

## GEPHE SUMMARY

<p>AZl1 (<a href="https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^AZl1^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=^AZl1^#gephebase-summary-title</a>)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001769</p> <p>Courtier</p>	<p>GepheID</p> <p>Main curator</p>
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## PHENOTYPIC CHANGE

<p>Physiology (<a href="https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait+Category=^Physiology^#gephebase-summary-title</a>)</p>		<p>Trait Category</p>		
<p>Root growth (root growth responses to low zinc conditions) (<a href="https://www.gephebase.org/search-criteria?/and+Trait=^Root growth (root growth responses to low zinc conditions)^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=^Root growth (root growth responses to low zinc conditions)^#gephebase-summary-title</a>)</p>		<p>Trait</p>		
<p>Arabidopsis thaliana-</p>		<p>Trait State in Taxon A</p>		
<p>Arabidopsis thaliana-</p>		<p>Trait State in Taxon B</p>		
<p>Data not curated</p>		<p>Ancestral State</p>		
<p>Intraspecific (<a href="https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Intraspecific^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=^Intraspecific^#gephebase-summary-title</a>)</p>		<p>Taxonomic Status</p>		
<p>Taxon A</p>	<p>Latin Name</p>	<p>Taxon B</p>	<p>Latin Name</p>	
<p>Arabidopsis thaliana (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title</a>)</p>	<p>Arabidopsis thaliana (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title</a>)</p>	<p>Arabidopsis thaliana (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title</a>)</p>	<p>Arabidopsis thaliana (<a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Arabidopsis+thaliana^#gephebase-summary-title</a>)</p>	
<p>thale cress</p>	<p>thale cress</p>	<p>thale cress</p>	<p>thale cress</p>	
<p>thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress</p>	<p>thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress</p>	<p>thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress</p>	<p>thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress</p>	
<p>species</p>	<p>species</p>	<p>species</p>	<p>species</p>	
<p>cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis</p>		<p>cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetalae; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis</p>		
<p>Arabidopsis () - (Rank: genus) (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701</a>)</p>		<p>Arabidopsis () - (Rank: genus) (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701</a>)</p>		
<p>NCBI Taxonomy ID</p>		<p>NCBI Taxonomy ID</p>		
<p>3702 (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702</a>)</p>		<p>3702 (<a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702</a>)</p>		
<p>is Taxon A an Intraspecies?</p>		<p>is Taxon B an Intraspecies?</p>		
<p>Yes</p>		<p>Yes</p>		
<p>Arabidopsis thaliana- Col-0</p>		<p>Arabidopsis thaliana- Sq-1</p>		
<p>Taxon A Description</p>		<p>Taxon B Description</p>		

## GENOTYPIC CHANGE

<p>AZl1</p>	<p>Generic Gene Name</p>	<p>Q9SU35 (<a href="http://www.uniprot.org/uniprot/Q9SU35">http://www.uniprot.org/uniprot/Q9SU35</a>)</p>	<p>UniProtKB Arabidopsis thaliana</p>
<p>azelaic acid induced 1; T1P17.60; T1P17_60; At4g12470</p>	<p>Synonyms</p>	<p>()</p>	<p>GenebankID or UniProtKB</p>
<p>3702.AT4G12470.1 (<a href="http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT4G12470.1">http://string-db.org/newstring.cgi/show_network_section.pl?identifier=3702.AT4G12470.1</a>)</p>	<p>String</p>		
<p>Belongs to the plant LTP family. PEARL1 subfamily.</p>		<p>Sequence Similarities</p>	
<p>GO:0043621 : protein self-association (<a href="https://www.ebi.ac.uk/QuickGO/term/GO:0043621">https://www.ebi.ac.uk/QuickGO/term/GO:0043621</a>)</p>		<p>GO - Molecular Function</p>	
<p>GO:0050832 : defense response to fungus</p>		<p>GO - Biological Process</p>	

(<https://www.ebi.ac.uk/QuickGO/term/GO:0050832>)  
GO:0009682 : induced systemic resistance  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009682>)  
GO:0009631 : cold acclimation (<https://www.ebi.ac.uk/QuickGO/term/GO:0009631>)  
GO:0070417 : cellular response to cold  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0070417>)  
GO:0009627 : systemic acquired resistance  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009627>)  
GO:0009626 : plant-type hypersensitive response  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009626>)

GO - Cellular Component

GO:0009506 : plasmodesma (<https://www.ebi.ac.uk/QuickGO/term/GO:0009506>)  
GO:0005783 : endoplasmic reticulum  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0005783>)  
GO:0048046 : apoplast (<https://www.ebi.ac.uk/QuickGO/term/GO:0048046>)  
GO:0005618 : cell wall (<https://www.ebi.ac.uk/QuickGO/term/GO:0005618>)  
GO:0009707 : chloroplast outer membrane  
(<https://www.ebi.ac.uk/QuickGO/term/GO:0009707>)

Presumptive Null

No ([https://www.gephebase.org/search-criteria?/and+Presumptive Null="+No+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=))

Molecular Type

Cis-regulatory ([https://www.gephebase.org/search-criteria?/and+Molecular Type="+Cis-regulatory+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Molecular+Type=))

Aberration Type

Unknown ([https://www.gephebase.org/search-criteria?/and+Aberration Type="+Unknown+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=))

Molecular Details of the Mutation

exact causing mutation(s) unknown

Experimental Evidence

Association Mapping ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence="+Association Mapping+"#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=))

Main Reference

Natural allelic variation of the AZI1 gene controls root growth under zinc-limiting condition. (2018) (<https://pubmed.ncbi.nlm.nih.gov/29608565>)

Authors

Bouain N; Satbhai SB; Korte A; Saenchai C; Desbrosses G; Berthomieu P; Busch W; Rouached H

Abstract

Zinc is an essential micronutrient for all living organisms and is involved in a plethora of processes including growth and development, and immunity. However, it is unknown if there is a common genetic and molecular basis underlying multiple facets of zinc function. Here we used natural variation in *Arabidopsis thaliana* to study the role of zinc in regulating growth. We identify allelic variation of the systemic immunity gene *AZI1* as a key for determining root growth responses to low zinc conditions. We further demonstrate that this gene is important for modulating primary root length depending on the zinc and defence status. Finally, we show that the interaction of the immunity signal azelaic acid and zinc level to regulate root growth is conserved in rice. This work demonstrates that there is a common genetic and molecular basis for multiple zinc dependent processes and that nutrient cues can determine the balance of growth and immune responses in plants.

Additional References

## RELATED GEPHE

Related Genes

4 (Brevis radix (BRX), ORGANIC CATION TRANSPORTER 1, Phosphate transporter PHO1, Root System Architecture 1) ([https://www.gephebase.org/search-criteria?/or+Taxon ID="+3702+"/and+Trait=Root growth/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon+ID=))

Related Haplotypes

No matches found.

## EXTERNAL LINKS

## COMMENTS

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