



# CRIMEA STATE MEDICAL UNIVERSITY



DEPARTMENT OF MEDICAL BIOLOGY

DESIGNER BABY IS IT EUGENICS?  
CLASS-14

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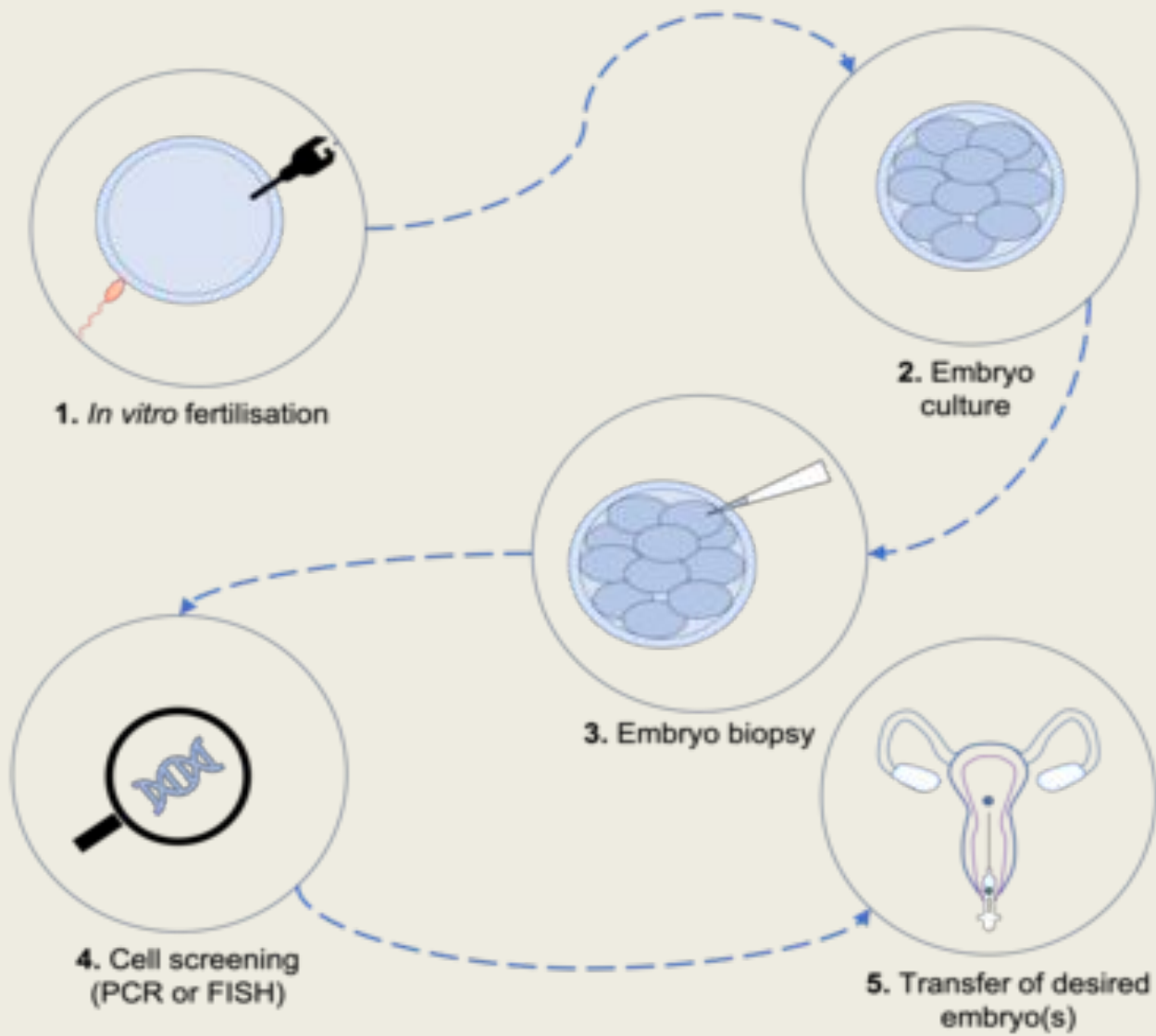
# DESIGNER BABY

A designer baby is an embryo that has been genetically modified (or gene-edited) for the sake of producing a child with specific traits. In some cases, unfavorable characteristics or bad traits (like genetic disease) may be removed, or favorable traits (like enhanced intelligence or strength) might be added.



# MECHANISM

- Embryos for PGD are obtained from IVF procedures in which the oocyte is artificially fertilised by sperm. Oocytes from the woman are harvested following controlled ovarian hyperstimulation(COH), which involves fertility treatments to induce production of multiple oocytes.
- After harvesting the oocytes, they are fertilised *in vitro*, either during incubation with multiple sperm cells in culture, or *via* intracytoplasmic sperm injection (ICSI), where sperm is directly injected into the oocyte. The resulting embryos are usually cultured for 3–6 days, allowing them to reach the blastomere or blastocyststage.



# HUMAN GERMILLINE ENGINEERING

- Human germline engineering is a process in which the human genome is edited within a germ cell, such as a sperm cell or oocyte (causing heritable changes), or in the zygote or embryo following fertilisation.
- This process differs from somatic cell engineering, which does not result in heritable changes. Most human germline editing is performed on individual cells and non-viable embryos, which are destroyed at a very early stage of development. In November 2018, however, a Chinese scientist, He Jiankui announced that he had created the first human germline genetically edited babies.

# VECTORS USED

- These vectors are of two types
- 1. viral vectors
- 2. Non viral vectors

# VIRAL VECTORS

- [Viruses](#) infect cells by transducing their genetic material into a host's cell, using the host's cellular machinery to generate viral proteins needed for replication and proliferation.
- [Retroviruses](#) are some of the most commonly used viral vectors, as they not only introduce their genetic material into the host cell, but also copy it into the host's genome. In the context of gene therapy, this allows permanent integration of the gene of interest into the patient's own DNA, providing longer lasting effects

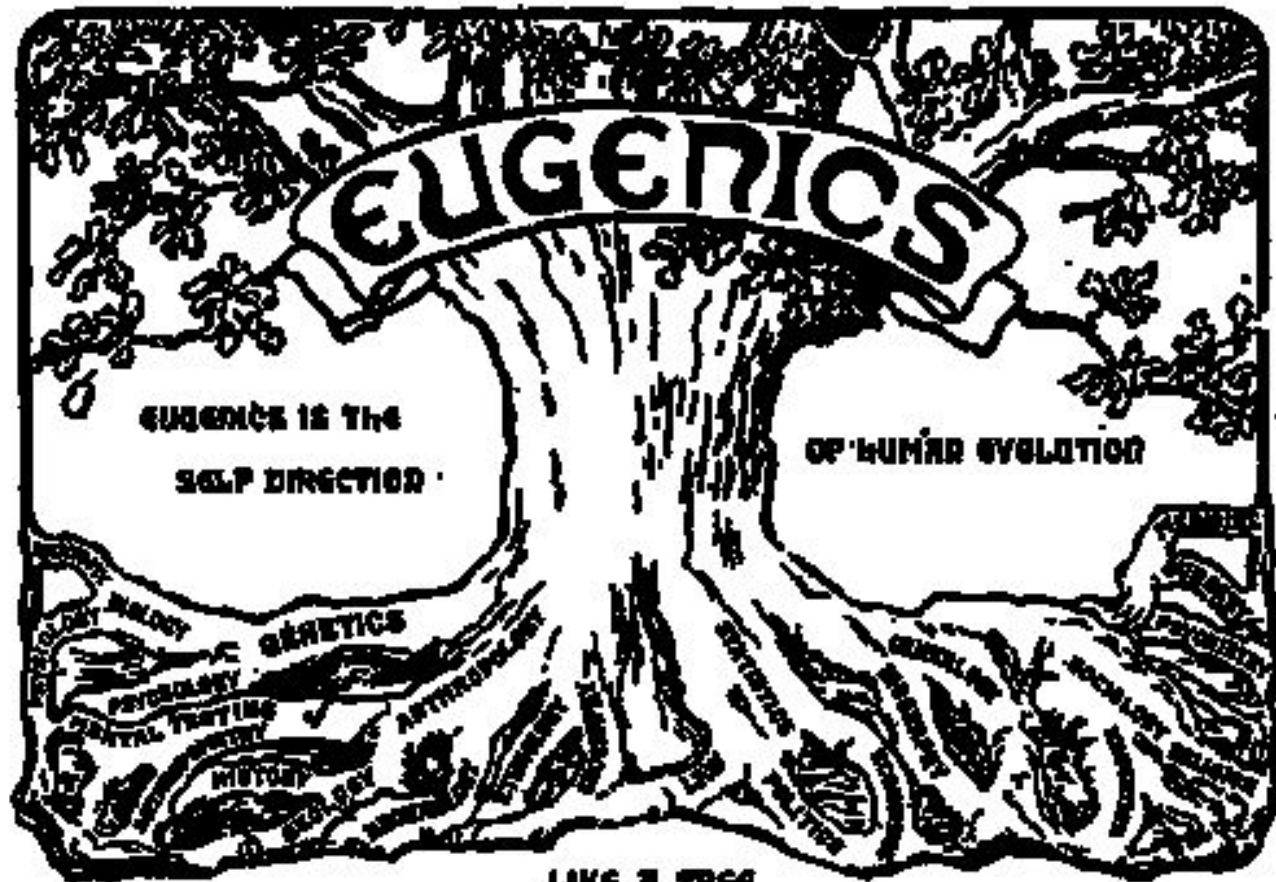
# NON VIRAL VECTORS

- Non-viral methods of nucleic acid [transfection](#) involved injecting a naked DNA [plasmid](#) into cell for incorporation into the genome. <sup>[34]</sup> This method used to be relatively ineffective with low frequency of integration, however, efficiency has since greatly improved, using methods to enhance the delivery of the gene of interest into cells. Furthermore, non-viral vectors are simple to produce on a large scale and are not highly immunogenic.
- Some non-viral methods are detailed below:
- [Electroporation](#)
- The [gene gun](#)
- [Oligonucleotides](#)



# EUGENICS .....

- **Eugenics** ([/ju:'dʒɛnɪks/](#); from [Greek](#) εὖ- "good" and γενής "come into being, growing")<sup>[2][3]</sup> is a set of beliefs and practices that aim to improve the [genetic](#) quality of a [human population](#), typically by excluding people and groups judged to be inferior and promoting those judged to be superior.



**LIKE A TREE  
EUGENICS DRAWS ITS MATERIALS FROM MANY SOURCES AND ORGANIZES  
THEM INTO AN HARMONIOUS ENTITY.**

## **EUGENICS IS LIKE A TREE**

It is self directed evolution .

# HISTORY OF EUGENICS

- began in the early 20th century, when a popular eugenics movement emerged in the United Kingdom and then spread to many countries.
- In this period, people from across the political spectrum espoused eugenic ideas.
- Such programs included both *positive* measures, such as encouraging individuals deemed particularly "fit" to reproduce, and *negative* measures, such as marriage prohibitions and forced sterilization of people deemed unfit for reproduction.

# EUGENIC CERTIFICATE

THIS GUARANTEES that  
I have examined the sender  
of this card and find a perfect  
PHYSICAL and MENTAL BALANCE  
and unusually strong  
EUGENIC LOVE possibilities,  
well fitted to promote the  
happiness and future welfare  
of the race.



*Ima D. Fiske* M.D.



# BOONS

- Loss of genetic diversity .
- Eugenic policies may lead to a loss of genetic diversity  
Further, a culturally-accepted "improvement" of the gene pool may result in extinction, due to increased vulnerability to disease, reduced ability to adapt to environmental change, and other factors that may not be anticipated in advance. This has been evidenced in numerous instances, in isolated island populations. A long-term, species-wide eugenics plan might lead to such a scenario because the elimination of traits deemed undesirable would reduce genetic diversity by definition.

# ETHICS..

- Societal and political consequences of eugenics call for a place in the discussion on the ethics behind the eugenics movement. Many of the ethical concerns regarding eugenics arise from its controversial past, prompting a discussion on what place, if any, it should have in the future.
- Therefore, eugenics is no longer *ex post facto* regulation of the living but instead preemptive action on the unborn.



## HEROES OF THE CULTURE OF DEATH



"The most merciful thing that a large family does to one of its infant members is to **kill it.**"

—Margaret Sanger

Founder of Planned Parenthood

*From her book, Women and the New Race, Chapter 5: The Wickedness of Creating Large Families*

# WOULD 'DESIGNER BABIES' HERALD A NEW ERA OF EUGENICS?





# DESIGNER BABIES ARE NOT POSSIBLE WITHOUT EUGENICS .

- September [2018] saw the announcement from scientists of the first manufacture of human egg cells in the lab.
- ...
- Despite the apparent breakthrough, it will be years yet before lab-created sex cells are ready for use in human reproduction. But the development nonetheless raises the question of whether it is a milestone on the road toward ... a world of cloning, designer babies, and children with four genetic parents. ...
- A century after the heyday of eugenics, morally obtuse advocates for human enhancement, along with a collection of libertarians and assorted cranks, continue to hold out hope for its return in a redeemed form, one that is voluntary and medical rather than state-controlled and racist.

## EDITING THE HUMAN GENOME BRINGS US ONE STEP CLOSER TO CONSUMER EUGENICS



- Where genetic engineering really can do something that embryo selection cannot is in genetic enhancement – better known as designer babies.. We have already seen that dynamic at work with the “three-parent IVF” technique developed for very rare mitochondrial genetic conditions. Already, a scientist has created babies that way in Mexico (specifically to avoid US regulations) and a company has been set up with the aim of developing the science of designer babies. Not possible without eugenics

# CONCLUSION ON DESIGNER BABIES

- *Although there are some benefits in creating a designer baby we believe that the risks are much greater than the possible positive outcomes that might take place .*
- *Even though altering your child's genes could save someone's else life it can also leave your child with harmful viruses and mutations .*

*Thank You  
For Your Attention*

