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Root Specific Promoter for the Development of Transgenic Plants

AzTE Cases # 99-034 & M02-005

Inventors

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Invention Description

This invention provides a novel promoter useful for obtaining extremely high levels of cellular transcription and translation. As a result, production of high levels of heterologous proteins is possible.

The significance of this product lies in both the strength and the specificity of the promoter for transgene expression in plants and plant tissue as compared to all existing technologies. Research has demonstrated these outcomes by monitoring the expression of heterologous jellyfish green fluorescence protein (GFP) using novel promoter and comparing it with levels expressed from the cauliflower mosaic virus (CaMV) 35S promoter.

This promoter is also very beneficial for use with genes targeted for expression in plant roots.

Potential Applications

Genetically engineered plants have enhanced protection against a variety of stresses and pests; improve yield, as well as other specific traits that enhance the agricultural product.

In particular, this invention enables neutracueticals to be engineered into plants such that the plant contains enhanced levels of natural vitamins or other beneficial organic compounds.

Some of the many potential applications include:

- Introduction of enhanced levels of vitamins and minerals
- Design of plants for bioremediation and soil reclamation, especially for soils contaminated with heavy metals or other chemical substances

Benefits and Advantages

The invention offers several key benefits including:

- **Enhanced promoter strength and specificity** – a critical factor for the successful introduction of any heterologous gene into plants
- **Production of high levels of heterologous genes in plants** – the natural result of increased promoter strength and specificity
- **Effective expression of plant root genes**

Intellectual Property Status:

U.S. patent 6,936,708

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