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NgAgo as a DNA-guided Gene Editing Tools in Prokaryotes and Eukaryotes

A new gene editing technology utilizing Argonaute targets specific DNA regions with increased precision, offering a more flexible alternative to current methods for use in both prokaryotes and eukaryotes.

Gene editing has been a much sought after and very controversial technology. Clustered Interspaced Short Palindromic Repeats (CRISPR) is the current widely known gene editing technology. The problem with this current technology is it restricted to targeting regions adjacent to a specific motif. Another issue with CRISPR is that it can cause mutations throughout the genome. This problem accounts for one of the reasons that gene editing is such a controversial topic. There is a need for a new gene editing technology that could potentially solve these controversial issues.

Researchers at Purdue University have developed a new technology pertaining to gene editing. This new method consists of Argonaute from Natronbacterium gregoryi or its mutants that target the enzyme to cleave specific regions of a chromosome or other extra chromosomal genetic material. The DNA guides are designed as 24 nucleotides complementary to a gene of interest. This technology reduces random cleavage and may be used for targeting gene editing. This new technology could open the door for how gene editing is approached in the future.

Advantages:

-More flexible

-Not restricted to certain regions

Potential Applications:

-Gene editing

-Prokaryotes and Eukaryotes

TRL: 3

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Category
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Biotechnology & Life Sciences/Cell & Gene Therapy Platforms

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