

Perils in free market genomics

Scientific and medical enthusiasm for the potential contributions of germline gene therapy must not obscure the need for detailed debate about its potential consequences — or for careful monitoring and sensitive regulation.

One of the most successful political initiatives of recent years, espoused by both right and left, has been the drive for deregulation. Rolling back the power of the state to let individual initiative and imagination flourish is no longer the exclusive rallying cry of conservatives, but has won a growing number of converts across the full political spectrum. But deregulation also has a price, as those who have experienced lengthy delays in US airport waiting lounges or the confusion over bus services in Britain are well aware.

So it has been with genetics. It was perhaps inevitable that scientific and industrial enthusiasm for the promises of genetic engineering should have also generated widespread concern — often exaggerated — about the potential dangers of their careless application, and that this should have been expressed through regulations covering what could be done, and under what conditions. Equally inevitable has been the resentment among researchers who feel unnecessarily restricted in what they are permitted to do as a result. But prudence is a virtue abandoned at peril.

As a meeting last week at the University of California, Los Angeles, illustrates, such issues are already raising their head over what many consider to be the ultimate target of such techniques: the ability to modify the human germ line at will (see page 317). It would be foolish to ignore the vast medical possibilities that this ability is already opening up, with its unprecedented potential for reducing human suffering; whatever the views of critics, public opinion polls already indicate the eagerness with which the promise of germline gene therapy is being greeted. It would be equally foolish to pretend that draconian regulations aimed at holding back the development of the relevant knowledge and skills are either desirable or likely to be effective.

But both factors make sensitive and comprehensive regulation

more, not less, necessary. The speakers at last week's meeting have performed a valuable service in opening up an area that is too often considered taboo. But, whereas some spoke of the dangers that research and its applications might be slowed down by public concerns, others were more cautious. Some warned, for example, of the unforeseen hazards that might emerge from tampering with the human genome, and that are likely to be avoided only by careful monitoring. Others spoke of the difficult task of establishing a boundary between acceptable and unacceptable applications. And serious concerns about the purely moral dimensions of deliberate intervention in the human germ line intended primarily to enhance culturally desirable characteristics cannot be dismissed lightly.

There is no reason to fear germline gene therapy as such. Those who argue that genetic enhancement is a process that has been carried out unconsciously for millennia have a point. But nor is there a reason to fear society's involvement in its careful monitoring and regulation. The medical and social revolution that the techniques are likely to bring are of such sweeping significance that it would be both foolhardy and dangerous to leave the development of the field to the whim of individuals. We share a collective responsibility to ensure that such developments take place in an acceptable manner.

Our first task should be to take a long, hard look at which is likely to be involved — both scientifically and ethically. Other important priorities include gathering extensive data on the long-term consequences of current experiments with somatic gene therapy, testing germline techniques thoroughly on other primates, and eventually assessing the potentially devastating consequences of failed experiments in humans. Only then will we be able to make the difficult choices about the best direction to take. □

All hands on deck?

Effective maritime research requires collaboration, but the case for a European agency has still to be made.

When the oil tanker *Amoco Cadiz* ran aground off the coast of France exactly 20 years ago, it awakened French public opinion on maritime issues in a way that found political expression in the creation of a 'ministry of the seas' after the presidential victory of François Mitterrand in 1981. France and Portugal are now leading calls for Europe as a whole to give greater political prominence to managing its marine environments and resources. They want to create a European Maritime Agency that would in particular forge closer links between maritime science and policy making in both government and industry.

The world beneath the waves certainly suffers from lack of political visibility. Moreover, the various actors tend to have a blinkered view of the issues, being preoccupied with those that affect them most directly in the short term. They often miss the bigger — and more complex — picture constituted by the vast sprawl of maritime research and related activities, as shown by meeting on maritime issues held last week in Paris, attended by more than 100 members of different European parliaments (see page 323).

Anything that might help to remedy this situation is welcome.

Much still needs to be learnt about the oceans, while many problems and opportunities — from the decommissioning of oil rigs to the promises of marine biotechnology — could benefit from a more imaginative approach to marine science. A suggestion that the proposed agency be steered by ministers from European countries would at least have the benefit of focusing political and public attention. But the main challenge facing those keen to promote such an agency is to identify where a 'European' approach could clearly advance maritime issues — not easy, given that many are either global or regional — without creating either another talking shop or a top-heavy bureaucracy.

Similarly, while the Europeanization of research resources should improve cost-effectiveness, this might well be achieved more simply through multilateral agreements. At present, the fog surrounding such questions suggests that the proposed agency could turn out to be a solution looking for a problem. But France and Portugal, which are championing the idea, deserve to be encouraged. Their intention to scrutinize maritime management should in itself prove a useful — and long overdue — exercise. □