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Gene Targeting Using VirE2 Mutant Agrobacterium Strains

A unique technology enables efficient Agrobacterium-mediated gene targeting by introducing T-DNA without the VirE2 protein, significantly reducing off-target effects and eliminating the need for cumbersome protein scaffolds.

Agrobacterium-mediated plant transformation is the core technology for introducing genes into plants. Usually, transferred DNA (T-DNA) is integrated into the plant genome in order to stably transform plants. Scientists now wish to use Agrobacterium to deliver DNA that will target plant genes for specific use as gene transfer technology has become more sophisticated. However, this has previously not been possible at a usable frequency. Scientists have also tried to target specific genes; however, off-targeting, which is targeting of related but not identical genes, is a major problem. These methods are cumbersome and require building complex proteins for targeting.

Researchers at Purdue University have developed a unique technology of gene targeting by introducing T-DNA into the plant in the absence of VirE2 protein. It will provide a method of efficient gene targeting without building cumbersome protein scaffold systems. It will also likely have fewer off-target effects.

Advantages:

-Efficient gene targeting

-Fewer off-targets

Potential applications:

-Biological identification

-Genetic markers

-Gene replacement

-Genome editing

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Category

Biotechnology & Life Sciences/Synthetic Biology & Genetic Engineering

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Intellectual Property:

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