Should we make attempts to change the human genome?

An imagined conversation between genome augmentation enthusiasts, sceptics and objectors. The characters are based on the real-life scientists that cautiously pioneer the field of genetic editing (e.g., Jennifer Doudna), firm supporters of the practice (e.g., Biohackers like Josiah Zayner), the doctors who have used the technology practically (e.g., Matthew Porteus) and active protestors against it (e.g., Alliance Vita in France).

Cast

The Scientist

The Doctor

The Biohacker

The Sceptic

The Protestor

"We *have already been making changes to the genomes of animals and plants for thousands of years; selective breeding, genetically modifying organisms (GMOs), etc. What's stopping us from potentially doing the same to the human genome?"*

Scientist: This is not a theoretical scenario. The technology for changing the human genome has been around for a few years now known as CRISPR. It allows us to cut a targeted piece of DNA and insert or modify a gene. This makes the question weightier, as we have to consider the real-life consequences.

Doctor: Isn't it worth the risk though? The technology could lead to curing virtually every genetic disease, why shouldn't we push forward with it?

Sceptic: The potential of gene editing being catastrophic for society is too great. Realistically, this technology would only be accessible to the rich and powerful, who would only use it to generate even more inequity, in order to benefit themselves.

Biohacker: I agree that a small group of scientists or rich people shouldn't be able to make decisions that could affect the whole population- which is what this technology will inevitably end up doing. There is an easy solution for this. We must make it accessible for anyone who needs it. If we democratize it, then no one has the opportunity to abuse power. There are already individuals who produce CRISPR kits that are affordable and easy to use.

Sceptic: But should we be allowing individuals with little to no experience or knowledge of the dangers and consequences of this work? Since they are not part of an organization, no one is monitoring what they are doing, and they are not required to stick to any regulations.

Biohacker: You can never control the whole world, and whatever people choose to do on themselves should ultimately be up to them. These are the individuals who will make change quickly, the regulations and rules of companies' only slow progress.

Sceptic: There needs to be more restriction around what these individuals can do with this technology. What's to stop them from creating bioweapons?

Doctor: I agree - where is the line between what edits we can make to the human genome? Of course bioweapons are unethical,

but surely using germline editing to create a healthy baby is moral?

Protestor: That may be, but allowing us to make edits to the human genome will lead to designer babies.

Biohacker: I don't see why designer babies a bad idea. Would the world really suffer if the population became smarter, faster, stronger and healthier?

Sceptic: Healthy, smart and strong is one thing but what comes next? Choosing gender, eye colour, skin colour, personality? Is it ethical to reduce an unborn child to an experiment? The changes made today could affect all future generations.

Protestor: Exactly! This is why I believe that designer babies, along with anything to do with changing the human genome, is an attempt at playing God. This is a dangerous and sinful act that will have a price to pay. We should not attempt to change God's creations.

Doctor: Would you say the same thing if you knew a fatal genetic disorder within your family could be cured by gene therapy?

Protestor: Yes, because it is God's plan for us.

Doctor: But wouldn't God want to decrease suffering? Are you suggesting an omnibenevolent God wants people to die as part of his plan?

Protestor: This is a necessary evil. I accept it because I trust in God.

Doctor: If you told anyone experiencing loss and suffering due to genetic disease that it could be ended by changing the human genome, I doubt that they would have the same qualms that you do. New gene therapies can elongate lives, improve people's standard of life or even cure the disease. The opportunities that human genome editing opens up are monumental. We can grow organs for transplants, eradicate diseases such as sickle cell anaemia, cystic fibrosis, Parkinson's etc. The number of people who would benefit is immense. Currently, it takes millions of dollars and 5 years to develop a new gene therapy. This simply isn't accessible or useful for people in desperate situations. People need it now and they need it cheap. CRIPR can be fast and affordable if organizations would just stop directing their focus on profit, but rather onto helping people. It would be selfish to prohibit its use.

Scientist: It may seem selfish in the short term, but in reality, we do not know enough about these diseases and the world's intricacies to trust this technology. We have no idea what consequences eradicating a disease will have; will it come back stronger, like a superbug? Will a worse disease take its place? Even though we have the means to do so, we just don't have enough information yet to justify making attempts to change the human genome.

Biohacker: But imagine what we could achieve if we embrace human genome editing! Beyond eradicating disease, we could reverse the ageing process or create more advanced humans… it's science fiction come to life! The technology will be pointless if we don't do anything with it. Why are we not actively trying to use this to our advantage?

Scientist: This sounds incredible and optimistic at first, but any research will tell you that these ideas are far too risky and controversial to execute. We should take caution, listening and responding to the ethical concerns that arise, before creating something that can change humankind forever.

END SCENE