LEGAL

Topic: Reconsidering the ethical suitability of CRISPR protocols in human gene editing
Committee: GA6 - The Sixth Committee (LEGAL)
Name: Demir Beren KURT - Bahri TOYGAR
Position: President Chair - Deputy Chair

A. Welcome Letter from the Student Officer:

Dear delegates of the LEGAL Committee,

I am Demir Beren KURT, currently studying at Feyziye Mektepleri Vakfı Işık Schools Ispartakule Campus as a 10th-grade student in the school's science class, and rather importantly, I am your president chair. I look forward to the many fruitful debates that will take place throughout the four days this conference will take place across. Do not hesitate to mail me to ask anything about this chair report or how our committee specifically will work, I would be more than happy to answer any questions you may have. You may send me an email at either one of the following email addresses.

My personal email address: demirberenkurt@hotmail.com
My school email address: demirberenkurt.i22@fmvisik.k12.tr

Greetings,

I am Bahri Çağrı Toygar, a student from The Koç School and I will be serving as your Deputy Chair for this year's Kabatas Model United Nations! It is my great pleasure to tell you that having the opportunity to attend a Model United Nations (MUN) conference is extremely valuable and I am thrilled on your behalf to be a part of this event. This year in the Legal Committee of the United Nations (UN) you are going to be delegates of a plethora of countries and endeavor to tackle the most pressing issues of our contemporary globalized world. Feel free to approach me during the entirety of the duration of the conference.

You can contact me via the email address:

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B. Introduction to the Committee

LEGAL is the 6th of the United Nations General Assembly committees. GA6 is where many delegates representing different nations and different beliefs come together in order to revolutionize international law and the judicial bodies of every member state. The main objective of LEGAL in this year's edition of KMUN is the human life and the safety of individuals who specialize in many areas such as journalism. The LEGAL's objective is usually fulfilled with the creation of new international judicial bodies, or the creation of new laws. The committee mostly works with fruitful and heated debates sourced from the different judicial beliefs of member states, cooperatively written resolution papers that try to find a middle ground for all members of the house, and negotiating points of informations that question the viability of one's opinions and the trustability of the given facts. This General Assembly committee aims to conclude the matters at hand on peaceful grounds.

C. Introduction to the Agenda Item

The idea of CRISPR has been around for the last 40 decades now, It has led the way to many miracles throughout the span of its usage ever since 1987. CRISPR technology has the force and power to unravel the possibility of human genetics, all by precisely editing the human genome. It holds the potential to get rid of diseases, enhance our idea of what is humanly possible, and eradicate genetic disorders. However, with all the great possibilities, the bad sides also come into play. The usage of CRISPR in order to change our understanding of human genetics has raised many legal, ethical and social questions. And to answer and qualify the questions' viability there needs to be cooperation and a unified stance.

CRISPR is short for "Clustered Regularly Interspaced Short Palindromic Repeats", it was first discovered back in 1987 by Yoshizumi Ishino and his colleagues. They discovered the repetitive parts of the bacteria's DNA which were the key to creating a bacteria that is immune to being infected by viruses. It was later discovered that this same science for protection from diseases can also be adapted by the average human body. But it was not until 2012 when Jennifer Doudna and Emmanuelle Charpentier published their groundbreaking paper demonstrating how CRISPR-Cas9 could be programmed to target specific DNA sequences, that the science world noticed this idea opened the door for even greater possibilities than what we knew before. The usage of CRISPR-Cas9 gave us the power to literally change human DNA.

But with the groundbreaking discovery, came the aforementioned questions. The power of CRISPR-Cas9 gave us the power to change the structure of a human germline. Which meant that we were able to create and design babies that were not even born yet. But this is only the ethical side, what about the legal side of this spectrum? Gene editing does not have enough regulations right now,

and for all we know anyone can use the power of CRISPR-Cas9. The lack of regulations also comes from the fact that the UN has never shown a sign of a cooperative stance in the area of gene editing. There have never been any papers released on the needed regulations for an issue as severe as gene editing and the issue of CRISPR-Cas9, our world certainly needs a cooperative and collaborative stance on this topic considering the possible side effects and wrongdoings gene editing can cause for the human race as a whole. What about singular countries, has there ever been the creation of any laws for countries? Yes, many countries such as the United States of America have implemented laws on the issue in the food sector, and also guidelines for the research upon gene editing and CRISPR-Cas9. On top of all these, there have also been the publications of guidelines for the usage of these technologies mainly inside the European Union. One of the milestone guidelines that has been released for the issue in hand is Directive 2001/20/EC. The directive regulates clinical trials of any medicinal products for human use, going as far as to regulate the usage of gene editing technology and the usage of CRISPR-Cas9.

So what does this all boil down to? It all comes to the same exit, there needs to be regulations stronger than the EU directives for the whole UN. The United Nations must be a key force in an issue such as the usage of CRISPR-Cas9 as it is an issue which bothers the whole globe, and the job of the UN is to unite the Nations of the world. While committees inside UNESCO and conferences on the topic of bioengineering exist in the grand scope of things, we need exact solutions and exact regulations. The area of bioengineering and gene editing is getting bigger and bigger each day as new revolutionary ideas and findings are coming into play.

D. Key Terms

CRISPR: Clustered Regularly Interspaced Short Palindromic Repeats, a technology used for editing genes.

Cas9 Protein: CRISPR-associated protein 9, an enzyme that can cut DNA at specific locations.

Gene Editing: The act of changing certain parts of human DNA

Genetic Discrimination: Differential treatment of individuals based on their genetic information.

Bioethics: Ethical issues that are arising from advances in biology and medicine.

Eugenics: The idea of creating a greater average specimen with the usage of a greater DNA

Germline Editing Regulations: The regulations that apply in a case of germline editing in order to protect the dignity and legal rights of one

Biotechnology: The use of living organisms or their systems to develop or make products, often involving genetic manipulation.

Human Genome Project: An international scientific research project aimed at mapping all of the genes of the human genome.

Homology-Directed Repair (HDR): A natural cellular process used to repair double-strand breaks in DNA. In the context of CRISPR, HDR is utilized to introduce precise genetic changes by providing a DNA template that the cell uses to repair the cut made by Cas9, thereby incorporating the desired genetic modification.

E. General Overview

Within the world of genetic building and molecular science, few advancements have been as progressive as CRISPR-Cas9. The short form of "Clustered Routinely Interspaced Short Palindromic Rehashes," CRISPR is a capable device that has changed our capacity to control the basic building squares of life. Initially found in archaea and afterward in microbes by the visionary researcher Francisco Mojica of the College of Alicante in Spain, CRISPR was at first proposed as a portion of the bacterial safe framework, a hereditary memory that makes a difference when cells identify and devastate attacking infections.

Mojica's groundbreaking work, proposing the work of CRISPRs, laid the foundation for an unused period in hereditary building. His hypothesis was tentatively approved in 2007 by a group of researchers driven by Philippe Horvath. The rehashing groupings of hereditary code, hindered by "spacer" groupings, turned out to be remainders of genetic code from past intruders, serving as a hereditary memory that helps within the cell's defense against returning intruders, known as bacteriophages.

Be that as it may, it was not until January 2013 that the genuine potential of CRISPR was unleashed when the Zhang lab distributed the primary strategy to build CRISPR to alter the genome in mouse and human cells. This breakthrough cleared the way for a cascade of disclosures and developments that have changed not just the field of molecular science but the whole scene of biomedical inquiry.

CRISPR-Cas9, and its various cycles like CRISPR-Cpf1 and CRISPR-Cas13, are frameworks that can be modified to target particular extensions of hereditary code with exceptional accuracy. These frameworks have opened up unused roads not as it were for altering DNA at exact areas but

moreover for other purposes such as making unused demonstrative devices. The innovation empowers analysts to forever adjust qualities in living cells and life forms, advertising the tantalizing plausibility of correcting mutations at exact areas within the human genome to treat hereditary causes of malady. The component is richly straightforward however significantly capable. CRISPR "spacer" groupings are deciphered into brief RNA arrangements, known as "CRISPR RNAs" or "crRNAs," competent of guiding the framework to coordinating arrangements of DNA. Once the target DNA is found, Cas9, one of the chemicals delivered by the CRISPR framework, ties to the DNA and cuts it, viably shutting off the focus on quality. In addition, utilizing altered forms of Cas9, analysts can indeed enact quality expression instead of cutting the DNA, permitting for the thinking of quality work in phenomenal detail.

Past its applications in essential investigation, CRISPR genome altering has enabled researchers to rapidly create cell and creature models, quickening the investigation into illnesses such as cancer and mental illness. Furthermore, CRISPR is presently being created as a fast symptomatic device, illustrating its flexibility and potential affect over assorted areas of science and pharmaceutical.

To encourage and empower investigations around the world, Feng Zhang and his group have played an essential part. They have prepared thousands of analysts within the utilization of CRISPR genome altering innovation through coordinate instruction and by sharing more than 40,000 CRISPR components with scholastic research facilities around the world, democratizing this groundbreaking innovation.

The travel of CRISPR, from its humble revelation in archaea and microbes to its transformative applications in genome designing, speaks to a confirmation to the control of logical curiosity and collaboration. Endless researchers and investigation groups have contributed to our understanding and improvement of the CRISPR framework, from its initial revelation to the primary showings of CRISPR-mediated genome altering. The CRISPR timeline is populated with the names of brilliant minds who have collectively moved humankind into a modern time of hereditary investigation and restorative plausibility.

F. Timeline of Key Events

Date	Description of the Event
2007	Mojica's theory was experimentally demonstrated in 2007 by a team of scientists led by Philippe Horvath.
January 2013	Zhang lab published the first method to engineer CRISPR to edit the genome in mouse and human cells.
1993 - 2005	Discovery of CRISPR and its function
May, 2005	Discovery of Cas9 and PAM

G. Major Parties Involved

a. Biotechnology Companies

Biotechnology companies are at the cutting edge of creating CRISPR treatments and applications. These companies, such as Editas Medication, CRISPR Therapeutics, and Intellia Therapeutics, are spearheading the utilization of CRISPR innovation to form imaginative medicines for a range of hereditary disorders. They initiate investigations and foster improvement to improve CRISPR's potential to open the doors for hereditary transformations, create quality treatments, and make hereditarily altered life forms for inquire about and helpful purposes. Biotech companies regularly collaborate with scholars, governmental offices, and other industry personnel to develop their investigations.

b. Pharmaceutical Companies

Pharmaceutical companies play a significant part within the commercialization and application of CRISPR treatments. These companies frequently contribute to CRISPR investigation and improvement, by collaborating with biotech firms and investigating education. Pharmaceutical

companies such as Pfizer, Novartis, and Johnson & Johnson often investigate the integration of CRISPR innovation into their medicate improvement pipelines, centering on its potential to revolutionize treatment ideal models for an assortment of infections, counting cancer, hereditary disorders, and irresistible diseases. They are included within the thorough clinical testing required to guarantee the security and adequacy of CRISPR-based medicines that are not utilized, and they work to explore the administrative endorsement to bring these treatments to advertise. By leveraging their broad assets and mastery in advancement, pharmaceutical companies are fundamental in interpreting the guarantee of CRISPR innovation into broadly accessible medications, subsequently having a tangible effect on wellbeing.

H. Previous Attempts to Resolve the Issue

The coming of CRISPR innovation has started a worldwide talk about its moral suggestions, especially with respect to human genome altering. The Joined together Countries and other organizations have made some endeavors to address these concerns. UNESCO's Widespread Statement on the Human Genome and Human Rights (1997) and the Universal Announcement on Human Hereditary Information (2003) emphasize acknowledging human respect. UNESCO's All inclusive Statement on Bioethics and Human Rights (2005) improves these standards to various bioethical issues. The National Institutes of Sciences, Building, and Medication (NASEM) distributed a comprehensive report in 2017 deciding upon the rules for the moral use of CRISPR, whereas the Universal Summit on Human Quality Altering (2015), organized by NASEM, the Regal Society, and the Chinese Foundation of Sciences, called for cautious worldwide participation. The World Well-Being Organization (WHO) set up a master counseling committee in 2019 to create worldwide guidelines and an awareness for human genome altering. National endeavors, such as the European Bunch on Morals in Science and Modern Advances (EGE) and the UK's Nuffield Committee on Bioethics, have moreover given moral rules and suggestions, emphasizing societal agreement and the adjustment between development and human rights. These collective endeavors point to form a dependable and moral system for the utilization of CRISPR innovation in human gene altering.

I. Relevant UN Treaties, Resolutions and Events

"International Declaration on Human Genetic Data." *UNESCO.Org*, 16 Jan. 2023, www.unesco.org/en/ethics-science-technology/human-genetic-data.

"Universal Declaration on Bioethics and Human Rights." *UNESCO.Org*, www.unesco.org/en/ethics-science-technology/bioethics-and-human-rights. Accessed 7 June 2024.

"Universal Declaration on the Human Genome and Human Rights." *UNESCO.Org*, 11 Nov. 1997, www.unesco.org/en/legal-affairs/universal-declaration-human-genome-and-human-rights.

J. Possible Solutions

The ethical concerns regarding the application processes of newly developed technology have always been a topic of mass dilemma, even if it is not regarding human gene alterations. Contemporary technology has developed extremely rapidly, resulting in an impulsive reaction from the public. CRISPR being about human life, human genes and the fundamental nature of human existence has resulted in even more ethical concerns raised by human rights activists as well as various organizations. One step towards solving the issue can be establishing legal frameworks that collaborate with investigator organizations in an attempt to distinguish the ethical from unethical. The boards or legal bodies should be established without breaching the sovereignty of any nation. The frameworks contribute to a more globalized understanding, which can foster mutual legal implementations. The delegates might also refer to the UNSC in an attempt to decide upon taking definitive actions, if their delegation perceives it necessary to take imperative action by using the power of the Security Council. The delegates should also bear in mind that technological development cannot be stopped or slowed down in contemporary society hence they are advised to find realistic solutions accordingly.

K. Further Reading

"Human Genome Editing: Science, Ethics, and Governance." *National Center for Biotechnology Information*, U.S. National Library of Medicine, pubmed.ncbi.nlm.nih.gov/28796468/. Accessed 7 June 2024.

"European Group on Ethics." *Research and Innovation*, research-and-innovation.ec.europa.eu/strategy/support-policy-making/scientific-support-eu-policies/european-group-ethics_en. Accessed 7 June 2024.

"Homepage." *The Nuffield Council on Bioethics*, www.nuffieldbioethics.org/. Accessed 7 June 2024.

Olson, Steven. "International Summit on Human Gene Editing: A Global Discussion." *International Summit on Human Gene Editing: A Global Discussion.*, U.S. National Library of Medicine, 1 Jan. 2016, www.ncbi.nlm.nih.gov/books/NBK343651/.

"World Health Organization (WHO)." *World Health Organization*, World Health Organization, www.who.int/. Accessed 7 June 2024.

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"Universal Declaration on the Human Genome and Human Rights." *UNESCO.Org*, 11 Nov. 1997, www.unesco.org/en/legal-affairs/universal-declaration-human-genome-and-human-rights.