

# GEPHE SUMMARY

	Gephebase Gene	GephelD
FASCIATED EAR2 ( <a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase=FASCIATED EAR2^#gephebase-summary-title)	GP00000306	
	Entry Status	Main curator
Published	Martin	

## PHENOTYPIC CHANGE

	Trait Category	
Morphology ( <a href="https://www.gephebase.org/search-criteria?/and+Trait">https://www.gephebase.org/search-criteria?/and+Trait</a> Category=Morphology^#gephebase-summary-title)	Trait	
Grain yield (kernel row number) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Grain yield (kernel row number)^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=^Grain yield (kernel row number)^#gephebase-summary-title</a> )	Trait State in Taxon A	
Zea mays ssp. mays - B73	Trait State in Taxon B	
Zea mays ssp. mays - Mo17	Ancestral State	
Data not curated	Taxonomic Status	
Domesticated ( <a href="https://www.gephebase.org/search-criteria?/and+Taxonomic">https://www.gephebase.org/search-criteria?/and+Taxonomic</a> Status=Domesticated^#gephebase-summary-title)		
Taxon A		Taxon B
	Latin Name	Latin Name
Zea mays ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Zea mays^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Zea mays^#gephebase-summary-title</a> )	Zea mays ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Zea mays^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=^Zea mays^#gephebase-summary-title</a> )	
-	Common Name	Common Name
	Synonyms	Synonyms
Zea mays var. japonica; maize; Zea mays L.; Zea mays mays species	Zea mays var. japonica; maize; Zea mays L.; Zea mays mays species	
	Rank	Rank
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea	cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; Liliopsida; Petrosaviidae; commelinids; Poales; Poaceae; PACMAD clade; Panicoideae; Andropogonodae; Andropogoneae; Tripsacinae; Zea	
	Lineage	Lineage
Zea () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4575">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4575</a> )	Zea () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4575">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4575</a> )	
4577 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4577">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4577</a> )	4577 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4577">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 4577</a> )	NCBI Taxonomy ID
Yes	is Taxon A an Infraspecies?	is Taxon B an Infraspecies?
	Taxon A Description	Taxon B Description
Zea mays ssp. mays - B73	Zea mays ssp. mays - Mo17	

## GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Zea mays
FEA2		
GRMZM2G104925; ZEAMMB73_546581	Synonyms	GenebankID or UniProtKB
4577.GRMZM2G104925_P01 ( <a href="http://string-db.org/newstring_cgi/show_network_section.pl?identifier=4577.GRMZM2G104925_P01">http://string-db.org/newstring_cgi/show_network_section.pl?identifier=4577.GRMZM2G104925_P01</a> )	String	
	Sequence Similarities	
	GO - Molecular Function	
GO:0004672 : protein kinase activity ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0004672">https://www.ebi.ac.uk/QuickGO/term/GO:0004672</a> )		
	GO - Biological Process	
GO:0030154 : cell differentiation ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0030154">https://www.ebi.ac.uk/QuickGO/term/GO:0030154</a> )		
GO:0009908 : flower development ( <a href="https://www.ebi.ac.uk/QuickGO/term/GO:0009908">https://www.ebi.ac.uk/QuickGO/term/GO:0009908</a> )		
GO:0010075 : regulation of meristem growth		

(<https://www.ebi.ac.uk/QuickGO/term/GO:0010075>)  
GO:0046777 : protein autophosphorylation  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0046777>)  
GO:0048509 : regulation of meristem development  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0048509>)

#### GO - Cellular Component

GO:0016021 : integral component of membrane  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0016021>)  
GO:0005886 : plasma membrane (<https://www.ebi.ac.uk/QuickGO/term/GO:0005886>)  
GO:0009506 : plasmodesma (<https://www.ebi.ac.uk/QuickGO/term/GO:0009506>)  
GO:0005789 : endoplasmic reticulum membrane  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005789>)

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=^Unknown^#gephebase-summary-title>)

Aberration Type

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

Molecular Details of the Mutation

Not identified

Experimental Evidence

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

Main Reference

Quantitative variation in maize kernel row number is controlled by the FASCIATED EAR2 locus. (2013) (<https://pubmed.ncbi.nlm.nih.gov/23377180>)

Authors

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Abstract

Domestication of cereal crops, such as maize, wheat and rice, had a profound influence on agriculture and the establishment of human civilizations. One major improvement was an increase in seed number per inflorescence, which enhanced yield and simplified harvesting and storage. The ancestor of maize, teosinte, makes 2 rows of kernels, and modern varieties make  $\approx$ 48-20 rows. Kernel rows are initiated by the inflorescence shoot meristem, and shoot meristem size is controlled by a feedback loop involving the CLAVATA signaling proteins and the WUSCHEL transcription factor. We present a hypothesis that variation in inflorescence meristem size affects kernel row number (KRN), with the potential to increase yield. We also show that variation in the CLAVATA receptor-like protein FASCIATED EAR2 leads to increased inflorescence meristem size and KRN. These findings indicate that modulation of fundamental stem cell proliferation control pathways has the potential to enhance crop yields.

Additional References

## RELATED GEPHE

Related Genes

No matches found.

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS