Summaries

Justitiële verkenningen (Judicial explorations) is published nine times a year by the Research and Documentation Centre of the Dutch Ministry of Justice in co-operation with Boom Juridische uitgevers. Each issue focuses on a central theme related to criminal law, criminal policy and criminology. The section *Summaries* contains abstracts of the internationally most relevant articles of each issue. The central theme of this issue (vol. 29, nr. 6, 2003) is Biotechnology.

What is biotechnology?

R. van Dam-Mieras

Biotechnology can be defined as the use of knowledge of biological systems at a molecular level for producing goods and delivering services. To appreciate the far reaching consequences bio-technological innovations may have, some knowledge is needed of the form and function of living cells, and of the way genetic information is stored and processed in these smallest units of life. After summarising this prerequisite knowledge a description of recombinant DNA technology is given, followed by a survey of different domains in which biomolecular knowledge is presently developing. Finally an overview is given of possible consequences of biotechnological innovations in healthcare, agricultural production, food industry and industrial production in general.

Biotechnology and the law

A. Patijn

The society is divided on applications of biotechnology. Ethical convictions and worries about environmental damages collide with hopes about innovative products improving agriculture and pharmaceutics. Sometimes the law chooses to forbid certain behaviour, like reproductive and (temporarily forbidden) therapeutic cloning. More often the law just prescribes a permit for specific biotechnological applications. The public body upon request has to balance different interests. Ethics of principle and ethics of result are distinguished.

Ethics of principle are relevant for humans and animals. For man no eugenics on the human gene is allowed. The consent of a person is a matter of principle too. No possible gain can prevail. For animals the law recognises the intrinsic value of the species. This can only be set aside by important prevailing interests like the production of medicines. Plants and micro-organisms are not (yet) protected in itself. In all cases though ethics of result are at stake as the law prescribes a test to see if the application doesn't jeopardise the environment, biodiversity included.

Legal framework hinders biotechnology development

R.T.A. Jansen
A few years ago, the Netherlands was one of the leading countries in European biotechnology. Nowadays the country has fallen from this position to a seventh place. To improve this, the Dutch parliament expressed early 2002 the intention to 'stimulate the development of biotechnology in a considerable way'. Although the situation has slightly improved, the Netherlands still lack an integral and consistent government policy on biotechnology. The government has a double policy of stimulating biotechnology in science and industry and simultaneously curbing down new developments through a severe legislative system. This system is experienced in practice as an important obstacle for biotechnological innovations. Too often the government is focused one-sidedly on possible, often hypothetical risks and negative consequences. It frequently overlooks the obstructive effects of too stringent legislative conditions on the development of new and valuable products. In this article the author focusses on the significance of legislation for the industry and the consequences of the current Dutch legislative policy. The paper concludes with several points of attention for future improvements.

Biotechnology; ethics and rules

H. Jochemsen, H. van der Pol and C. Visser
Modern biotechnology that involves genetic modification bears great promises according to some, but great perils to others. Contrary to what some who favour its use assert, the authors think modern

biotechnology is fundamentally new because the genetic modification crosses all species borders, involves a tremendous acceleration of the breeding process and entails unforeseeable risks when genetically modified organisms (gmo) are freely brought into nature. The predominant 'chemical' view of living organisms manifested in gmo and the economic interests behind them, imply a potential threat to downplay socio-economic and ecological disadvantages of most present gmo. The authors propose a licensing structure that allows biotechnological applications only after they pass an ethical evaluation. The evaluation criteria are the action (degree of violation of integrity of the organism), the organism involved, the goal, the risks (with respect to ecology and food safety and animal health) and (socio-economical) disadvantages, and whether there are less invasive alternatives. The relative importance that is attached to these criteria depends on world view and political philosophy and should therefore be established after public debate and be reconsidered from time to time.

Cloning humans? A heated discussion

S. Eschen

Reproductive cloning aims at producing human beings with improved physical, even intellectual, capabilities, unaffected by inherited diseases. Remarkably, not much attention is given to the fact that human reproductive cloning is impossible still. Since the delivery of the cloned sheep Dolly, the public erroneously believes, producing (identical) human clones becomes reality in the near future. Reproductive cloning is rejected and forbidden by law in most countries. Therapeutic cloning, aiming at medical and pharmacological applications, has become subject of controversy, but is prohibited in Germany and The Netherlands. Religious political positions dominate legislation on the application of genetic technology on humans here. This article introduces Dutch readers to the German thoughts, inter alias, of developing ethics outside religion, also referring to the Anglo-Saxon discussion. Policy makers are called upon to give attention to scientific and technological evidence, besides public beliefs and other interests. Rationalising the public discussion is necessary.

Biotechnology and medical science

H. Galjaard
This article focuses on DNA research in medical science. The author moderates the importance of ethical discussions and high expectations of new medicines and techniques by pointing out that a large part of the world population lives in life threatening circumstances because basic medical care is lacking. He describes how DNA research will improve diagnostics, before and after birth. This concerns actual diseases as well as risk determination. On the one hand this development could enhance people's chances of a healthier life, on the other hand it could lead to large scale medicalisation, worrying and health preoccupations. The next step in embryo research could be the search for normal physical and mental traits, either desirable or not. The expectations of new medicines as well as cell and tissue transplantation are discussed, followed by examples of ethical dilemma's. Public debates on biotechnology might be of only temporary importance, in the sense that they will create sufficient support for the use of biotechnological adaptations. The author wonders if it's cynical to note that never in history a new developed medical technology was kept unused.

Biotechnology and food security

G.A. Kleter and H.A. Kuiper
Genetically modified foods are currently at the heart of public interest. Currently, two types of genetically modified organisms are employed for food purposes, namely micro-organisms that produce processing aids for food manufacture and food crops that have been predominantly modified with traits of agronomic importance. Specific legislation exists in the European Union pertaining to crop cultivation, animal feeding, human food use, and labelling of genetically modified organisms and derived products. The regulatory safety assessment of genetically modified products is carried out prior to marketing according to an international consensus approach. The assessment is based on a comparison of the genetically modified

product with a conventional counterpart. Identified differences are then further tested for their safety. The safety assessment is currently harmonised internationally by the FAO/WHO Codex alimentarius commission. In addition, the robust assessment methodology is further refined by scientific research, such as that co-ordinated by the EU network Entransfood.