

GENETICS

Full circle

The debate over potential hazards associated with recombinant DNA experiments has now turned full circle in the United States, with many of the people who first raised the issue in public arguing that legislation is unwarranted. Colin Norman reports

EXACTLY four years ago, a group of scientists attending the 1973 Gordon Conference on nucleic acids began to worry for the first time about the possibility that transplanting genes from disparate species into living viruses or bacteria might produce an organism with potentially hazardous properties. Discussions at that meeting led to a resolution calling for an investigation of such concerns, and the recombinant DNA debate has been picking up momentum ever since. Last week, at the Gordon Conference, some of the same scientists expressed alarm at where the debate has led.

An open letter, signed by 137 scientists at the conference—more than 75% of the attendees—warns that legislation now pending before Congress and before some state and local authorities in the United States could cripple recombinant DNA research. The letter claims, moreover, that the impetus behind the legislation comes from “exaggeration of the hypothetical hazards of recombinant DNA research that go far beyond any reasoned assessment”.

The Gordon Conferences are attended by scientists who are actively engaged in research on nucleic acids, and they thus represent people who would be directly affected by legislation. Their concerns are therefore not entirely devoid of self-interest, but they nevertheless probably reflect the views of a large proportion of the scientific community.

The call for a halt to legislation is, however, too late to have much effect and it could even be counter-productive. Committees in both the House and the Senate have now approved versions of legislation to regulate recombinant DNA research in the United States, and there is now strong and unstoppable momentum behind the legislative process. Moreover, there is a compelling argument for legislation: guidelines now governing federally-funded recombinant DNA research, issued last year by the National Institutes of Health, are not legally enforceable and do not formally apply to research supported by non-government sources.

The chief concern which led to the

formulation of the open letter at the Gordon Conference is that the legislation is likely to go well beyond simply putting the NIH guidelines into legal regulations. A bill approved by the Senate committee on human resources would establish an 11-member Presidential commission to regulate the research, for example, while a bill approved by the House health subcommittee would set up a complex procedure for approving some types of experiments on a case-by-case basis. Both versions call for new regulations to be drafted, and both would also impose stiff penalties on people caught flouting the rules.

The open letter claims that “the experience of the last four years has not given any indication of actual hazard”, and a number of scientists have recently testified before Congress that research indicates that the hazards may be much more remote than first thought. Such claims rest on evidence that there may be greater natural genetic exchange between species than once believed, that genes from higher organisms have not so far been found to be faithfully expressed in bacteria, and that bacteria bearing transplanted genes seem to be less capable of surviving in the environment than unmodified bacteria. The authors of the letter therefore suggest that while the hazards seem to be growing less plausible, controls on the research are getting more strict.

Nevertheless, few scientists are willing to argue that the research is entirely devoid of risk and thus should not be controlled. Moreover, opponents of the research have also

pointed out in Congressional testimony that evidence suggesting that the risks are less plausible is very preliminary, and that there is no justification for lessening the controls. Faced with those circumstances, Congress is not likely to drop its moves towards legislation because those most affected believe that strict legal regulations are unjustified.

The authors of the letter in fact tacitly concede that Congress is bent on legislation, and they thus urge that “should legislation . . . be deemed necessary, it ought to prescribe uniform standards throughout the country”. The idea is that Congress should prohibit state and local governments from setting their own controls on recombinant DNA research, but Congress is again unlikely to accede completely to the request. Both versions of legislation now under consideration would allow local authorities to set regulations which are at least as strict as the federal controls, but the local authorities would first have to prove that their additional restrictions are required to protect public health or the environment.

A few months ago, a number of prominent scientists reluctantly agreed that legislation is needed to ensure that controls on recombinant DNA research are applied equally to experiments funded by government or private funds. They also supported legislation on the grounds that it would stop local governments from setting their own controls. “Scientists were once urging Congress to pass legislation, and now they are telling us that legislation is unnecessary”, complained one Senate staff member last week. “That is not likely to help their case”. □

Open letter

The open letter signed by 137 scientists at the Gordon Conference reads:

“We are concerned that the benefits of recombinant DNA research will be denied to society by unnecessarily restrictive legislation.

“Four years ago, the members of the 1973 Gordon Conference on Nucleic Acids were the first to draw public attention to possible hazards of recombinant DNA research. The discussions which started at that meeting resulted in the issuance in 1976 of the NIH Guidelines for the conduct of this research.

“We, members of the 1977 Gordon Research Conference on Nucleic Acids, are now concerned that legislative measures now under consideration by Congressional, state and local authorities will set up additional regulatory machinery so unwieldy and unpredictable as to inhibit severely the further development of this field of research.

We feel that much of the stimulus for this legislative activity derives from exaggerations of the hypothetical hazards of recombinant DNA research that go far beyond any reasoned assessment.

“This meeting made apparent the dramatic emergence of new fundamental knowledge as a result of application of recombinant DNA methods. On the other hand, the experience of the last four years has not given any indication of actual hazard. Under these circumstances, an unprecedented introduction of prior restraints on scientific inquiry seems unwarranted.

“We urge that Congress consider these views. Should legislation nevertheless be deemed necessary, it ought to prescribe uniform standards throughout the country and be carefully framed so as not to impede scientific progress.

“The 137 undersigned are members of the 1977 Nucleic Acids Gordon Conference”.