NH3 Polypeptide Driven Disease Resistance in Plants

Tech ID: 21021 / UC Case 2010-786-0

ABSTRACT

Researchers at the University of California, Davis have developed a method to enhance disease resistance in plants.

FULL DESCRIPTION

Plants survive pathogen attack by using various defense strategies including the induction of pathogenesis-related (*PR*) genes. After an initial local infection, systemic acquired resistance (SAR) occurs which induces a set of *PR* genes, leading to enhanced resistance against a broad spectrum of pathogens. Constitutively active defense responses, however, waste energy and resources and lead to undesirable consequences such as dwarf plants.

Researchers at the University of California, Davis have developed a method that enhances disease resistance in plants by overexpression of NH3 polypeptide. Treatment in transgenic rice plants displayed enhanced induction of pathogen resistance genes without constitutively activating defense responses. Bacterial growth was reduced 10-fold in the transgenic plants and they exhibited higher sensitivity to benzothiadiazole and INA chemical treatment. This invention will make the use of chemical inducers more effective and reduce the amount of chemicals needed to achieve desired yields.

APPLICATIONS

- Enhanced plant resistance to a broad spectrum of pathogens (oomyces, bacteria and viruses)

FEATURES/BENEFITS

- Enhanced disease resistance
- Does not constitutively activate plant defense responses
- Reduction in the amount of chemicals needed

RELATED MATERIALS

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OTHER INFORMATION

KEYWORDS

disease resistance, NH3, polypeptide, transgenic plants, systemic acquired resistance, SAR, constitutively active defense response

CATEGORIZED AS

- **Agriculture & Animal Science**
- Plant Traits
- Transgenics

RELATED CASES

2010-786-0

▶ Bai W, Chern M, Ruan D, Canlas PE, Sze-To WH, Ronald PC. 2010. Enhanced disease resistance and hypersensitivity to BTH by introduction of an NH1/OsNPR1 paralog. Plant Biotechnol J. 2011 Feb;9(2):205-15. doi: 10.1111/j.1467-7652.2010.00544.x. [Epub ahead of print] - 06/17/2010

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,644,214	05/09/2017	2010-786

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