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Why stop here on our evolution from the ape?

By Matthew Syed

There was a time when the use of animal organs in medicine gave many of us an attack of the moral heebie-jeebies. It was considered bestial, degrading and, well, rather yucky. No longer. Even the conservative Senator Jesse Helms, suffering from a coronary condition in the 1990s, gratefully consented to having a pig's heart valve, and I suspect most of us, offered a choice of a synthetic or animal part for transplantation, would plump for whatever works best, without giving the ethics a second thought.

It is curious, then, that controversy continues to swirl around other types of animal-human fusion. Last week the Human Embryology and Fertilisation Act, which permits the creation of animal-human embryos, received Royal Assent. The legislation forbids scientists from developing these embryos beyond 14 days (when they are about the size of a full stop) but that has not stopped opponents banging on about "the crossing of an ethical Rubicon".

The creation of admixed embryos is primarily about boosting the supply of stem cells, and a jolly good thing too - only yesterday it was announced that adult stem cells had been successfully used in a pioneering trachea transplant.

But the possibilities of biotechnology extend way farther. Suppose that scientists discovered an animal species with a genetic resistance to a killer virus. It might be possible to transfer these sequences into the human genome to confer resistance. If this sounds like science fiction, consider that many gene-transfer therapies have completed clinical trials and that human genes have been transferred to animals for medical research for years.

We tend to mythologise genes, taking them to contain magical ethical properties when they are really nothing more than molecular sequences coding for protein synthesis. The "magic" only emerges when genes fuse in their thousands to create such wonders as people and animals. If a chap can benefit from an animal gene without negative side-effects, where's the objection? Surely, a choice between a synthetic and animal gene is just like the choice between a synthetic and animal body part: which works best?

Of course, many - and not just religious types - rage about how the possible use of animal genes assaults human dignity by blurring the distinction between humans and animals, but this is not so much an objection as a positive blessing. Any reminder of our continuity with the animal kingdom - we share 98 per cent of our DNA with chimps - might wake us up to some of the more inhumane ways with which we treat our evolutionary cousins. That is not to deny that animals and humans are importantly different; it is merely to warn against turning our backs on technologies just because they assault our preposterously overblown sense of species pride. It is not degrading to save lives, even when using "yucky" animal genes.

But ultimately gene transfer - synthetic or animal - is about far more than medicine. It may be possible to enhance capacities such as perception, intelligence, even lifespan. Ageing, for example, is related to decay at the ends of our chromosomes. If we could delay this decay genetically, it might

dramatically extend life. (Some believe that the first 500-year-old human is alive. To which I say, bring it on!) The problem is that many regard genetic enhancement as a kind of cheating. Indeed, the President's Council on Bioethics argued in its report *Beyond Therapy* that enhancement technologies are morally comparable to drugs in sport. It is an entirely spurious comparison, even by the council's standards. To see why, imagine that you are a 100-metre runner with access to a drug that helps you to run faster. Given that your objective is to win, you benefit from this enhancement only if it is denied to others. If everyone takes the drug and gains a 10 per cent advantage, the result is the same as if no one takes it.

Now consider an enhancement such as a technique that engineered resistance to flu. In this case, you would want the enhancement not only for yourself, you would want the rest of society to benefit, too. The technology is not about gaining an advantage at the expense of others; it is about improving everyone's life. If a politician tweaked the education system so that every child achieved better exam results, he would be a hero. How is this morally different to achieving the same outcome with genetic engineering? The only doubt consists in forbidding the technology on the basis of a flawed comparison.

The deeper objection to gene enhancement derives from the same confusion that surrounds the use of animal DNA - that the human genome is ethically special. But how can it be when it resulted from natural selection, an arbitrary process? This is not to deny that humans are precious, but to emphasise that it is because of our capacities, not our genes. If we can enhance our capacities - including that of enjoying life free from disease - why get an attack of the moral jitters?

In his essay *Gaps in the Mind*, Richard Dawkins invites you to imagine holding hands with your mother, who is holding hands with her mother, and so on. This ancestral chain would extend less than 300 miles before reaching the common ancestor that we share with the chimpanzee. Now imagine that common ancestor holding by her other hand another daughter, she hers, and so on. This chain runs parallel to the first, so that first cousin is facing first cousin, second cousin is facing second cousin, and so on. By the time that the chain has wound its way back, you find yourself face to face with a modern day chimpanzee.

This neatly dramatises the absurdity of the belief that humanity is the ultimate expression of moral worth and should be preserved, inviolate, against genetic modification. As the ethicist John Harris puts it: "If our ape ancestor had thought about it, she might have taken the view that there is something special about herself and that her sort of being was worth preserving in perpetuity."

Why freeze evolution at any point on that chain, at the beginning, the middle or where we happen to be now? There are no moral reasons, only anthropocentric ones.

Where, then, should we draw the boundaries for biotechnology? This is tough to answer in the abstract, but we can have no principled objection to even radical genetic modifications providing that they improve lives or reduce suffering. Our deepest concern should be not to preserve the precise sequence of human DNA (it will continue to mutate and drift, regardless) but to embrace anything that protects us and our descendants from the terrible vulnerability we face in this world.