Gene Genies?

Let's be careful not to overstate the facts

A new era of cancer treatments, vaccines, personalised pills, extended lifespan and treatments for genetic diseases? The June announcement by the Human Genome Project and Celera Genomics that they had deciphered the 3.1 billion letters of the human genome has been hailed as altering the whole basis of medicine.

Perhaps, but we need to be careful not to overstate the facts. Last summer's 'milestone' was simply the production of a 'working draft'. 97% of the human genome has been mapped and 85% sequenced so far; containing 38,000 genes and 115,000 possible genes. A high-resolution map may take another three years – and even then we will only be beginning the task of identifying the function of the individual DNA sequences. Finding new treatments based on them must follow that.

There is no doubt that the human genome project offers great potential for good; but as Christians we also need to be wary of the potential for misuse of the new technology for commercial, political and eugenic ends.

The project will need financial investment to produce results; but with biotechnology stocks already in high demand, there is the danger that human greed rather than human need will shape research priorities. And treatments developed may be out of the price range of poorer families, and indeed poor (or even rich) countries. This raises the issue of gene patents. Investors are keen to get a return - but should genes, which are discoveries and not inventions, be subject to this kind of commercial exploitation? If they are, this will surely encourage hoarding of intellectual property by those out to make a profit and research will inevitably suffer.

The use of genetic fingerprinting to identify criminals must be welcome if it makes it more likely that the guilty are brought to justice and the innocent are exonerated. But confidential genetic information could also be used by corrupt governments to exploit vulnerable groups. Likewise employers and insurance companies could use it to discriminate against those with special needs. Safeguards are urgently needed.

New treatments may still be some way off. The relationship between genes and disease is often not simple; and patterns of inheritance and the likelihood of a particular gene being expressed are not easily predictable. Despite the hype, gene therapy results are so far disappointing. In the last ten years, over 30 major gene companies have been launched and several thousand people treated but as yet only very small numbers of people with rare conditions (like severe combined immune deficiency) have been helped.

In practice it is far easier to cull genetically impaired individuals in utero or in vitro, than it is to fix damaged DNA and 'genetic selection' is already taking place in the UK. Prenatal screening and abortion mean that 90% of children detected in utero with Down's syndrome never see the light of day; and pre-implantation diagnosis and embryo disposal for cystic fibrosis, Tay-Sachs disease and muscular dystrophy is now well established.

There are strong moves to deploy this technology more widely, to identify and eliminate individuals before birth with a much broader range of genetic disorders, on the pretext of 'cost-effectiveness'. (It costs £80,000 to detect and abort one Down's baby and £120,000 to cover a lifetime's cost of care). The tragedy is that this ante-natal 'search and destroy' is taking place at a time when there are many breakthroughs for previously untreatable genetic conditions. (The life expectancy for cystic fibrosis has doubled in recent years, along with a vast improvement in quality of life).

This eugenic approach devalues handicapped people, many of whom lead fulfilling lives, and all of whom are precious in the sight of God. Furthermore, it channels funds away from finding new therapies. We must not underplay the considerable physical, financial and psychological cost of raising children with special needs, but the way we treat the most vulnerable members of our community speaks volumes about the sort of people that we are. Christian ethics is not about survival of the fittest; it's about bearing one another's burdens and making sacrifices for weak and vulnerable.

We are much more than our genes; human beings are a complex product of nature, nurture and personal choice. More importantly, the wonder of the genetic code reminds us that we carry the master-designer's fingerprints - each one of us individually crafted in his image - yet each different. As US President Bill Clinton has commented, the human genome project is helping us understand 'the language in which God created life'. This same God calls us to be stewards of his creation - and the scientific exploration of life, including its genetic foundation, is right and good - but we must ensure we use this new information in ways that glorify him. Not against people but for them. Not to exploit, but to serve. And let's keep it all in eternal perspective. It's the resurrection, not the genetic revolution that will ultimately bring perfect health and extended lifespan.

Peter Saunders is CMF General Secretary and Managing Editor of Triple Helix

WE ARE MUCH MORE THAN OUR GENES; HUMAN BEINGS ARE A COMPLEX PRODUCT OF NATURE, NURTURE AND PERSONAL CHOICE.

Image: Peter Artymiuk, Wellcome Trust Photo Library. Molecular model of DNA double helix