Regulation of Plant Nodulation by Rhizobial tRNA-Derived Small RNAs

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- Agriculture
- Biotechnology

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- Crop Yield
- Legume
- Nitrogen-Fixation
- Nodulation
- Plants

Nitrogen-fixation is often the limiting factor for plant growth and crop yield, because nodulation is hindered by inefficient interactions between Rhizobial bacteria and plants. This technology uses tRNA-derived small RNAs to increase root hair curling and nodule number in legumes. Through gene editing of plants with the tRNA-derived small RNAs, the number of productive Rhizobial infections is dramatically increased. Genetic engineering of plants to promote nodulation has applications in enhancing nitrogen-fixation in legumes and in extending nitrogen fixation capabilities to non-legumes.

Advantages:
-Improved nitrogen fixation
-Lower cost of inputs

Potential Applications:
-Engineering plants to improve nitrogen fixation

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