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Locus Page

Locus: AT1G16610

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Representative Gene Model [AT1G16610.3](#)

Gene Model Type protein_coding

Other names: ARGININE/SERINE-RICH 45, ATSR45, RNPS1, SR45

Description Encodes SR45, a member of the highly conserved family of serine/arginine-rich (SR) proteins, which play key roles in pre-mRNA splicing and other aspects of RNA metabolism. SR45 is a spliceosome protein, interacts with SR33 and the U1-70K protein of the U1 snRNP. Also involved in plant sugar response. sr45-1 mutation confers hypersensitivity to glucose during early seedling growth.

Publication

author/title	source	associated loci	date
Albaqami, M, Laluk, K, Reddy, A ... The Arabidopsis splicing regulator SR45 confers salt tolerance in a splice isoform-dependent manner	PLANT MOLECULAR BIOLOGY	AT1G16610	2019
Reddy, A CORRECTION: Transcriptome-Wide Identification of RNA Targets of Arabidopsis SERINE/ARGININE-RICH45 Uncovers the Unexpected Roles of This RNA Binding Protein in RNA Processing	THE PLANT CELL	AT1G16610	2017
Zhang, X N, Shi, Y, Powers, J J, ... Transcriptome analyses reveal SR45 to be a neutral splicing regulator and a suppressor of innate immunity in Arabidopsis thaliana	BMC GENOMICS	AT1G16610	2017

Polymorphism Page

Polymorphism: dcl4-4

Name ?	dcl4-4				
Date last modified ?	2005-12-08				
Tair Accession	Polymorphism:1009287001				
Type ?	substitution				
Chromosome ?	5				
Associated Genes	Gene Model ?	Locus ?	Polymorphism site	Association Type ?	
	AT5G20320.1	AT5G20320	exon	is an allele of	
	Description ?	Encodes an RNase III-like enzyme that catalyzes processing of trans-acting small interfering RNA precursors in a distinct small RNA biogenesis pathway. The protein is also involved in the production of 21-nt primary siRNAs from both inverted-repeat constructs and endogenous sequences, as well as the RDR6-dependent 21-nt secondary siRNAs involved in long-range cell-to-cell signaling. It binds DRB4, a ds-RNA binding protein.			
Associated Loci ?	AT5G20320				
Mutagen ?	ethylmethane sulfonate				
Allele Type ?	loss-of-function				
Description ?	The substitution in exon 4 generates a premature stop codon at amino acid 186 (Q186STOP).				
Associated Polymorphisms ?	Substitution				
	Species Variant (attribution) ?	Length	Polymorphic Sequence ?	Polymorphism Verified	
Germplasm ?	Name/Image	Polymorphisms	Background	Stock Name ?	Select
Showing 1 of 1 entries	DCL4-4	dcl4-4		not an ABRC stock	
	Phenotype ?	<ul style="list-style-type: none"> Plants have altered silencing movement with respect to the parent line. Whereas the parent line has low levels of SUL mRNA and displays non-cell autonomous silencing, the mutants lost the silencing movement phenotype and accumulated high levels of SUL mRNA. 21-nt SUL siRNAs are undetectable in these plants, whereas the 24-nt siRNAs accumulated to similar levels as in the SUC-SUL parental line. Dunoyer, et al. (2005) 			
Community Comments ? (shows only the most recent comments by default)					
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Publication ?	title	source	date		
	DICER-LIKE 4 is required for RNA interference and produces the 21-nucleotide small interfering RNA component of the plant cell-to-cell silencing signal.	NATURE GENETICS	2005		

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Breaking News

ICAR 2019 Important Deadlines

[Apr 19, 2019]

May 1, 2019 is the deadline for registration and submitting abstracts/workshop proposals for **ICAR2019**.

Introducing PhyloGenes

[Apr 5, 2019]

A new resource developed by **Phoenix Bioinformatics** in collaboration with the **PANTHER** project.

PhyloGenes is a phylogenetic tree-based tool for inferring plant gene functions.

Latest TAIR blog: Phenotypes and GO

[Apr 1, 2019]

Read more about GO annotations of mutants and phenotypes in our most recent





Recently added literature

Apr 15 2019 - Apr 29 2019

sort by

1 Albaqami, M, Laluk, K, Reddy, A S N
The Arabidopsis splicing regulator SR45 confers salt tolerance in a splice isoform-dependent manner (2019)
PLANT MOLECULAR BIOLOGY

Genes [SR45](#)

Keywords [RNA binding](#) [binding](#) [gene expression](#)

View Article [Journal](#) [PubMed](#) [TAIR](#)

2 Bai, S, Tao, R, Tang, Y, Yin, L, Ma, Y, Ni, J, Yan, X, Yang, Q, Wu, Z, Zeng, Y, Teng, Y
BBX16, a B-box protein, positively regulates light-induced anthocyanin accumulation by activating MYB10 in red pear (2019)
PLANT BIOTECHNOL J

Genes

Keywords [nucleus](#) [gene silencing](#) [fruit](#)

Article types

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- Review
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Search results

Items: 1 to 20 of 63

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- [Regulation of water transport in Arabidopsis by methyl jasmonate.](#)
- 1. Lee SH, Zwiazek JJ.
Plant Physiol Biochem. 2019 Apr 20;139:540-547. doi: 10.1016/j.plaphy.2019.04.023. [Epub ahead of print]
PMID: 31029027
[Similar articles](#)

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- miR393s regulate salt stress response pathway in Arabidopsis [Plant Signal Behav. 2019]
- Sodium chloride primes JA-independent defense against S [Plant Signal Behav. 2019]

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Papers Total: 54 Order By ? priority ▾ GO Search For ? <input type="text"/> GO Reload Papers Import Papers	[93400] THE PLANT JOURNAL (2019) [HIGH PRIORITY] [Has Hit] [NO PDF] [2019-04-29]			
	<i>Overexpression of trans-Golgi network t-SNAREs rescues vacuolar trafficking and TGN morphology defects in a putative tethering factor mutant</i>			
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Term Name	Article Title and Abstract	Hit details	Hit Valid?
<p>locus AT1G17980 (pub:147032) Symbols: PAPS1 <poly(A) polymerase 1> TAIR:locus:2030943 (Accession)</p>	<p>Article [93404] (2019) [research_article] The poly(A) polymerase PAPS1 interacts with the RNA-directed DNA methylation pathway in sporophyte and pollen development THE PLANT JOURNAL <i>Zhang, Y., Ramming, A., Heinke, L., Altschmied, L., Slotkin, R. K., Becker, J. D., Kappel, C., Lenhard, M.</i> (TAIR Reference:null)</p> <p>RNA-based processes play key roles in the regulation of eukaryotic gene expression. This includes both the processing of pre-mRNAs into mature mRNAs ready for translation and RNA-based silencing processes, such as RNA-directed DNA methylation (RdDM). Polyadenylation of pre-mRNAs is one important step in their processing and is carried out by three functionally specialized canonical nuclear poly(A) polymerases in <i>Arabidopsis thaliana</i>. Null-mutations in one of these, termed PAPS1, result</p>	<p>12 [title] [abstract] Searched on 2019-04-30</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Maybe <input checked="" type="radio"/> Unverified</p> <p>Add Comment: <input type="text"/></p>

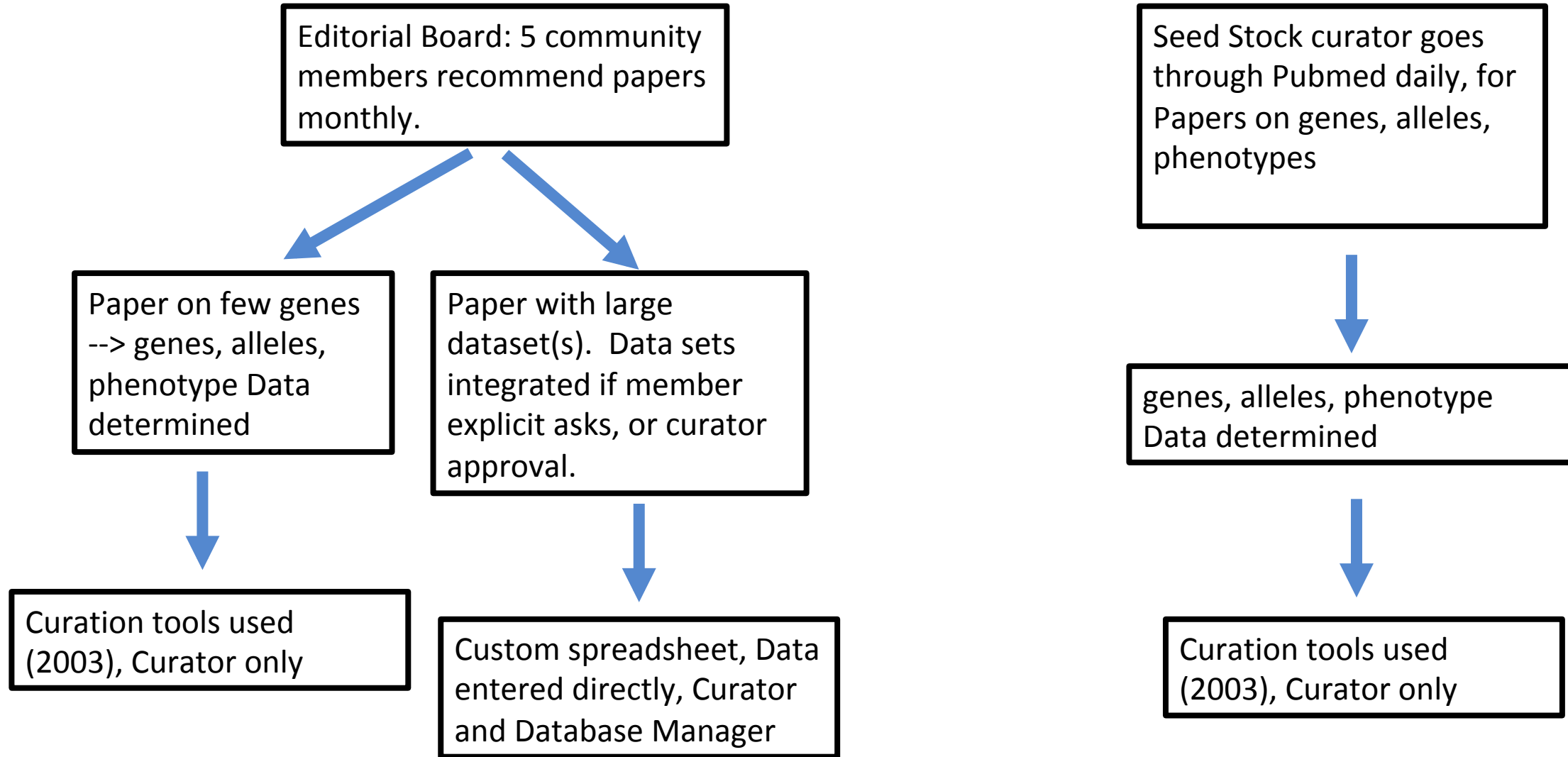
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- Gene summary
- Symbols
- Alleles
- Phenotypes
- Germplasms
- GO and PO annotations



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MaizeGDB Curation of Data in References



Data vs Curation: Maize Publications

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