

## GEPHE SUMMARY

	Gephebase Gene	GephelD
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)	GP00001596	
	Entry Status	Main curator
Published	Prigent	

## PHENOTYPIC CHANGE

	Trait Category	
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)	Trait	
Immune response (antibody titre) ( <a href="https://www.gephebase.org/search-criteria?/and+Trait=^Immune+response+(antibody+titre)^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Trait=^Immune+response+(antibody+titre)^#gephebase-summary-title</a> )	Trait State in Taxon A	
Laying hen of Rhode Island Red type	Trait State in Taxon B	
Laying hen of White Leghorn type	Ancestral State	
Unknown	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
Gallus gallus ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Gallus+gallus^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Gallus+gallus^#gephebase-summary-title</a> )		Gallus gallus ( <a href="https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Gallus+gallus^#gephebase-summary-title">https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Gallus+gallus^#gephebase-summary-title</a> )
chicken	Common Name	
Gallus gallus domesticus; chicken; bantam; chickens	Synonyms	
species	Rank	
	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
	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> )
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> )	NCBI Taxonomy ID	NCBI Taxonomy ID
is Taxon A an Infraspecies?		is Taxon B an Infraspecies?
Yes	Taxon A Description	Taxon B Description
Laying hen of Rhode Island Red type		Laying hen of White Leghorn type

## GENOTYPIC CHANGE

	Generic Gene Name	UniProtKB Gallus gallus
HTR3A	A0A1D5P8L2 ( <a href="http://www.uniprot.org/uniprot/A0A1D5P8L2">http://www.uniprot.org/uniprot/A0A1D5P8L2</a> )	
	Synonyms	GenebankID or UniProtKB
-	0	
	String	
-		
	Sequence Similarities	
Belongs to the ligand-gated ion channel (TC 1.A.9) family.		
	GO - Molecular Function	
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> )		
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> )		
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> )		
	GO - Biological Process	

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>)

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

unknown

Experimental Evidence

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

Main Reference

Across-line SNP association study of innate and adaptive immune response in laying hens. (2010) (<https://pubmed.ncbi.nlm.nih.gov/19781038>)

Authors

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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

