmaceuticals of Japan, to go on the legal offensive against its rival, Amgen Corporation.

The battle over conflicting patent claims to EPO, whose US sales have been estimated at $200-$1,000 million over the next 3–5 years, has been long and tangled. Each side has claimed primacy, but last December a Boston court upheld the central claims of both companies' EPO patents, while also declaring them partially invalid and mutally infringing (see *Nature* 342, 846; 1989). This stand-off seemed to set the stage for some form of cross-licensing agreement.

But negotiations on cross-licensing failed, and Genetics Institute and Chugai Pharmaceuticals have now asked a US district court in Boston to grant a permanent injunction against Amgen from infringing on Genetics Institute's EPO patent. If granted, this would prevent Amgen from manufacturing and selling its version of EPO — Epogen — in the United States. Chugai Pharmaceuticals manufactures the Genetics Institute version of EPO, Marogen, and because it is made outside the United States and imported, its manufacture does not infringe Amgen's EPO patent.

But Marogen has not yet been approved by the US Food and Drug Administration (FDA), and recognizing that Epogen is the only EPO drug approved for sale in the United States, Genetics Institute proposes a stay of its own injunction, pending appeal of the December ruling, on the grounds that it would not be in the public interest to prevent 44,000 patients with chronic renal failure from receiving Epogen for the treatment of anaemia.

During the appeal period, Genetics Institute and Chugai Pharmaceuticals have requested that Amgen make potential 'damage payments' by depositing profits from the sale of Epogen into an escrow account.

Finally, Genetics Institute and Chugai Pharmaceuticals have asked the court to order Amgen to certify that it cannot assure future supplies of Epogen because of the patent infringement ruling handed down in December. They believe this certification would clear the way for the FDA approval of Marogen despite the fact that Epogen enjoys orphan-drug status. Under the orphan drug rules, Amgen has a seven-year monopoly on EPO products in the United States because the market for it is limited, but only if it guarantees to supply as much Epogen as is needed. The hearing is set for 14 February. Diane Gershon

US SCIENCE EDUCATION

Kvant brings Soviet discipline

Washington

One of the symptoms, or perhaps causes, of the relative decline of science education in US high schools is the fact that an excessive interest in science or mathematics is not the way to win the approval of one's peers. In the Soviet Union, if the first US edition of *Quantum*, a translation of the Russian magazine *Kvant*, is any guide, things are different.

Quantum is full of mathematical problems, exercises in classical mechanics, and chess puzzles, all of which, apparently, Soviet teenagers feel able to discuss shamelessly in public. If *Quantum* does nothing more than make such activities socially acceptable, it will have done a great deal for US high school science.

Kvant was begun in 1970 by the remarkable Soviet mathematician A. N. Kolmogorov, and now circulates in a monthly edition of 200,000 to Soviet schools. The first US issue contains direct translations of half a dozen original Russian articles and is being printed in a run of 65,000 copies, which will go to universities, colleges and high schools throughout the country.

This first issue, and another one to appear next April, are being supported by a three-year grant from the National Science Foundation (NSF). From next autumn, the plan is to produce *Quantum* quarterly, with a subscription price of $9.95, and with an increasingly number of articles from US authors. The intention in the long run, according to production editor Elisabeth Tobia, is that *Kvant* and *Quantum* should be sister publications.

There has been a positive response from those high-school teachers who have seen *Quantum*, according to Tobia, and numerous enquiries from others who have heard about it. In a preface, physicist Sheldon Glashow, one of the US editors, remarks that most of his Soviet colleagues were encouraged in their youth by *Kvant*, and many now write for it.

With the exception of a two-page feature giving unadorned accounts of some computer chess games, the articles in the first issue are devoted entirely to mathematics and physics; in one, the speed of a Viking ship in a painting is estimated from the artist's (inaccurate) rendition of the bow waves, and another describes some geometrical ideas that can be derived by folding sheets of paper. The 'problem-orientated' slant of the first *Quantum* will change, Tobia says, once the US edition begins in earnest. A balance of biology and chemistry will be included, and there will be articles on social aspects of science, environmental matters being a topical example.

David Lindley

CLIMATE CHANGE

Bush chooses caution

Washington

In a speech tainted by allegations of internal White House bickering, President George Bush opened a United Nations meeting on climate change with a warning that politics should not dictate policy-making on global warming.

Addressing the third plenary session of the UN Intergovernmental Panel on Climate Change in Washington, Bush's speech was notable for its absence of any direct mention of the greenhouse effect.

He chose to focus on general environmental issues such as conservation and protection, and emphasized the need to balance environmental concerns with economic policy, which he said "need not be contradictory". Bush acknowledged the existence of a "broad spectrum of views" on the issues, and said that more accurate models were still needed: "where politics and opinion have outpaced the science, we are working to bridge the gap", he said.

The *Washington Post* reported this week that John Sununu, Bush's chief of staff, edited out remarks designed to underline the seriousness of global warming. Sununu opposes restrictions on coal and oil burning to reduce greenhouse gas emissions and has questioned the reliability of current climate models. G. Christopher Anderson

NUCLEAR WEAPONS TECHNOLOGY

No fuel enrichment

San Francisco

A controversial plan to use lasers at the Lawrence Livermore National Laboratory (LLNL) to enrich plutonium fuel for atomic bombs has been dropped by the US Department of Energy (DOE). A plan to build a full-scale plutonium enrichment plant in Idaho using the LLNL technology has also been set aside.

Both decisions are direct consequences of the omission of funds for the Idaho project from last week's US budget announcement, said LLNL spokesman Jeff Garberson, with the Idaho plan in abeyance it seemed pointless to push ahead with full-scale technical development using the plutonium at Livermore, he said. LLNL researchers will work on the fuel-enrichment technique using a substitute non-radioactive material.

Abandoning the idea for the time being also avoids the prospect of time-consuming legal and bureaucratic entanglements. Several environmental groups have vigorously opposed both the Idaho facility and the idea of bringing additional plutonium to the Livermore site. Earlier this year, the DOE announced plans to begin an Environmental Impact Report that Garberson said would have taken at least a year to complete. **Robert Buderi**