

EIN6: Novel Gene Required for Ethylene Response

INVENTION:

Investigators at the Salk Institute have identified Ethylene Insensitivity 6 (EIN6), a novel gene that is required for normal ethylene responses in plants. The invention describes a mutated form of the EIN6 gene (*ein6*) that results in an altered response to ethylene, including an ethylene insensitive root (EIR) phenotype. A double mutant consisting of the mutant EIN6 gene and a mutated form of the Enhancer of Ethylene Insensitivity (EEN) gene results in ethylene insensitivity throughout the plant in contrast to the EIR phenotype found in the *ein6* single mutant. Expression of the mutant proteins can be regulated in a temporal or tissue specific manner, allowing for manipulation of ethylene sensitivity in certain tissues and/or at a specific stage of the plants lifecycle.

APPLICATIONS:

- Food crops
- Floriculture crops

ADVANTAGES:

- Enhancement of floral and fruit longevity and shelf life
- Allows for control of fruit ripening
- Increase of plant biomass

STAGE OF DEVELOPMENT: Discovery in Arabidopsis

BACKGROUND:

The gaseous plant hormone ethylene modulates a diverse array of biological processes in plants including cell elongation, senescence and abscission of leaves and flowers, fruit ripening and responses to a wide variety of biotic and abiotic stresses. The ability to genetically manipulate ethylene production will provide agriculture with new tools to prevent detrimental effects (senescence) or provide the beneficial properties of ethylene responsiveness, such as controlling fruit ripening.

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PUBLICATIONS:

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