

GEPHE SUMMARY

Mla6 (https://www.gephebase.org/search-criteria/?and+Gene+Gephebase=%Mla6%#gephebase-summary-title)	Gephebase Gene	GP00000671	GepheID
	Entry Status	Courtier	Main curator
Published			

PHENOTYPIC CHANGE

	Trait Category		
Physiology (https://www.gephebase.org/search-criteria/?and+Trait+Category=%Physiology%#gephebase-summary-title)	Trait		
Pathogen resistance (https://www.gephebase.org/search-criteria/?and+Trait=%Pathogen+resistance%#gephebase-summary-title)	Trait State in Taxon A		
Hordeum vulgare - susceptible	Trait State in Taxon B		
Hordeum vulgare - resistant	Ancestral State		
Data not curated	Taxonomic Status		
Domesticated (https://www.gephebase.org/search-criteria/?and+Taxonomic+Status=%Domesticated%#gephebase-summary-title)			
Taxon A		Taxon B	
Hordeum vulgare (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=%Hordeum+vulgare%#gephebase-summary-title)	Latin Name	Hordeum vulgare (https://www.gephebase.org/search-criteria/?and+Taxon+and+Synonyms=%Hordeum+vulgare%#gephebase-summary-title)	Latin Name
-	Common Name	-	Common Name
barley; Hordeum vulgare L.; Horedum vulgare	Synonyms	barley; Hordeum vulgare L.; Horedum vulgare	Synonyms
species	Rank	species	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Hordeinae; Hordeum	Lineage	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; BOP clade; Pooideae; Triticodae; Triticeae; Hordeinae; Hordeum	Lineage
Hordeum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4512)	Parent	Hordeum () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4512)	Parent
4513 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4513)	NCBI Taxonomy ID	4513 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4513)	NCBI Taxonomy ID
No	is Taxon A an Infraspecies?	No	is Taxon B an Infraspecies?

GENOTYPIC CHANGE

Mla1	Generic Gene Name	UniProtKB Hordeum vulgare subsp. vulgare Q7EXP5 (http://www.uniprot.org/uniprot/Q7EXP5)
-	Synonyms	GenebankID or UniProtKB AAG37356 (https://www.ncbi.nlm.nih.gov/nuccore/AAG37356)
-	String	
Belongs to the disease resistance NB-LRR family.	Sequence Similarities	
GO:0043531 : ADP binding (https://www.ebi.ac.uk/QuickGO/term/GO:0043531)	GO - Molecular Function	
-	GO - Biological Process	
-	GO - Cellular Component	
No (https://www.gephebase.org/search-criteria/?and+Presumptive+Null=%No%#gephebase-summary-title)		Presumptive Null
Coding (https://www.gephebase.org/search-criteria/?and+Molecular+Type=%Coding%#gephebase-summary-title)		Molecular Type

SNP (<https://www.gephebase.org/search-criteria?/and+Aberration+Type=%5E+SNP%5E+gephebase+summary+title>)

SNP Coding Change

Nonsynonymous

Molecular Details of the Mutation

Coding variation in the LRR domain - exact amino acid change(s) unknown

Experimental Evidence

Linkage Mapping (<https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=%5E+Linkage+Mapping%5E+gephebase+summary+title>)

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

Main Reference

Recombination of alleles conferring specific resistance to powdery mildew at the Mla locus in barley. (1994) (<https://pubmed.ncbi.nlm.nih.gov/18470091>)

Authors

Mahadevappa M; Descenzo RA; Wise RP

Abstract

In barley (*Hordeum vulgare* L.), the Mla locus conditions reaction to the powdery mildew fungus *Erysiphe graminis* f.sp. *hordei*. Enrichment for genetic recombinants in the Mla region is possible by screening for recombination events between the flanking endosperm storage proteins hordeins C and B. Reciprocal crosses were made between the Franger (C.I. 16151) and Rupee (C.I. 16155) lines carrying the (Mla6 + Mla14) and Mla13 alleles, respectively. Recombinants were identified from F2 segregants by analyzing the extracted hordein polypeptides by sodium dodecyl sulphate - polyacrylamide gel electrophoresis. Two hundred and seventy-six recombinant gametes were identified from the 1800 seeds that were screened. Recombination of Mla alleles was analyzed by inoculating F4 recombinant lines with three isolates of *E. graminis* (A27, 5874, and CR3), which recognize specific Mla alleles. The linkage order established is Hor-Mla6-Mla13-Mla14-Hor2. The genetic distances between Hor1-Mla6, Mla6-Mla13, and Mla13-Hor2, obtained using Mapmaker 3.0b F3 intercross analysis, are 3.9, 0.2, and 5.2 cM, respectively.

Additional References

The Mla (powdery mildew) resistance cluster is associated with three NBS-LRR gene families and suppressed recombination within a 240-kb DNA interval on chromosome 5S (1HS) of barley. (1999) (<https://pubmed.ncbi.nlm.nih.gov/10581297>)

The MLA6 coiled-coil, NBS-LRR protein confers AvrMla6-dependent resistance specificity to *Blumeria graminis* f. sp. *hordei* in barley and wheat. (2001) (<https://pubmed.ncbi.nlm.nih.gov/11208025>)

Related Genes

3 (Mla1, Mla13, MLO) (<https://www.gephebase.org/search-criteria?/or+Taxon+ID=%5E+4513%5E+and+Trait=Pathogen+resistance/and+groupHaplotypes=true#gephebase+summary+title>)

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS