Title (en)

METHODS OF USING THE -i(NIM1) GENE TO CONFER DISEASE RESISTANCE IN PLANTS

Title (de)

VERFAHREN ZUR ANWENDUNG DES NIM1-GENS ZUR VERMITTLUNG VON KRANKHEITSRESISTENZ IN PFLANZEN

Title (fr)

PROCEDE D'UTILISATION DU GENE -i(NIM1) POUR CONFERER A DES PLANTES UNE RESISTANCE AUX MALADIES

Publication

EP 0944728 A1 19990929 (EN)

Application

EP 97952940 A 19971212

Priority

- EP 9707012 W 19971212
- US 3317796 P 19961213
- US 3437996 P 19961227
- US 3438296 P 19961227
- US 3473097 P 19970110
- US 3502197 P 19970110
- US 3502297 P 19970110
- US 88017997 A 19970620

Abstract (en)

[origin: FR2757875A1] The invention concerns the location and characterization of a gene (designated NIM1) that is a key component of the SAR pathway and that in connection with chemical and biological inducers enables induction of SAR gene expression and broad spectrum disease resistance in plants. The NIM1 gene product is a structural homologue of the mammalian signal transduction factor I kappa B subclass alpha . The present invention exploits this discovery to provide altered forms of NIM1 that act as dominant-negative regulators of the systemic acquired resistance (SAR) signal transduction pathway. These altered forms of NIM1 confer the opposite phenotype as the nim1 mutant in plants transformed with the altered forms of NIM1, i.e. the transgenic plants exhibit constitutive SAR gene expression and a constitutive immunity (CIM) phenotype. The invention further concerns transformation vectors and processes for overexpressing the NIM1 gene in plants. The transgenic plants thus created have broad spectrum disease resistance. The present invention further concerns DNA molecules encoding altered forms of the NIM1 gene, expression vectors containing such DNA molecules, and plants and plant cells transformed therewith. The invention further concerns transformation vectors and processes for overexpressing the NIM1 gene in plants. Disclosed are vectors and processes for producing overexpression of the NIM1 gene in plants. The invention also concerns methods of activating SAR in plants and conferring to plants a CIM phenotype and broad spectrum disease resistance by transforming the plants with DNA molecules encoding altered forms of the NIM1 gene product.

IPC 1-7

C12N 15/82; C12N 15/29; C07K 14/415; C12Q 1/68; G01N 33/48; A01H 5/00

IPC 8 full level

A01H 5/00 (2006.01); **A01N 65/00** (2009.01); **C07K 14/415** (2006.01); **C12N 5/10** (2006.01); **C12N 15/09** (2006.01); **C12N 15/29** (2006.01); **C12N 15/82** (2006.01); **C12Q 1/68** (2006.01); **G01N 33/48** (2006.01)

CPC (source: EP)

A01N 65/08 (2013.01); **A01N 65/38** (2013.01); **C07K 14/415** (2013.01); **C12N 15/8281** (2013.01); **C12N 15/8282** (2013.01); **G01N 33/48** (2013.01)

Citation (search report)

See references of WO 9826082A1

Designated contracting state (EPC)

AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

FR 2757875 A1 19980703; AU 5663198 A 19980703; AU 727179 B2 20001207; BR 9714398 A 20000502; CA 2273189 A1 19980618; EP 0944728 A1 19990929; IT 1298472 B1 20000110; IT MI972741 A1 19990611; JP 2001505774 A 20010508; NL 1007779 A1 19980617; NL 1007779 C2 19980722; WO 9826082 A1 19980618

DOCDB simple family (application)

FR 9715741 A 19971208; AU 5663198 A 19971212; BR 9714398 A 19971212; CA 2273189 A 19971212; EP 9707012 W 19971212; EP 97952940 A 19971212; IT MI972741 A 19971211; JP 52624898 A 19971212; NL 1007779 A 19971212