

Homework assignment

Science Communication | Ms. Maja Ratej

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Dear my little friend,

First and foremost, I hope you are good and that after completing your school's assignments successfully, your parents allowed you to play some games outside with the friends or even enjoy that time as best is for you. I also hope you do not read frequently news or watch TV, because there is really a lot you are now incapable of understanding it well... But, however, I want to take this opportunity to reassure you about something I know you are unaware of right now.

I am a future biomedical scientist. Probably now you are asking yourself: "What is a 'scientist' and what I am supposed to do during following years?" The answer is simple. Being a scientist is completely interesting and so enjoyable job, when you really love what you do and when you are aware of what your research/work will have impact on. Being a scientist is far beyond sitting in the laboratory and being surrounded by some machines together with small or large glass and plastic containers where something is 'cooked.' But, to explain it in simple words, basically we are 'cooking' something inside laboratory that we hope that will have a great significance for the human population, meaning that it may change the life of yours and your parents and friends too.

Now, I want to tell you what scientists are currently working on and I hope it will be interesting to you.

Recently, many ethical concerns have raised about genome editing tool called as 'CRISPR tool'. Particularly, it is important due to its potential to edit your genome in a more accurate and easier way that it was decades ago, even before you were born. Imagine, your mum is expecting another child, soon-to-be your little brother or sister. Modern science together with this tool can predict which physical characteristics your sibling will inherit from your mother and all these information is stored in your body within 'genes.' This is why it is called as 'genome editing tool.'

One recent research involved the studies on human embryos. Many people have moral and religious objections to the use of human embryos for research, however, scientists obviously do not. Recently, they for the first time have successfully edited genes in human embryos to repair a common and serious disease-causing mutation (change), producing apparently healthy embryos. This particularly means that by using of this tool, one day it may protect babies from a variety of hereditary conditions, including diseases as well. This also means that, if your mother would for example, be carrying some hereditary diseases which nobody wants to pass to any of your future siblings, this tool may possibly protect them from such diseases. It is unbelievable, right? If being possible, you will not be worrying about your future sibling's health, because it will be able to provide treatments on time even for hereditary diseases or even to be completely born without carrying a disease.

On the other side, there are a lot of ethical concerns or negative sides regarding this challenge because then, some might try to DESIGN babies with certain traits, like greater intelligence, athleticism, good musicians, etc. So, what this particularly means to you and your family? You could be able to choose what characteristics you want your brother or sister to have. For example, you want your brother to be as good musician as you are and play the same instruments as you do instead of being a great football player. If being so persistent, with this tool, scientists could be able to make it possible in near future. So it is a double-edged sword since the investigations involving CRISPR cutting edge technology, want to correct mutations that cause many severe genetic disorders, such as Down syndrome or some others.

Since I am in first years of becoming a scientist and I am currently working on some small aspect to find a possibility to completely cure a breast cancer which is a very severe human disorder that may lead to death, I would say that it is not entirely clear whether all the solutions, even for a cure of diseases, are in the genes. The major problem of gene modification and this tool is that it can have potentially devastating consequences for mankind if it is found in the wrong hands. I hope you understand it...

Changing the human body itself, like any application of any new, advanced technology, is a double-edged sword that can unlock many until now unthinkable opportunities, but also can be of means that can lead to the Day of Judgment since in this way scientists would be able of 'playing Gods' and in my opinion, that is not what science is about.

I hope that you started to be a little more aware of what is going on within a field of science and this field nowadays, and that I did not make you feel scary and worried about it. I hope when you become a little older, you will be able to make your own opinion about all of these and also become able to distinguish between whether this is right or not.

The science should be above all useful for you and your closest ones, and should provide a new knowledge about something you care a lot. Otherwise, it is just very pointless even to think about.

Greetings,

Maida Jusovic