

## A Critical Look on Clustered Regularly Interspaced Short Palindromic Repeats Method Based on Different Mechanisms

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**Abstract :** Clustered Regularly Interspaced Short Palindromic Repeats, CRISPR associate (CRISPR/Cas) is an adaptive immunity system found in bacteria and archaea. It has been modified to serve as a potent gene editing tool. Moreover, it has found widespread use in the field of genome research because of its accessibility and low cost. Several bioinformatics methods have been created to aid in the construction of specific single guide RNA (sgRNA), which is highly active and crucial to CRISPR/Cas performance. Various Cas proteins, including Cas1, Cas2, Cas9, and Cas12, have been used to create genome engineering tools because of their programmable sequence specificity. Class 1 and 2 CRISPR/Cas systems, as well as the processes of all known Cas proteins (including Cas9 and Cas12), are discussed in this review paper. In addition, the various CRISPR methodologies and their tools so far discovered are discussed. Finally, the challenges and issues in the CRISPR system along with future works, are presented.

**Keywords :** gene editing tool, Cas proteins, CRISPR, guideRNA, programmable sequence

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