

GEPHE SUMMARY

<p>Tva (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=Tva^#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00002258</p> <p>Martin</p>	<p>GepheID</p> <p>Main curator</p>
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PHENOTYPIC CHANGE

<p>Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=Physiology^#gephebase-summary-title)</p> <p>Pathogen resistance (virus) (https://www.gephebase.org/search-criteria?/and+Trait=Pathogen+resistance+(virus)^#gephebase-summary-title)</p> <p>Sensitive</p> <p>Resistance to avian sarcoma and leukosis viruses subgroup A</p> <p>Taxon A</p> <p>Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=Intraspecific^#gephebase-summary-title)</p>	<p>Trait Category</p> <p>Trait</p> <p>Trait State in Taxon A</p> <p>Trait State in Taxon B</p> <p>Ancestral State</p> <p>Taxonomic Status</p>	<p>Taxon A</p> <p>Latin Name</p> <p>Gallus gallus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=Gallus+gallus^#gephebase-summary-title)</p> <p>Common Name</p> <p>chicken</p> <p>Synonyms</p> <p>Gallus gallus domesticus; chicken; bantam; chickens</p> <p>Rank</p> <p>species</p> <p>Lineage</p> <p>cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Sauropsida; Sauria; Archelosauria; Archosauria; Dinosauria; Saurischia; Theropoda; Coelurosauria; Aves; Neognathae; Galloanserae; Galliformes; Phasianidae; Phasianinae; Gallus</p> <p>Parent</p> <p>Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030)</p> <p>NCBI Taxonomy ID</p> <p>9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031)</p> <p>is Taxon A an Intraspecies?</p> <p>No</p>	<p>Taxon B</p> <p>Latin Name</p> <p>Gallus gallus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=Gallus+gallus^#gephebase-summary-title)</p> <p>Common Name</p> <p>chicken</p> <p>Synonyms</p> <p>Gallus gallus domesticus; chicken; bantam; chickens</p> <p>Rank</p> <p>species</p> <p>Lineage</p> <p>cellular organisms; Eukaryota; Opisthokonta; Metazoa; Eumetazoa; Bilateria; Deuterostomia; Chordata; Craniata; Vertebrata; Gnathostomata; Teleostomi; Euteleostomi; Sarcopterygii; Dipnotetrapodomorpha; Tetrapoda; Amniota; Sauropsida; Sauria; Archelosauria; Archosauria; Dinosauria; Saurischia; Theropoda; Coelurosauria; Aves; Neognathae; Galloanserae; Galliformes; Phasianidae; Phasianinae; Gallus</p> <p>Parent</p> <p>Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030)</p> <p>NCBI Taxonomy ID</p> <p>9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031)</p> <p>is Taxon B an Intraspecies?</p> <p>No</p>
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GENOTYPIC CHANGE

<p>tva</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>GO:0016021 : integral component of membrane (https://www.ebi.ac.uk/QuickGO/term/GO:0016021)</p> <p>Yes (https://www.gephebase.org/search-criteria?/and+Presumptive+Null=Yes^#gephebase-summary-title)</p>	<p>Generic Gene Name</p> <p>Synonyms</p> <p>String</p> <p>Sequence Similarities</p> <p>GO - Molecular Function</p> <p>GO - Biological Process</p> <p>GO - Cellular Component</p>	<p>UniProtKB Gallus gallus</p> <p>Q6JBY7 (http://www.uniprot.org/uniprot/Q6JBY7)</p> <p>GenebankID or UniProtKB</p> <p>0</p> <p>Presumptive Null</p>
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Coding (<https://www.gephebase.org/search-criteria?/and+Molecular+Type=^Coding^#gephebase-summary-title>)

Molecular Type

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

Aberration Type

1-9 bp

Deletion Size

c.502_511delCGCTCACCCC

Molecular Details of the Mutation

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

Experimental Evidence

Intronic deletions of tva receptor gene decrease the susceptibility to infection by avian sarcoma and leukosis virus subgroup A. (2015) (<https://pubmed.ncbi.nlm.nih.gov/25873518>)

Main Reference

Chen W; Liu Y; Li H; Chang S; Shu D; Zhang H; Chen F; Xie Q

Authors

The group of avian sarcoma and leukosis virus (ASLV) in chickens contains six highly related subgroups, A to E and J. Four genetic loci, tva, tvb, tvc and tvj, encode for corresponding receptors that determine the susceptibility to the ASLV subgroups. The prevalence of ASLV in hosts may have imposed strong selection pressure toward resistance to ASLV infection, and the resistant alleles in all four receptor genes have been identified. In this study, two new alleles of the tva receptor gene, tva(r5) and tva(r6), with similar intronic deletions were identified in Chinese commercial broilers. These natural mutations delete the deduced branch point signal within the first intron, disrupting mRNA splicing of the tva receptor gene and leading to the retention of intron 1 and introduction of premature TGA stop codons in both the longer and shorter tva isoforms. As a result, decreased susceptibility to subgroup A ASLV in vitro and in vivo was observed in the subsequent analysis. In addition, we identified two groups of heterozygous allele pairs which exhibited quantitative differences in host susceptibility to ASLV-A. This study demonstrated that defective splicing of the tva receptor gene can confer genetic resistance to ASLV subgroup A in the host.

Abstract

Additional References

RELATED GEPHE

2 (BTN1A1, MX1) (<https://www.gephebase.org/search-criteria?/or+Taxon+ID=^9031^/and+Trait=Pathogen+resistance/and+groupHaplotypes=true#gephebase-summary-title>)

Related Genes

5 (<https://www.gephebase.org/search-criteria?/or+Gene+Gephebase=^Tva^/and+Taxon+ID=^9031^/or+Gene+Gephebase=^Tva^/and+Taxon+ID=^9031^#gephebase-summary-title>)

Related Haplotypes

EXTERNAL LINKS

COMMENTS

@AllelicSeries <https://omia.org/OMIA001299/9031/>