

GEPHE SUMMARY

Gephebase Gene		GephelD
I cluster (https://www.gephebase.org/search-criteria?/and+Gene Gephebase^I cluster^#gephebase-summary-title)	GP00000496	
Entry Status	Martin	Main curator
Published		

PHENOTYPIC CHANGE

Trait Category	Trait	
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category^Physiology^#gephebase-summary-title)		
Pathogen resistance (https://www.gephebase.org/search-criteria?/and+Trait=^Pathogen resistance^#gephebase-summary-title)	Trait State in Taxon A	
Phaseolus vulgaris	Trait State in Taxon B	
Phaseolus vulgaris - Mosaic virus resistant "Sprite"	Ancestral State	
Taxon A	Taxonomic Status	Taxon B
Domesticated (https://www.gephebase.org/search-criteria?/and+Taxonomic Status^Domesticated^#gephebase-summary-title)		
Taxon A	Latin Name	Latin Name
Phaseolus vulgaris (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Phaseolus vulgaris^#gephebase-summary-title)	Phaseolus vulgaris (https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Phaseolus vulgaris^#gephebase-summary-title)	
-	Common Name	Common Name
-	Synonyms	Synonyms
French bean; kidney bean; string bean; Phaseolus vulgaris L.	French bean; kidney bean; string bean; Phaseolus vulgaris L.	
species	Rank	Rank
	Lineage	Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; fabids; Fabales; Fabaceae; Papilionoideae; 50 kb inversion clade; NPAAA clade; indigoferoid/millettoid clade; Phaseoleae; Phaseolus	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; fabids; Fabales; Fabaceae; Papilionoideae; 50 kb inversion clade; NPAAA clade; indigoferoid/millettoid clade; Phaseoleae; Phaseolus	
	Parent	Parent
Phaseolus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3883)	Phaseolus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3883)	
3885 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3885)	3885 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 3885)	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	is Taxon B an Infraspecies?

GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Vigna aconitifolia
-	U5YMY7 (http://www.uniprot.org/uniprot/U5YMY7)	
Synonyms		GenebankID or UniProtKB
-	0	
String		
-		
Sequence Similarities		
-		
GO - Molecular Function		
GO:0043531 : ADP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043531)		
GO - Biological Process		
-		
GO - Cellular Component		
-		
		Presumptive Null
Unknown (https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title)		
		Molecular Type

Unknown ([https://www.gephebase.org/search-criteria?/and+Molecular Type=%5EUnknown%23gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular%20Type=%5EUnknown%23gephebase-summary-title))

Aberration Type

Unknown ([https://www.gephebase.org/search-criteria?/and+Aberration Type=%5EUnknown%23gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration%20Type=%5EUnknown%23gephebase-summary-title))

Molecular Details of the Mutation

unknown; maps to a cluster of R-proteins

Experimental Evidence

Linkage Mapping ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=%5ELinkage Mapping%23gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental%20Evidence=%5ELinkage%20Mapping%23gephebase-summary-title))

Main Reference

Genetic and molecular characterization of the I locus of *Phaseolus vulgaris*. (2006) (<https://pubmed.ncbi.nlm.nih.gov/16322513>)

Authors

Vallejos CE; Astua-Monge G; Jones V; Plyler TR; Sakiyama NS; Mackenzie SA

Abstract

The I locus of the common bean, *Phaseolus vulgaris*, controls the development of four different phenotypes in response to inoculation with Bean common mosaic virus, Bean common mosaic necrosis virus, several other related potyviruses, and one comovirus. We have generated a high-resolution linkage map around this locus and have aligned it with a physical map constructed with BAC clones. These clones were obtained from a library of the cultivar "Sprite," which carries the dominant allele at the I locus. We have identified a large cluster of TIR-NBS-LRR sequences associated within this locus, which extends over a distance >425 kb. Bean cultivars from the Andean or Mesoamerican gene pool that contain the dominant allele share the same haplotypes as revealed by gel blot hybridizations with a TIR probe. In contrast, beans with a recessive allele display simpler and variable haplotypes. A survey of wild accessions from Argentina to Mexico showed that this multigene family has expanded significantly during evolution and domestication. RNA gel blot analysis indicated that the TIR family of genes plays a role in the response to inoculations with BCMV or BCMNV.

Additional References

RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS