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**1. Do you think genome sequencing will impact on your future life? Give examples of what you would want and what you would not want to happen because of genome sequencing.**

Genetic engineering is the applied science which artificially improves organisms such as plants or animals by transmitting and expressing the genetic information in laboratories. It modifies the DNA of an organism and changes the information it contains (1). This is possible thanks to the advances in Science since the late 20<sup>th</sup> century. There are many applications to this science; some of them are positive, while others can be very controversial [addition; JJ].

Some techniques of genetic engineering include polymerase chain reaction (PRC) and recombinant DNA technology. PRC is a technique which allows us to obtain big amounts of identical copies of a segment of DNA within an hour (1). This is a very positive application because it can be used without interfering with nature's own rules. Recombinant DNA is a technique which consist of "isolating a gene of an organism and inserting it into a different one (the receptor or host)" (1). This application can be widely used for producing a certain protein that the organism could not segregate before, or even eliminating a harmful molecule or compound situated in the cytoplasm of the cell (1). Looking forward to other positive consequences of genetic engineering we would find the technique which lets us read our own genetic information. This one, in part, will help us to know what type of hereditary diseases or illnesses we are going to have in an uncertain future [addition; JJ]. But being aware of our future state of health would change our life completely, and not for the best. Imagine that you discovered that you are prone to suffer from Alzheimer when you would grow older; your life would suddenly face an unexpected twist (2). Furthermore, some companies such as 23andMe have taken advantage of our custom of wanting to know everything. They have started to sell gene tests which show the public sector part of the future genetic diseases that they will suffer from (3). However, the Food and Drug Administration (FDA), in the USA, banned 23andMe from selling these products because it was not able to support the tests validity with sufficient evidences (4). This type of application, shown in the following picture, is something that I would not want to improve my future life (5)

## **Personal Genome Service™**

Get to know your DNA. All it takes is a little bit of spit.

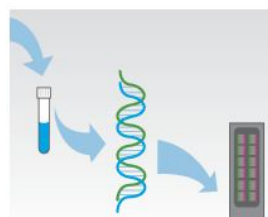
Here's what you do:



1. Order a kit from our [online store](#).



2. Register your kit, spit into the tube, and send it to the lab.



3. Our CLIA-certified lab analyzes your DNA in 6-8 weeks.



4. Log in and start exploring your genome.

Medicines can also be obtained and improved thanks to these detailed engineering methods (1). Concerning cancer, a group of hundreds of genetic illnesses marked by the uncontrolled cell growth (6), we know that in the future the cure would be discovered thanks to genome sequencing. This is an astonishing benefit which would bring into our world a series of new medical discoveries [addition; JJ].

In conclusion, after genome sequencing was completed, (6) there has been a range of applications that are causing enormous changes to our daily world. Some of them bring positive aspects, such as the discoveries of cures to fatal illnesses; while other ones are negative, i.e. knowing your future diseases, without taking in consideration whether they have been correctly identified and tested. It is up to us to decide whether to use them wisely and always ask for our governments' regulations and implications on this matter [addition; JJ].

### **References**

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- (3) Gene Watch UK. 2<sup>nd</sup> December 2014. Consumers warned not to buy unregulated gene test online. <http://www.genewatch.org/article.shtml?als%5bcid%5d=567356&als%5bitemid%5d=575305>
- (4) Janssens. C. 2014. How FDA and 23andMe dance around evidence that is not there. The Huffington Post. 27<sup>th</sup> January. [http://www.huffingtonpost.com/cecile-janssens/post\\_6753\\_b\\_4671077.html](http://www.huffingtonpost.com/cecile-janssens/post_6753_b_4671077.html)
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