



# How Technology is Curing Unpreventable Diseases

Prahlad Oruganti

02/12/2026

## Introduction

Why are we born how we are? It is because of DNA, although not everyone is born the same. We all contain different DNA that makes us who we are. But, DNA is not always perfect and makes errors. Studies show that the “average person has around four hundred defects”(Stein, 12, 1) at birth. We are all born with errors, although some are more serious than others which is why we need new technology to prevent any further dangers. CRISPR is the perfect solution for this being a new innovative technology that can solve all of these problems.

## Background

Medical textbooks are portals to learning for healthcare professionals, nurses, physicians; they not only introduce diseases and their symptoms, but guide providers through the process of diagnoses. And if they are not exposed to “different backgrounds, body shapes, and ethnicities,” they are not going to be able to “appropriately engage with those patients in the clinic.” (Roller, 2024). Thus, this lack of representation not only affects the present POC patients, but also the future of healthcare providers’ efficiency in patient care.

## Technology

Having faulty DNA is not the real concern, it is the mutation that it results in. The mutation is the real defect that occurs in our bodies, and the only way to prevent it is CRISPR. CRISPR is the main technology that

is being used in this field. CRISPR is a tool that helps identify and remove faulty DNA. It also has three crucial parts to it, and its first is its DNA recognition technology, otherwise known as Guide RNA, to help find and secure the strand of DNA that is causing the problem. This part of CRISPR is extremely developed and it is the most crucial part of solving the problem. The second is its Off-Target Prediction Software. This ensures that CRISPR only cuts the intended DNA gene and not those around it. Furthermore, it also scans the genome for lookalike sequences to ensure that the side effects are minimal. And the last crucial part is the DNA Editing Simulator. It is arguably one of the most important parts of CRISPR. It tells CRISPR whether to insert, delete, or replace a DNA sequence, which is what plays a role in truly solving the defect for good. These three crucial parts of CRISPR are what made CRISPR the life saving technology that it is today. CRISPR is an embedded part of our society and is changing the lives of millions of families.

## **Applications**

CRISPR is one of the biggest bio-technological developments of our time. We are already seeing it change millions of lives. CRISPR, being able to change inherited errors in humans, is saving many diseases that are seriously life threatening. CRISPR is being used to treat sickle cell disease, certain forms of blindness, and even cancer. CRISPR can not only change our birth defects, but can also change how our body fights or prevents other diseases. Although CRISPR is not just used in biotechnology, it can also be used in agriculture. CRISPR is being used to modify plants to prevent fungi and other harmful creatures. This would also eliminate the need for pesticides making the world a safer place. CRISPR could also retain biodiversity by allowing for endangered species to have favorable traits and have a higher chance of survival. Furthermore, CRISPR can also detect life threatening viruses and mutations in a much quicker and more cost-efficient route than current technology. CRISPR has many purposes rather than removing defected genes in humans. Its technology is not only impacting us but also the world around us in many great ways. CRISPR is not only saving us, but also the world around it, making it one of the greatest technological enhancements of our time. It is certain that CRISPR will only continue to improve.

## **Conclusion**

To conclude, CRISPR is one of the greatest innovations of our time. It fixes errors in our body that we are born with. CRISPR can substitute, insert, or delete genes which would prevent the risk of gene error. CRISPR's three main parts are Guide RNA, Off-Target Prediction Software, and DNA Editing Simulator which all play a crucial part in defining what CRISPR really is. Also, it is developed in a way that can fend off disease and

change how our body works. It can be used to tune our bodies into defending better against diseases like cancer. Although CRISPR is not only used in helping humans, it is used in agriculture, biodiversity, and it is also a safe and cost effective solution. CRISPR can detect disease before they even pose a threat and can save the future generations of many dying ecosystems. CRISPR is a versatile technology that has a wide variety of uses and is the future of technology that the world needs, changing millions of lives.

## References

- Fernández, C. R. (2021, November 3). *CRISPR-Cas9: How this Gene Editing Tool Is Changing the World*. Labiotech.eu. <https://www.labiotech.eu/in-depth/crispr-cas9-review-gene-editing-tool/>
- Huang, C., Li, Q., & Li, J. (2022). *Site-specific genome editing in treatment of inherited diseases: possibility, progress, and perspectives*. 2(5), 471–500. <https://doi.org/10.1515/mr-2022-0029>
- Kolanu, N. D. (2024). CRISPR-Cas9 Gene Editing: Curing Genetic Diseases by Inherited Epigenetic Modifications. *Global Medical Genetics*, 11(1), 113–122. <https://doi.org/10.1055/s-0044-1785234>
- NCI. (2020, July 27). *How CRISPR Is Changing Cancer Research and Treatment - National Cancer Institute*. [Www.cancer.gov; National Cancer Institute. https://www.cancer.gov/news-events/cancer-currents-blog/2020/crispr-cancer-research-treatment](https://www.cancer.gov/news-events/cancer-currents-blog/2020/crispr-cancer-research-treatment)
- Perfection Is Skin Deep: Everyone Has Flawed Genes*. (2012, December 6). NPR. <http://npr.org/sections/health-shots/2012/12/06/166648187/perfection-is-skin-deep-everyone-has-flawed-genes>