



Should we make attempts to change the human genome?

"I am seeking the road of my forefather, Uta-napishti, who attended the gods' assembly, and found life eternal: of death and life he shall tell me the secret."

- The Epic of Gilgamesh, Tablet IX 75-77, transl. Andrew George

"Then they said, "Come, let us build ourselves a city, and a tower with its top in the heavens, and let us make a name for ourselves" [...] And the Lord said, "Behold, they are one people, and they have all one language; and this is only the beginning of what they will do; and nothing that they propose to do will now be impossible for them."

- Genesis 11:4,6 RSV

The two quotes above exemplify mankind's eternal desire to take control over reality around us and transcend the limitations of our physical nature. From that desire came all technology - be it spears or iPhones. Thanks to the progress of science, we have come to the point when the possibility of manipulating our genome – the essence of who we are – is on the horizon. This essay will not answer the question posed – impossible in 1000 words – but will highlight some issues that need to be considered.

It is perhaps pointless to ask that question. That it is being asked at all is a sign of looming affirmative response in the future. Such was the case (even if only for a short time, in days thankfully gone by) with many issues at the intersection of science and social change, both good and bad – educating women, surrogate parenting, GMO plants, eugenics, IVF, industrial farming, abortion, stem cell research, sex change surgery, contraception, amputation. It might be better to ask where it will lead us, and whether such attempts will become a fact of life.

The question can be analysed from several points of view. First of all, we must distinguish between the theoretical (perfect tools for unlimited genomic manipulation) and actual conditions (imperfect tools, modification limited in scope). In the first case we can let our imagination run riot, but in the second we must consider what side effects there might be. If a severely malformed baby is born as a result of such experimentation, are the scientists to blame? Can we do it as a necessary evil for the progress of science?

Second, we must ask ourselves – *what* do we want to do exactly? Do we simply want to cure genetic diseases? Enhance our intelligence? Have designer babies? Grow wings? Escape death? And what is a disease? If humans become smarter, will the current average intelligence become a 'defect'? And why do it? A disturbing quote can be found in the dystopian video game Bioshock – *"With genetic modifications, beauty is no longer a goal, or even a virtue; it is a moral obligation."* If we start modifying the way we are, we run a real (albeit small) risk of waking up

in just such a society. Consider genes responsible for excess fat deposition. Would collectively slimming all mankind to prevent cardiovascular disease be morally the same as doing it for aesthetic reasons? Most of us would probably say not. Moreover, the difference between e.g. curing cystic fibrosis and developing gills is not just in scope, but also in nature. The former is restoring proper function, but the latter is an invasive change in the intrinsic nature of the human body. The border between the two is not always clear-cut. Would nocturnal vision be a mere enhancement of our sight?

Genomic manipulation will undoubtedly have profound implications on human societies. It would be naïve to think we can know precisely today how it will impact tomorrow. It can lead to an increase in overall happiness by curing diseases, but it could also lead to widening the gap between the rich and the poor, both locally and globally. If only the Global North can afford to modify its genes (and so gain advantage), the Global South is automatically worse-off – and as the gap widens increasingly rapidly, it may become too wide to ever close. Manipulating genomes could also change our emotionality and the way we interact as human beings in ways no one could predict. We will only become aware of many such ‘unknown unknowns’ in hindsight.

Another thing to consider is that manipulation of *human* genome is not the be-all and end-all answer to all humanity’s problems. Modifying the genes of a poor farmer in the developing world will not (in and of itself) feed his children, nor will it stop wars, genocides or slavery. While it may be means of alleviating *some* suffering, it is definitely not panacea. We may wish to focus on more immediate solutions to the pressing problems of our society.

The number of question marks in this essay is very telling. Genomic manipulation is coming – there is no way around it – but there are numerous questions we must first answer if we want to use it wisely. Like any tool, it can be used for good and bad. It is dangerous to consider ourselves wiser and more enlightened – and thus more ethical - than those who came before us. After all, that is precisely how they viewed themselves. As Dr. Malcolm said in Jurassic Park, “*your scientists were so preoccupied with whether or not they could that they didn't stop to think if they should.*” Let us not be afraid of genome manipulation – it can be a blessing for mankind. But at the same time let us not forget that it may prove a disaster for the human race.