

General Studies – 3; Topic: Science and Technology- developments and their applications and effects in everyday life

Designer Babies

1) Introduction

- Designer baby refers to a baby whose genetic makeup has been artificially selected by genetic engineering combined with in vitro fertilization to ensure the presence or absence of particular genes or characteristics
- In simpler terms, using biotechnology to choose what type of baby you want.
- Latest research is making designer babies a reality now, using technology developed originally for use in animals.
- The gene editing technique using such DNA scissors is titled “CRIPSR/Cas9”.

2) Advantages

- Reduces risk of genetic diseases and inherited medical conditions.
- Eliminate cancer or HIV
- Increased life span
- Prevent next generation of family from getting characteristics/diseases
- This offers parents the chance to select an “ideal” future child.
- We could be stronger and smarter which would lead to the possibility of even more discoveries to the benefit of the human race.
- Better understanding of genetics for biologists and medical professionals.

3) Negatives

- Possibility of damage to the gene pool
- Baby has no choice in the matter
- Loss of Individuality
- Strong cultural preferences for the male child in an era of designer babies could lead to a further deterioration of the sex ratio
- Tampering with the will of nature
- This could lead over time to a lack of diversity if the same traits were chosen over and over again.
- Detrimental to the evolution of the human race which has historically thrived on diversity.
- This could lead to the human race being even more divided and unequal
- Could create a gap in society. This could create “classes” between designer and non designer babies.

4) Concerns / Challenges

- CRISPR could miss the target gene and attach to another similar sequence, thereby creating properties far different from the intended outcomes.
- This leaves the embryo vulnerable to genetic diseases, leaving future generations to suffer from the error.
- Genetic changes/ alterations take years to manifest and side effects are much more.
- Gene modification has the potential to impact the gene pool of entire human race in a negative or positive way.
- Ethical concerns on experimenting with fertilised eggs and embryos and killing the unwanted ones.

- With only wealthy people being able to afford these genetic modifications, the divide between the rich and the poor would grow exponentially
- Creating a designer baby essentially change the life and mind of a living human being without taking the person's permission or choice.
- May accidentally give rise to new forms of illnesses that scientists are not yet aware of.

5) **Way Forward**

- Data from gene trials should be open to the wider public for greater transparency and abundant caution
- Develop rigorous internationally accepted scientific protocols as well as clear ethical norms and practices.
- Need for global conversations with India and her stakeholders involving government and scientific establishments.
- Genetic interventions should only be used to alleviate extraordinary suffering.
- These interventions should be used on genes that are clearly implicated in diseases, and not genes where the link to the illness is weak or speculative
- The interventions should not be carried out without state mandate or state supervision.

6) **Conclusion**

- Designer babies represent great potential in the field of medicine and scientific research, but there remain many ethical questions that need to be addressed.

