



WHO Background Guide: Human Cloning and Cryonics

Chairs: Taek Kim & McKayla Hsu

Introductions

Hello everyone! My name is McKayla, and I'm a current junior at Fremont High School in Sunnyvale! I'm super excited to be chairing MAMUNC this year, especially since I was a delegate last year! Especially for this committee, I'm looking forward to all the different perspectives you guys bring to this conference, whether that be the ethical, logical, or scientific opinions. Outside of MUN, I enjoy playing volleyball, singing, and taking way too long of naps.

Fellow delegates! My name is Taek Kim, and I'm a current senior at Lynbrook High School in West San Jose. I am beyond excited to be serving as a chair for MAMUNC this year, and I cannot wait to see the amazing work we will accomplish together as a committee and the interesting resolutions that our committee will receive (spoiler alert much??). Outside of MUN, I enjoy yapping about politics, watching Prison Break on Netflix, and ignoring the alarms when taking naps!

Committee background

Human cloning is a feat of scientific and engineering innovations, with scientists discovering more with every day. These advances have allowed for a plethora of possibilities to be explored, such as cryonics, the act of freezing a body to essentially time travel, and the cloning of organs to save lives. In this committee, we will be focusing specifically on the act of

cloning organs or stem cells. However, the complicated topic of cloning also comes with complex ethical and moral gray areas, as well as the fear of human experimentation.

The study of cloning first started with assisted reproductive techniques where a scientist would fertilize an egg, which yielded a zygote. The fertilized egg could then be implanted into a woman's ovary, allowing her to give birth to a full child. This technique was then polished by animal breeders who wanted to isolate particularly valuable traits in an animal in order to pass it to as many species as possible. Research these days has been focused on the possibility of cloning stem cells, which are cells that have the ability to specialize into a specific type of cell in order to help with recovery in the body. No other cell can generate new cell types, which is why stem cells are extremely important. Some researchers also believe that stem cells could be used to help treat cancer thanks to their unique abilities. The different types of stem cells include brain cells, heart muscle cells, bone cells, and others, hence showing their importance in the body's ability to self-renew and perform maintenance. If their cloning is possible, it means that they could differentiate later in life to repair and replace either non functioning organs or diseased organs if anything were to fail. This is otherwise known as regenerative medicine. Regenerative medicine can be used as a replacement for organ donations, which are very few and far between, with many people in need of an organ. Stem cells could also be used to test new drugs and medicine before it goes out on the market to get a wider understanding of any possible side effects which has the potential to save thousands more lives. The controversy that surrounds the cloning of stem cells is that the stem cells in embryos that are 3-5 days old are the most versatile as they can differentiate into all necessary cells for life. Does an embryo count as a human? If so, is it okay that we are creating humans in laboratories for their stem cells?

Cryonics, on the other hand, refers to the freezing of an individual that has legally died in hopes of reviving or curing them in the future using any future technological and medical advances. It's extremely important that they can only begin the process of cryonics after the subject has been declared legally dead as cryonics has not been recognized as a proven medical procedure. They do this by freezing people at very low temperatures to preserve the body through the slowing of metabolism, the point of stopping any chemical changes for centuries. This allows for the body to be rewarmed in the future and rejuvenated through vitrification

mixtures later on if needed as the body did not decay. However, there are many ethical issues that pop up when talking about the topic of cryonics, as it allows people to seek eternal death through defying nature and the life cycle. If this is truly possible, it means humans are essentially granted the ability to play God, and to choose who lives and who dies. Other problems of cryonics include the high cost, as well as the unknown effects it may have on the environment and other side effects.

Current situation

Today, more than 500 bodies are receiving cryogenic therapy in hopes of being revived. It costs an average of \$200,000 to freeze the whole body and \$80,000 to freeze just the brain. Famous figures such as Billionaire Peter Thiel, actor Seth McFarlane, and musical artist Steve Aoki are signed up for cryonics. Though cryonics itself is legal in most countries, laws regarding legal death and property rights may make procedures more complicated.

As of today, 46 countries have banned cloning. Among countries where cloning is legal, South Korea is one of the countries continuing to pioneer cloning technology. For example, Dr. Hwang Woo-suk is a pioneering expert in stem cell and cloning research and caused the Hwang Affair, a case of scientific misconduct and ethical issues while performing cloning research.

Possible solutions

While considering the benefits and risks of human cloning and cryonics, it is important to weigh expert feedback and research. Therefore, solutions would be strengthened if they incorporate the voices of experts in the field. For example, a WHO-sponsored Human Cloning and Cryonics Council would have 100 experts to determine whether such solutions should be endorsed.

Another solution would be to create a universal legal framework around cloning and cryonics. Especially in cryonics, much ambiguity exists around legal death, property ownership, and such. Making sure that laws clearly state a yes or no on these procedures helps determine a country's stances and policies, and removing any anticipated ambiguity in any related laws would cause less damage and misunderstandings. For example, this can be accomplished by working with the

UN Office of Legal Affairs to create a committee of policy experts who consistently assess current biotechnology laws and update them accordingly every three years.

Questions to consider

1. What are the dangers of human cloning technology and cryonics?
2. Is there enough evidence that such practices are reliable or harmful?
3. What can be done to evaluate the impact of human cloning technology and cryonics?
4. What is your stance on the ethics behind the research into these topics?
5. Is it okay to defy the natural cycle of life and to allow people to seek eternal life at the possible expense of others?

Works Cited

- Armitage, Hanae. "Stanford Medicine Researchers Take Early, Critical Step toward Growing Organs." *News Center*, 30 Aug. 2022, med.stanford.edu/news/all-news/2022/08/stanford-medicine-researchers-take-early--critical-step-toward-g.html.
- Ayala, Francisco J. "Cloning Humans? Biological, Ethical, and Social Considerations." *Proceedings of the National Academy of Sciences*, vol. 112, no. 29, 20 July 2015, www.ncbi.nlm.nih.gov/pmc/articles/PMC4517218/.
- Best, Benjamin P. "Scientific Justification of Cryonics Practice." *Rejuvenation Research*, vol. 11, no. 2, 28 Apr. 2008, pp. 493–503, www.ncbi.nlm.nih.gov/pmc/articles/PMC4733321/, <https://doi.org/10.1089/rej.2008.0661>.
- "Frequently Asked Questions about Stem Cell Research." *Mayo Clinic*, www.mayoclinic.org/tests-procedures/bone-marrow-transplant/in-depth/stem-cells/art-20048117#:~:text=Therapeutic%20cloning%2C%20also%20called%20somatic.
- National Academy of Sciences. "Cloning: Definitions and Applications." *Nih.gov*, National Academies Press (US), 2016, www.ncbi.nlm.nih.gov/books/NBK223960/.
- National Human Genome Research Institute. "Cloning Fact Sheet." *National Human Genome Research Institute*, National Human Genome Research Institute, 15 Aug. 2020, www.genome.gov/about-genomics/fact-sheets/Cloning-Fact-Sheet.

“The President’s Council on Bioethics: Template.” *Georgetown.edu*, 2019,
bioethicsarchive.georgetown.edu/pcbe/topics/cloning_faq.html.

Vaughan, Don. “Cryonics | Description, Process, Popularization, & Facts | Britannica.”
Wwww.britannica.com, 8 Aug. 2023, www.britannica.com/science/cryonics.