

Stephen Negron

Professor Scott

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Ethics of Immortality via Nanotechnology

It is the 21st Century and it has been marked as the age when information can be easily obtained and evaluated with technology. Different forms of technology come in many different shapes and sizes from self-driving cars to nanorobotics. Speaking of nanorobotics, some nano-engineers have set their eye on applying nanotech for medical purposes through nanobots. These nanobots have been designed to enter the bloodstream, target any pathogens causing deadly disease, and heal wounds unreachable from the outside. This creates implications in medical applications that nanobots can eventually preserve the living human body for long periods of time where aging and disease would no longer contribute to death. In other words, nanotechnology would become the modern fountain of youth or the path to immortality in humanity's reach. I plan to address the topic of immortality made possible through nanotechnology by who it would affect and the ethics behind the possible options one can consider in terms of whether immortality is something we should have. However, I do not plan to address the possibility of advancing space colonization programs in order to compensate for the extended population growth resulting from immortality.

As soon as the possibility of immortality through nanotechnology would be introduced, nearly everyone knowledgeable of the existence of proof that such a concept is finally brought to life would be affected, starting with the nano-engineers who made it possible in the first place.

The original concept was simple yet difficult to implement: design nanobots constructed with DNA to “automatically change [their] shape and delivers [the] cargo” (Katsnelson, 2012). The “cargo” is the antibody that will ultimately kill the targeted cell. After a few successful trial runs in animals, the nanobots are already being tested in human beings starting with one patient “set to receive an injection of DNA nanobots designed to interact with and destroy leukaemia cells without damaging healthy tissue” (Griffiths, 2015). So, the starting contributing nanotechnology is already in place for human trials and is one step ahead towards reaching the ultimate goal of longer life spans. Nano-engineers would benefit much from their business with doctors and medical technicians who would gladly invest in a new and better method in treating patients. Yet, nanobots are not without their weaknesses and imperfections. Since the nanobots used are mainly constructed out of DNA, they can be obstructed by other biomaterial from the liver or possibly from the immune system. However, being ahead of the game, nano-engineers have found ways to counter such obstructions with new molecular coating that makes the nanobots less of a target. Nanotechnology will continue to advance and it shows no signs of slowing down. Author and futurist, Ray Kurzweil, made the following statement as quoted in a Computerworld article: ““The full realization of nanobots will basically eliminate biological disease and aging. I think we'll see widespread use in 20 years of [nanotech] devices that perform certain functions for us. In 30 or 40 years, we will overcome disease and aging”” (Gaudin, 2009). Since there are nano-engineers working to make this happen, whether in this mentioned time period or not, the government playing its role in this matter must be up for consideration. Certain policies must be passed regarding whether individuals who plan to undertake nanobot-immortality treatment should have children or whether they may have such treatment for a certain amount of time. The

government should be aware that if such treatment was possible and already in effect, then it cannot come to the point where it is not regulated to keep the current population stable. Since the fear of death is an ever present fear, many people would want to invest in such treatment, whether they can afford to or not. If the everlasting life-bringing nanobots were made available to all people like produce you can buy at your local farmer's market, who knows how long those lines would be? If the technology was regulated to a price where only a small amount of people could afford it, then those who cannot would most likely find other means to obtain it and most of the time, those alternative methods would not seem pleasing at first glance. So to recap, our main stakeholders mentioned were the nano-engineers providing such appealing nanotechnology, the government that is faced with the task of regulated how it may or may not be distributed, the people who can afford such nano-treatment and the people who cannot.

As hinted previously, the introduction of long-life (if not eternal-life) giving nanobots can present a dilemma, particularly an ethical one. Should we take this technology to the point where we finally obtain immortality? Does immortality have a place in this world and if it does, who should bask in it? The technology is already on its way and even if it never reaches that point, one must beg these questions should immortality come some other way. If we were to provide answers to these questions, we would have to consider how life may change in a world where immortality has become a new reality. If everyone living in this world had access to the nanobot treatment, it would cause a surge in population if everyone continued to reproduce. Thus, we would risk overpopulation and would have to fix the issue at hand with government regulations (Brin). Not to mention that immortality on earth in this life is quite a sensitive topic towards religious individuals and it may stir up some backlash against facilities producing the very tech

that would bar them from embracing their key value of the afterlife if the religion speaks as such. Would it be right to impose this tech onto those whose beliefs would conflict with the notion of immortality on earth? It also brings up the question of whether they have a say in regards to the distribution of nanobot treatment in medical facilities and whether they should exist or not. Of course, under the courses of action that I will soon be outlining, no one is being forced to have to take such treatment as it is only meant to be inviting those who can afford it in the first place. Then, there is also the question of whether the people who cannot afford have a say at all as well. If there are enough people desperate enough who cannot afford longer lives, how can they share in the treatment? Should the nanotechnological treatment be easily available everyone, especially those in dire need of it? Depending on the values of the decision-maker, there is no one simple solution or answer to these questions as there is always a cost. However, there are at least a few options to consider, each having ethical support in its argument.

From the way I see it, there are two possible courses of action. We can either ban the whole practice of nanotechnological therapy and treatment so as not to generate these additional problems in the first place or we can allow the practice as long as it is well-regulated by the government, which decides how the treatment gets distributed to the public. If we go for the first option involving treatment ban, our population does not face instant instability and there will be little to no religious backlash. However, nano-engineers lose business while investing time trying to sell the product and alternative methods for curing disease, wounds, and aging must be considered. On the other hand, if we choose the second option where we allow nano-treatment, people who can afford it significantly live longer and the nano-business booms. However, there would be a possible halt to reproduction and religious backlash. Given these two options, we can

weigh the pros and the cons or we can choose the option that mostly correlates to our values. That is where the upcoming ethical frameworks come in.

Two ethical frameworks that can be applied to this dilemma are Kantian ethics (Non-consequentialism) and Utilitarianism (Consequentialism). If we follow Kantian ethics to decide to approach the first course of action, which involves banning nano-therapeutic treatment altogether, it must be banned because death is considered a natural aspect of life and without it, life would have little to no value or meaning. Without the notion of the inevitability of death, civilization would find no point to improve or value anything in life because we would have all of eternity to eventually set out towards a goal we made for ourselves in our precious lives. With death out of the picture, life would not be precious anymore since it will always be existent and possibly unchanging due to the lack of momentum to do something before the due date. We just sometimes need the drive of knowing that our lives may eventually come to an end and that we should make the best of our lives while we still can. Also, since death is a natural inevitability, then immortality must be considered unnatural and should have no place in the natural world. On the other hand, one can also argue for the second course of action, which involves allowing nano-therapeutic treatment, by the basis of Kantian ethics that life is too precious to let death take it away. Immortality should not be avoided but embraced as it is the ultimate goal of a species ensuring its own survival. Since death would be considered an evil in and of itself, it must be conquered and should not prevail any longer in this universe. Since we are all a part of life and death is its own separate dimension, life is good in and of itself and must be preserved. Now, if we follow Utilitarianism to decide to approach the first course of action instead, we may argue that our population is quite large already with at least 7 billion people and more on the

way. This planet cannot afford to have immortality become reality. It would destabilize commerce, introduce more poverty as we thin out our resources to cover everybody, and we would have to come to certain measures where we must stop reproduction altogether, which may lead to our dehumanization as we no longer choose to care for others and teach others what we have learned throughout our lives since they would have eternity to learn for themselves (YaleCourses, 2008). Therefore, the distribution of nanotechnology that provides an immortal future must be banned to keep our population stable and our humanity in check. On the other hand, if we decide to approach the second course of action instead, we may argue that we may be making lots of people happy that there is an option to possibly cure all diseases and even aging itself so there would be no need to fear natural death. Granted it does not fully enhance the human condition to the point where we would be invincible, but it would introduce the notion that what once would be uncontrollable like an unexpected disease could finally be controlled.

If the decision were up to me, I would apply both ethical frameworks, Kantian and Utilitarianism, to the second course of action, which again involves allowing the practice of nanotechnological therapy that could potentially extend human life. To clarify, I believe under Kantian principle that immortality should never become a possibility as it is unnatural and life becomes devalued if we take it for granted. Death is absolutely necessary as it is what drives civilization to flourish and prosper (Cave, 2012). It is what gives life value as we are compelled to live to the fullest while we still can, because it will not last forever. Under the principles of Utilitarianism, people deserve a chance to live long lives so that they can experience to their heart's content and be able to share stories of those experiences. So, practicing nanotechnological treatment, in my opinion, should be allowed but at the cost of setting a due

time where treatment would no longer be offered. The government must regulate this practice and create restrictions, such as reaching a certain age where treatment would cease and only those with employment, or mainly those who continue to make contributions to society, may receive such treatment. It would not make sense to grant longer lives to those who take it for granted or who cannot contribute back to society. To fix the population dilemma, those under nano-treatment must agree not to reproduce and any violations would result in immediate cancellation of treatment. In my opinion, this decision would generate the most good for most parties as the unnatural notion of immortality is never to become reality yet nanotechnology can still play a role in improving health.

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