

GEPHE SUMMARY

	Gephebase Gene		GepheID
RGC2/Dm3 (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~RGC2/Dm3~#gephebase-summary-title)		GP00000984	
	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		
Lactuca serriola		Trait State in Taxon B	
Lactuca serriola			
	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
	Latin Name		Latin Name
Lactuca serriola (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Lactuca+serriola~#gephebase-summary-title)		Lactuca serriola (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Lactuca+serriola~#gephebase-summary-title)	
	Common Name		Common Name
-		-	
	Synonyms		Synonyms
Lactuca scariola; compass-plant; prickly lettuce; Lactuca serriola L.; Lactuca seriola		Lactuca scariola; compass-plant; prickly lettuce; Lactuca serriola L.; Lactuca seriola	
	Rank		Rank
species		species	
	Lineage		Lineage
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; asterids; campanulids; Asterales; Asteraceae; Cichorioideae; Cichorieae; Lactucinae; Lactuca		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; asterids; campanulids; Asterales; Asteraceae; Cichorioideae; Cichorieae; Lactucinae; Lactuca	
	Parent		Parent
Lactuca () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4235)		Lactuca () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=4235)	
	NCBI Taxonomy ID		NCBI Taxonomy ID
75943 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=75943)		75943 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=75943)	
	is Taxon A an Intraspecies?		is Taxon B an Intraspecies?
No		No	

GENOTYPIC CHANGE

	Generic Gene Name		UniProtKB Lactuca sativa
RGC2		Q6Y136 (http://www.uniprot.org/uniprot/Q6Y136)	
	Synonyms		GenebankID or UniProtKB
-		AAP40935 (https://www.ncbi.nlm.nih.gov/nuccore/AAP40935)	
	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
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)			

Unknown (https://www.gephebase.org/search-criteria?/and+Aberration Type=~Unknown~#gephebase-summary-title)	Aberration Type
Various haplotypes detected using PCR - absence of amplification could be due to deletion or to gene conversion	Molecular Details of the Mutation
Linkage Mapping (https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title)	Experimental Evidence
The disease resistance gene Dm3 is infrequent in natural populations of <i>Lactuca serriola</i> due to deletions and frequent gene conversions at the RGC2 locus. (2006) (https://pubmed.ncbi.nlm.nih.gov/16762035)	Main Reference
Kuang H; Ochoa OE; Nevo E; Michelmore RW	Authors
Resistance genes can exhibit heterogeneous patterns of variation. However, there are few data on their frequency and variation in natural populations. We analysed the frequency and variation of the resistance gene Dm3, which confers resistance to <i>Bremia lactucae</i> (downy mildew) in 1033 accessions of <i>Lactuca serriola</i> (prickly lettuce) from 49 natural populations. Inoculations with an isolate of <i>Bremia lactucae</i> carrying avirulence gene Avr3 indicated that the frequency of Dm3 in natural populations of <i>L. serriola</i> was very low. Molecular analysis demonstrated that Dm3 was present in only one of the 1033 wild accessions analysed. The sequence of the 5' region of Dm3 was either highly conserved among accessions, or absent. In contrast, frequent chimeras were detected in the 3' leucine-rich repeat-encoding region. Therefore low frequency of the Dm3 specificity in natural populations was due to either the recent evolution of Dm3 specificity, or deletions of the whole gene as well as variation in 3' region caused by frequent gene conversions. This is the most extensive analysis of the prevalence of a known disease resistance gene to date, and indicates that the total number of resistance genes in a species may be very high. This has implications for the scales of germplasm conservation and exploitation of sources of resistance.	Abstract
	Additional References

RELATED GEPHE

No matches found.	Related Genes
No matches found.	Related Haplotypes

EXTERNAL LINKS

COMMENTS