

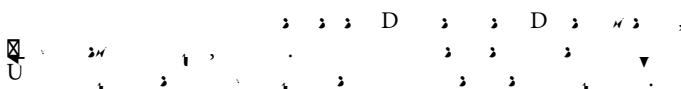
Abstract

The field of synthetic biology aims to alter, restore, or boost shape or function. Established in the late 20th century, recombinant DNA technologies have revolutionized the field. CRISPR/Cas systems for genome editing have supplemented these conventional methods [1].

CRISPR/Cas systems for genome editing have been developed since the introduction of CRISPR/Cas systems for genome editing [2]. This new technology has led to continuous developments in the field of synthetic biology, particularly in the area of repair mechanisms: non-homologous end-joining and homology directed-repair [3].

Non-homologous end-joining (NHEJ) is a double-strand break repair mechanism that involves the joining of two DNA ends without the use of a homologous template. It is characterized by its high error rate, which can lead to insertions or deletions (indels) at the site of the break. Homology-directed repair (HDR) is another repair mechanism that involves the use of a homologous template to repair a double-strand break. It is characterized by its high accuracy and precision, but it requires a homologous template to be present in the cell.

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References

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