

GEPHE SUMMARY

		Gephebase Gene		GepheID
Interleukin 12B (IL12B) (https://www.gephebase.org/search-criteria?/and+Gene)			GP00001594	
Gephebase="Interleukin 12B (IL12B)"#gephebase-summary-title)				Main curator
	Entry Status		Prigent	
Published				

PHENOTYPIC CHANGE

		Trait Category	
Physiology (https://www.gephebase.org/search-criteria?/and+Trait)			
Category="Physiology"#gephebase-summary-title)		Trait	
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)			
	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	Latin Name	Taxon B	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)	
Common Name		Common Name	
chicken		chicken	
Synonyms		Synonyms	
Gallus gallus domesticus; chicken; bantam; chickens		Gallus gallus domesticus; chicken; bantam; chickens	
Rank		Rank	
species		species	
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	
Parent		Parent	
Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030)		Gallus () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9030)	
NCBI Taxonomy ID		NCBI Taxonomy ID	
9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031)		9031 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=9031)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		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
IL-12B			Q6X0K9 (http://www.uniprot.org/uniprot/Q6X0K9)	
		Synonyms		GenebankID or UniProtKB
IL-12B; IL-12p40; IL12B			0	
		String		
9031.ENS GALP00000040257 (http://string-db.org/newstring.cgi/show_network_section.pl?identifier=9031.ENS GALP00000040257)				
		Sequence Similarities		
Belongs to the type I cytokine receptor family, Type 3 subfamily.				
		GO - Molecular Function		
GO:0046982 : protein heterodimerization activity (https://www.ebi.ac.uk/QuickGO/term/GO:0046982)				
GO:0005125 : cytokine activity (https://www.ebi.ac.uk/QuickGO/term/GO:0005125)				
GO:0004896 : cytokine receptor activity				

(<https://www.ebi.ac.uk/QuickGO/term/GO:0004896>)

GO - Biological Process

GO:0070417 : cellular response to cold

(<https://www.ebi.ac.uk/QuickGO/term/GO:0070417>)

GO:0032609 : interferon-gamma production

(<https://www.ebi.ac.uk/QuickGO/term/GO:0032609>)

GO - Cellular Component

GO:0005615 : extracellular space (<https://www.ebi.ac.uk/QuickGO/term/GO:0005615>)

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, HTR3A serotonin receptor, Interleukin 10 (IL10), 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