

## GEPHE SUMMARY

<p>HTR3A serotonin receptor (<a href="https://www.gephebase.org/search-criteria?/and+Gene">https://www.gephebase.org/search-criteria?/and+Gene</a> Gephebase="HTR3A serotonin receptor"#gephebase-summary-title)</p> <p>Published</p>	<p>Gephebase Gene</p> <p>Entry Status</p>	<p>GP00001596</p> <p>Prigent</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">https://www.gephebase.org/search-criteria?/and+Trait</a> Category="Physiology"#gephebase-summary-title)</p> <p>Immune response (antibody titre) (<a (antibody="" href="https://www.gephebase.org/search-criteria?/and+Trait=" immune="" response="" titre)"#gephebase-summary-title"="">https://www.gephebase.org/search-criteria?/and+Trait="Immune response (antibody titre)"#gephebase-summary-title</a>)</p> <p>Laying hen of Rhode Island Red type</p> <p>Laying hen of White Leghorn type</p> <p>Unknown</p> <p>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)</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>Physiology</p> <p>Immune response (antibody titre)</p> <p>Laying hen of Rhode Island Red type</p> <p>Laying hen of White Leghorn type</p> <p>Unknown</p> <p>Domesticated</p>	<p>UniProtKB</p> <p>GenebankID or UniProtKB</p>
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Taxon A	Latin Name	Taxon B	Latin Name
Gallus gallus ( <a gallus="" gallus"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Gallus gallus"#gephebase-summary-title</a> )	Gallus gallus ( <a gallus="" gallus"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Gallus gallus"#gephebase-summary-title</a> )	Gallus gallus ( <a gallus="" gallus"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Gallus gallus"#gephebase-summary-title</a> )	Gallus gallus ( <a gallus="" gallus"#gephebase-summary-title"="" href="https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms=">https://www.gephebase.org/search-criteria?/and+Taxon and Synonyms="Gallus gallus"#gephebase-summary-title</a> )
Common Name	Common Name	Common Name	Common Name
chicken	chicken	chicken	chicken
Synonyms	Synonyms	Synonyms	Synonyms
Gallus gallus domesticus; chicken; bantam; chickens	Gallus gallus domesticus; chicken; bantam; chickens	Gallus gallus domesticus; chicken; bantam; chickens	Gallus gallus domesticus; chicken; bantam; chickens
Rank	Rank	Rank	Rank
species	species	species	species
Lineage	Lineage	Lineage	Lineage
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	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	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	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
Parent	Parent	Parent	Parent
Gallus () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030</a> )	Gallus () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030</a> )	Gallus () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030</a> )	Gallus () - (Rank: genus) ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030</a> )
NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID	NCBI Taxonomy ID
9031 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031</a> )	9031 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031</a> )	9031 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031</a> )	9031 ( <a href="https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031">https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031</a> )
is Taxon A an Intraspecies?	is Taxon A an Intraspecies?	is Taxon B an Intraspecies?	is Taxon B an Intraspecies?
Yes	Yes	Yes	Yes
Taxon A Description	Taxon A Description	Taxon B Description	Taxon B Description
Laying hen of Rhode Island Red type	Laying hen of Rhode Island Red type	Laying hen of White Leghorn type	Laying hen of White Leghorn type

## GENOTYPIC CHANGE

<p>HTR3A</p> <p>-</p> <p>-</p> <p>Belongs to the ligand-gated ion channel (TC 1.A.9) family.</p> <p>GO:0004888 : transmembrane signaling receptor activity (<a href="https://www.ebi.ac.uk/QuickGO/term/GO:0004888">https://www.ebi.ac.uk/QuickGO/term/GO:0004888</a>)</p> <p>GO:0051378 : serotonin binding (<a href="https://www.ebi.ac.uk/QuickGO/term/GO:0051378">https://www.ebi.ac.uk/QuickGO/term/GO:0051378</a>)</p> <p>GO:0022850 : serotonin-gated cation-selective channel activity (<a href="https://www.ebi.ac.uk/QuickGO/term/GO:0022850">https://www.ebi.ac.uk/QuickGO/term/GO:0022850</a>)</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>A0A1D5P8L2 (<a href="http://www.uniprot.org/uniprot/A0A1D5P8L2">http://www.uniprot.org/uniprot/A0A1D5P8L2</a>)</p> <p>0</p> <p>UniProtKB Gallus gallus</p> <p>GenebankID or UniProtKB</p>
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GO:0007165 : signal transduction (<https://www.ebi.ac.uk/QuickGO/term/GO:0007165>)  
 GO:0007268 : chemical synaptic transmission  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0007268>)  
 GO:0034220 : ion transmembrane transport  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0034220>)  
 GO:0050877 : nervous system process  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0050877>)  
 GO:0042391 : regulation of membrane potential  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0042391>)

GO - Cellular Component

GO:0005887 : integral component of plasma membrane  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0005887>)  
 GO:0043005 : neuron projection (<https://www.ebi.ac.uk/QuickGO/term/GO:0043005>)  
 GO:0045211 : postsynaptic membrane  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:0045211>)  
 GO:0045202 : synapse (<https://www.ebi.ac.uk/QuickGO/term/GO:0045202>)  
 GO:0032154 : cleavage furrow (<https://www.ebi.ac.uk/QuickGO/term/GO:0032154>)  
 GO:1904602 : serotonin-activated cation-selective channel complex  
 (<https://www.ebi.ac.uk/QuickGO/term/GO:1904602>)

Unknown (<https://www.gephebase.org/search-criteria?/and+Presumptive Null=^Unknown^#gephebase-summary-title>) Presumptive Null  
 Unknown (<https://www.gephebase.org/search-criteria?/and+Molecular Type=^Unknown^#gephebase-summary-title>) Molecular Type  
 Unknown (<https://www.gephebase.org/search-criteria?/and+Aberration Type=^Unknown^#gephebase-summary-title>) Aberration Type  
 unknown Molecular Details of the Mutation  
 Association Mapping (<https://www.gephebase.org/search-criteria?/and+Experimental Evidence=^Association Mapping^#gephebase-summary-title>) Experimental Evidence  
 Across-line SNP association study of innate and adaptive immune response in laying hens. (2010) (<https://pubmed.ncbi.nlm.nih.gov/19781038>) Main Reference  
 Biscarini F; Bovenhuis H; van Arendonk JA; Parmentier HK; Jungerius AP; van der Poel JJ Authors

Abstract

The aim of the present study was to detect quantitative trait loci (QTL) for innate and adaptive immunity in laying hens. For this purpose, the associations between 1022 single nucleotide polymorphism (SNP) markers and immune traits were studied in 583 hens from nine different layer lines. Immune traits were natural antibodies for keyhole limpet haemocyanin (KLH) and lipopolysaccharide (LPS) at 20, 40 and 65 weeks, acquired antibodies to the vaccinal virus of Newcastle disease at 20 weeks, and complement activity measured on sheep and bovine red blood cells at 20, 40 and 65 weeks. We adopted a novel approach based on across-line analysis and testing of the SNP-by-line interaction. Among lines, linkage disequilibrium is conserved at shorter distances than in individual lines; therefore, SNPs significantly associated with immune traits across lines are expected to be near the functional mutations. In the analysis, the SNPs that had a significant across-line effect but did not show significant SNP-by-line interaction were identified to test whether the association was consistent in the individual lines. Ultimately, 59 significant associations between SNPs and immune traits were detected. Our results confirmed some previously identified QTL and identified new QTL potentially involved in the immune function. We found evidence for a role of IL17A (chromosome 3) in natural and acquired antibody titres and in the classical and alternative pathways of complement activation. The major histocompatibility genes on chromosome 16 showed significant association with natural and acquired antibody titres and classical complement activity. The IL12B gene on chromosome 13 was associated with natural antibody titres.

Additional References

RELATED GEPHE

Related Genes

4 (HTR2C serotonin receptor, Interleukin 10 (IL10), Interleukin 12B (IL12B), Interleukin 17A (IL17A)) (<https://www.gephebase.org/search-criteria?/or+Taxon ID=^9031^/and+Trait=Immune response/and+groupHaplotypes=true#gephebase-summary-title>) Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

1 associated SNP

