

## GEPHE SUMMARY

retr02/eIF(iso)4E ( <a href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~retr02/eIF(iso)4E^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~retr02/eIF(iso)4E^#gephebase-summary-title</a> )	Gephebase Gene	GP00000983	GepheID
Published	Entry Status	Martin	Main curator

## PHENOTYPIC CHANGE

Physiology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title</a> )	Trait Category		
Pathogen resistance (plant virus) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=~Pathogen+resistance+(plant+virus)^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=~Pathogen+resistance+(plant+virus)^#gephebase-summary-title</a> )	Trait		
Brassica rapa - sensitive to Turnip Mosaic Virus	Trait State in Taxon A		
Brassica rapa - resistant to Turnip Mosaic Virus (monogenic; recessive)	Trait State in Taxon B		
Taxon A	Ancestral State		
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Domesticated^#gephebase-summary-title</a> )	Taxonomic Status		
	Taxon A		Taxon B
Brassica rapa ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Brassica+rapa^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Brassica+rapa^#gephebase-summary-title</a> )	Latin Name	Brassica rapa ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Brassica+rapa^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Brassica+rapa^#gephebase-summary-title</a> )	Latin Name
field mustard	Common Name	field mustard	Common Name
field mustard; Brassica rapa L.; Brassica rapa L., 1753	Synonyms	field mustard; Brassica rapa L.; Brassica rapa L., 1753	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliopsida; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Brassicaceae; Brassica	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliopsida; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Brassicaceae; Brassica	Lineage
Brassica () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3705">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3705</a> )	Parent	Brassica () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3705">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3705</a> )	Parent
3711 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3711">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3711</a> )	NCBI Taxonomy ID	3711 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3711">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3711</a> )	NCBI Taxonomy ID
Yes	is Taxon A an Intraspecies?	Yes	is Taxon B an Intraspecies?
Brassica rapa - Ji Zao Chun	Taxon A Description	Brassica rapa - BP8407	Taxon B Description

## GENOTYPIC CHANGE

EIF(ISO)4E	Generic Gene Name	O04663 ( <a href="http://www.uniprot.org/uniprot/O04663">http://www.uniprot.org/uniprot/O04663</a> )	UniProtKB Arabidopsis thaliana
EIF(ISO)4E; EIF4E2; eIFiso4E; EUKARYOTIC INITIATION FACTOR (ISO)4E; EUKARYOTIC INITIATION FACTOR (ISO)4E; EUKARYOTIC TRANSLATION INITIATION FACTOR 4E2; eukaryotic translation Initiation Factor isoform 4E; LOSS OF SUSCEPTIBILITY TO POTYVIRUS 1; LSP; MJE4.8; MJE4_8; LSP1; At5g35620	Synonyms	()	GenebankID or UniProtKB
3702.AT5G35620.1 ( <a href="http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT5G35620.1">http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT5G35620.1</a> )	String		
Belongs to the eukaryotic initiation factor 4E family.	Sequence Similarities		
GO:0000340 : RNA 7-methylguanosine cap binding ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0000340">https://www.ebi.ac.uk/QuickGO/term/GO:0000340</a> )	GO - Molecular Function		

GO:0003743 : translation initiation factor activity  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0003743>)

GO - Biological Process

GO:0009615 : response to virus (<https://www.ebi.ac.uk/QuickGO/term/GO:0009615>)

GO:0006417 : regulation of translation  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0006417>)

GO:0050687 : negative regulation of defense response to virus  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0050687>)

GO - Cellular Component

GO:0005737 : cytoplasm (<https://www.ebi.ac.uk/QuickGO/term/GO:0005737>)

GO:0005829 : cytosol (<https://www.ebi.ac.uk/QuickGO/term/GO:0005829>)

GO:0005634 : nucleus (<https://www.ebi.ac.uk/QuickGO/term/GO:0005634>)

GO:0005845 : mRNA cap binding complex  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005845>)

Presumptive Null

No (<https://www.gephebase.org/search-criteria?/and+Presumptive+Null=~No~#gephebase-summary-title>)

Molecular Type

Coding (<https://www.gephebase.org/search-criteria?/and+Molecular+Type=~Coding~#gephebase-summary-title>)

Aberration Type

SNP (<https://www.gephebase.org/search-criteria?/and+Aberration+Type=~SNP~#gephebase-summary-title>)

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

G152R

Experimental Evidence

Linkage Mapping (<https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping~#gephebase-summary-title>)

	Taxon A	Taxon B	Position
Codon	-	-	-
Amino-acid	-	-	-

Main Reference

Mapping and candidate-gene screening of the novel Turnip mosaic virus resistance gene retr02 in Chinese cabbage (*Brassica rapa* L.). (2013) (<https://pubmed.ncbi.nlm.nih.gov/22996569>)

Authors

Qian W; Zhang S; Zhang S; Li F; Zhang H; Wu J; Wang X; Walsh JA; Sun R

Abstract

The extreme resistance to Turnip mosaic virus observed in the Chinese cabbage (*Brassica rapa*) line, BP8407, is monogenic and recessive. Bulked segregant analysis was carried out to identify simple sequence repeat and Indel markers linked to this recessive resistance gene, termed recessive Turnip mosaic virus resistance 02 (retr02). Mapping of PCR-specific Indel markers on 239 individuals of a BP8407 × Ji Zao Chun F(2) population, located this resistance gene to a 0.9-cM interval between two Indel markers (BrID10694 and BrID101309) and in scaffold000060 or scaffold000104 on chromosome A04 of the *B. rapa* genome. Eleven eukaryotic initiation factor 4E (eIF4E) and 14 eukaryotic initiation factor 4G (eIF4G) genes are predicted in the *B. rapa* genome. A candidate gene, Bra035393 on scaffold000104, was predicted within the mapped resistance locus. The gene encodes the eIF(iso)4E protein. Bra035393 was sequenced in BP8407 and Ji Zao Chun. A polymorphism (A/G) was found in exon 3 between BP8407 and Ji Zao Chun. This gene was analysed in four resistant and three susceptible lines. A correlation was observed between the amino acid substitution (Gly/Asp) in the eIF(iso)4E protein and resistance/susceptibility. eIF(iso)4E has been shown previously to interact with the TuMV genome-linked protein, VPg.

Additional References

RELATED GEPHE

No matches found.

Related Genes

No matches found.

Related Haplotypes

EXTERNAL LINKS

COMMENTS

