

GEPHE SUMMARY

	Gephebase Gene	GephelD
Interleukin 17A (IL17A) (https://www.gephebase.org/search-criteria?/and+Gene Gephebase=^Interleukin 17A (IL17A)^#gephebase-summary-title)	GP00001593	Main curator
Published	Entry Status	Prigent

PHENOTYPIC CHANGE

	Trait Category
Physiology (https://www.gephebase.org/search-criteria?/and+Trait Category=^Physiology^#gephebase-summary-title)	Trait
Immune response (antibody titre and complement activation) (https://www.gephebase.org/search-criteria?/and+Trait=^Immune+response+(antibody+titre+and+complement+activation)^#gephebase-summary-title)	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 (https://www.gephebase.org/search-criteria?/and+Taxonomic Status=^Domesticated^#gephebase-summary-title)	

Taxon A		Taxon B	
	Latin Name		Latin Name
Gallus gallus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Gallus+gallus^#gephebase-summary-title)		Gallus gallus (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=^Gallus+gallus^#gephebase-summary-title)	
chicken	Common Name	chicken	Common Name
Gallus gallus domesticus; chicken; bantam; chickens	Synonyms	Gallus gallus domesticus; chicken; bantam; chickens	Synonyms
species	Rank	species	Rank
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	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	Lineage
Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9030)	Parent	Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9030)	Parent
9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9031)	NCBI Taxonomy ID	9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id= 9031)	NCBI Taxonomy ID
Yes	is Taxon A an Infraspecies?	Yes	is Taxon B an Infraspecies?
Laying hen of Rhode Island Red type	Taxon A Description	Laying hen of White Leghorn type	Taxon B Description

GENOTYPIC CHANGE

IL17A	Generic Gene Name	UniProtKB Gallus gallus
-	Synonyms	GenebankID or UniProtKB
-	String	
-	Sequence Similarities	
-	GO - Molecular Function	
GO:0005125 : cytokine activity (https://www.ebi.ac.uk/QuickGO/term/GO:0005125)		
GO - Biological Process		
GO:0006954 : inflammatory response (https://www.ebi.ac.uk/QuickGO/term/GO:0006954)		
	GO - Cellular Component	

GO:0005576 : extracellular region (<https://www.ebi.ac.uk/QuickGO/term/GO:0005576>)

Presumptive Null

Unknown ([#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Presumptive+Null=^Unknown))

Molecular Type

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

Aberration Type

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

Molecular Details of the Mutation

unknown

Experimental Evidence

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

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

Biscarini F; Bovenhuis H; van Arendonk JA; Parmentier HK; Jungerius AP; van der Poel JJ

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, HTR3A serotonin receptor, Interleukin 10 (IL10), Interleukin 12B (IL12B)) ([#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+TaxonID=^9031/and+Trait=Immune+response/and+groupHaplotypes=true))

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

2 associated SNPs