

GEPHE SUMMARY

		Gephebase Gene		GepheID
M (<a +m+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase="+M+"#gephebase-summary-title)			GP00000559	
		Entry Status	Courtier	Main curator
Published				

PHENOTYPIC CHANGE

		Trait Category	
Physiology (<a +physiology+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait+Category=">https://www.gephebase.org/search-criteria?/and+Trait+Category="+Physiology+"#gephebase-summary-title)			
		Trait	
Pathogen resistance (<a +pathogen+resistance+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Trait=">https://www.gephebase.org/search-criteria?/and+Trait="+Pathogen+resistance+"#gephebase-summary-title)			
		Trait State in Taxon A	
Linum usitatissimum			
		Trait State in Taxon B	
Linum usitatissimum			
		Ancestral State	
Taxon A			
		Taxonomic Status	
Intraspecific (<a +intraspecific+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status="+Intraspecific+"#gephebase-summary-title)			
Taxon A		Taxon B	
		Latin Name	
Linum usitatissimum (<a +linum+usitatissimum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Linum+usitatissimum+"#gephebase-summary-title)		Linum usitatissimum (<a +linum+usitatissimum+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms="+Linum+usitatissimum+"#gephebase-summary-title)	
		Common Name	
flax		flax	
		Synonyms	
flax; Linum usitatissimum L.		flax; Linum usitatissimum L.	
		Rank	
species		species	
		Lineage	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; fabids; Malpighiales; Linaceae; Linum		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; fabids; Malpighiales; Linaceae; Linum	
		Parent	
Linum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4005)		Linum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4005)	
		NCBI Taxonomy ID	
4006 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4006)		4006 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4006)	
		is Taxon A an Infrapopulation?	
No		No	

GENOTYPIC CHANGE

		Generic Gene Name	UniProtKB Linum usitatissimum
-		P93244 (http://www.uniprot.org/uniprot/P93244)	
		Synonyms	GenebankID or UniProtKB
-		U73916 (https://www.ncbi.nlm.nih.gov/nucleotide/U73916)	
		String	
-			
		Sequence Similarities	
-			
		GO - Molecular Function	
GO:0043531 : ADP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043531)			
		GO - Biological Process	
GO:0007165 : signal transduction (https://www.ebi.ac.uk/QuickGO/term/GO:0007165)			
		GO - Cellular Component	
-			
		Presumptive Null	
No (<a +no+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Presumptive+Null=">https://www.gephebase.org/search-criteria?/and+Presumptive+Null="+No+"#gephebase-summary-title)			
		Molecular Type	
Coding (<a +coding+"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Molecular+Type=">https://www.gephebase.org/search-criteria?/and+Molecular+Type="+Coding+"#gephebase-summary-title)			
		Aberration Type	

Deletion (https://www.gephebase.org/search-criteria?/and+Aberration+Type=~Deletion~#gephebase-summary-title)	Deletion Size
100-999 bp	
426bp deletion, probably by unequal recombination	Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping~#gephebase-summary-title)	Experimental Evidence
Inactivation of the flax rust resistance gene M associated with loss of a repeated unit within the leucine-rich repeat coding region. (1997) (https://pubmed.ncbi.nlm.nih.gov/9144966)	Main Reference
Anderson PA; Lawrence GJ; Morrish BC; Ayliffe MA; Finnegan EJ; Ellis JG	Authors
The M rust resistance gene from flax was cloned after two separate approaches, an analysis of spontaneous M mutants with an L6 gene-derived DNA probe and tagging with the maize transposon Activator, independently identified the same gene. The gene encodes a protein of the nucleotide binding site leucine-rich repeat class and is related (86% nucleotide identity) to the unlinked L6 rust resistance gene. In contrast to the L locus, which contains a single gene with multiple alleles, approximately 15 related genes occur at the complex M locus, with only one encoding the M resistance specificity. The M protein contains two direct repeats of 147 and 149 amino acids in the C-terminal part of the leucine-rich region. Three mutant alleles of M encoding a product containing a single repeat unit of 154 amino acids were isolated. The mutant DNA sequences probably occurred by unequal intragenic exchange in the coding region of the repeats. The recombinant alleles lost M resistance and gained no detectable new resistance specificity.	Abstract
	Additional References

RELATED GEPHE

1 (L6) (https://www.gephebase.org/search-criteria?/or+Taxon+ID=~4006~/and+Trait=Pathogen+resistance/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS

Same nucleotide change observed in three independent mutants - The authors hypothesize that either an intragenic recombination event between the two repeats or slipped alignment during replication gave rise to the same independent deletions. Only one case is reported here in Gephebase.