Tour Guide

(Version 2020-1)

1. Search the target population.

Go to "Population" and input "serama" to search this population.



You will find the brief information for the Serama population.

Profile	Population	Continent	Category	Purpose
	serama	All	All	All
	Serama chicken	Southeast Asia	Commercial	Fancy

2. The information for population and samples sequenced.

mp to ection	Background Information Genetic Affinity Linkage Disequilibrium Dec	ay	Variants Annotation&Density ADMIXTURE Analysis Demographic History	Genetic Runs o	e Differentiation f Homozygosity Selection
		Back	ground Information 🔺		
>		Breed Card			1
		Breed	Serama chicken		
245		Species taxonomy	Gallus gallus domesticus		
- 19 B	all	Classification	Commercial		
percon	poultrykeeper.com	Region	Malaysia		Sec. Sec.
		Purpose	Fancy	- P	Y A
ription Serama (Malay Ayam Se uns with local Malaysian	rama), also called the Malaysian Sera n bantams. Seramas have the Japanese	ima is a bantam breed of cl e Bantam's lethal gene. It r	hicken originating in Malaysia within the last 50 years. It neans that some embryos fail to hatch or that some chicks	is thought to be developed will die shortly after hatch	by crossbreeding Japa iing.
ription Serama (Malay Ayam Se ams with local Malaysian racteristics Serama is the smallest br cal wings held down near ear) and don't tend to go ples Information	rama), also called the Malaysian Sera n bantams. Seramas have the Japaness eed in the world, weighing less than f rly touching the ground. Seramas are broody too.	ma is a bantam breed of cl e Bantam's lethal gene. It r 500 g. The Serama are chan very upright little chickens	hicken originating in Malaysia within the last 50 years. It neans that some embryos fail to hatch or that some chicks racterized by their upright posture, full breast, vertical tail s with small neat single combs, red earlobes, and yellowis	is thought to be developed will die shortly after hatch feathers held upright and t h legs. Serama hens don't l	by crossbreeding Japa ing. tight up to the body ar lay many eggs (80 - 16
ription Serama (Malay Ayam Se ams with local Malaysian racteristics Serama is the smallest br cal wings held down near ear) and don't tend to go ples Information Original ID	rama), also called the Malaysian Sera n bantams. Seramas have the Japaness eed in the world, weighing less than f dy touching the ground. Seramas are broody too.	ma is a bantam breed of cl e Bantan's lethal gene. It r 500 g. The Serama are chan very upright little chicken:	hicken originating in Malaysia within the last 50 years. It neans that some embryos fail to hatch or that some chicks racterized by their upright posture, full breast, vertical tail s with small neat single combs, red earlobes, and yellowis Sampling Location	is thought to be developed will die shortly after hatel feathers held upright and h legs. Serama hens don't l Depth	by crossbreeding Japa ing. iight up to the body an ay many eggs (80 - 10 Coverage
ription Serama (Malay Ayam Se ams with local Malaysian racteristics Serama is the smallest br cal wings held down near ear) and don't tend to go ples Information Original ID YPT2425	rama), also called the Malaysian Sera n bantams. Seramas have the Japaness eed in the world, weighing less than 1 rly touching the ground. Seramas are broody too. <u>Gender</u> Female	ma is a bantam breed of cl e Bantam's lethal gene. It r 500 g. The Serama are char very upright little chickens Xuz	hicken originating in Malaysia within the last 50 years. It neans that some embryos fail to hatch or that some chicks racterized by their upright posture, full breast, vertical tail s with small neat single combs, red earlobes, and yellowis Sampling Location zhou, Jiangsu province, China	is thought to be developed will die shortly after hatch feathers held upright and u h legs. Serama hens don't l Depth 4.67610	by crossbreeding Japa sing. tight up to the body an lay many eggs (80 - 16 Coverage 0.941716
ription Serama (Malay Ayam Se ams with local Malaysian racteristics Serama is the smallest br cal wings held down near ear) and don't tend to go ples Information Original ID YPT2425 YPT2423	rama), also called the Malaysian Sera n bantams. Seramas have the Japaness eed in the world, weighing less than ½ rly touching the ground. Seramas are broody too. Cender Female Male	ma is a bantam breed of cl e Bantan's lethal gene. It r 500 g. The Serama are chat very upright little chickens Xuz Xuz	hicken originating in Malaysia within the last 50 years. It neans that some embryos fail to hatch or that some chicks racterized by their upright posture, full breast, vertical tail s with small neat single combs, red earlobes, and yellowis Sampling Location zhou, Jiangsu province, China	is thought to be developed will die shortly after hater feathers held upright and t h legs. Serama hens don't l Depth 4.67610 4.13269	by crossbreeding Japa ing. ight up to the body an lay many eggs (80 - 16 Coverage 0.941716 0.928937
ription Serama (Malay Ayam Se ams with local Malaysiar racteristics Serama is the smallest br cal wings held down near ear) and don't tend to go ples Information Original ID YPT2425 YPT2423 YPT2422	rama), also called the Malaysian Sera n bantams. Seramas have the Japaness eed in the world, weighing less than 1 rly touching the ground. Seramas are broody too. Cender Gender Gender Male Female	ma is a bantam breed of cf e Bantam's lethal gene. It r 500 g. The Serama are chan very upright little chickens Xuz Xuz Xuz	hicken originating in Malaysia within the last 50 years. It neans that some embryos fail to hatch or that some chicks racterized by their upright posture, full breast, vertical tail s with small neat single combs, red earlobes, and yellowis Sampling Location thou, Jiangsu province, China thou, Jiangsu province, China	is thought to be developed will die shortly after hatch feathers held upright and t h legs. Serama hens don't Depth 4.67610 4.13269 8.03419	by crossbreeding Japa ning. tight up to the body an ay many eggs (80 - 16 0.941716 0.928937 0.965364
ription Serama (Malay Ayam Se ams with local Malaysian racteristics Serama is the smallest br cal wings held down near ear) and don't tend to go ples Information Original ID YPT2425 YPT2423 YPT2422 YPT2421	rama), also called the Malaysian Sera n bantams. Seramas have the Japaness eed in the world, weighing less than f rly touching the ground. Seramas are broody too. Center Center	ima is a bantam breed of cl e Bantam's lethal gene. It r 500 g. The Serama are char very upright little chicken: Xuz Xuz Xuz Xuz Xuz	hicken originating in Malaysia within the last 50 years. It neans that some embryos fail to hatch or that some chicks racterized by their upright posture, full breast, vertical tail s with small neat single combs, red earlobes, and yellowis Sampling Location chou, Jiangsu province, China chou, Jiangsu province, China chou, Jiangsu province, China	is thought to be developed will die shortly after hatch feathers held upright and th h legs. Serama hens don't l Depth 4.67610 4.13269 8.03419 5.43834	by crossbreeding Japa ing. tight up to the body an ay many eggs (80 - 16 0.941716 0.928937 0.965364 0.950236

3.Variants annotation and statistics.



4. Genetic differentiation.

Serama chicken

Jump to section	Background Information Genetic Affinity Linkage Disequilibrium Decay	Variants Annotation&Density ADMIXTURE Analysis Demographic History	Genetic Differentiation Runs of Homozygosity Selection

The values of F_{ST} genetic distance between the Serama and other populations (e.g. Ceylon Jungle Fowl) were shown.



5. Genetic affinity.



Population genetic affinity was shown by principal component analysis (PCA) under the context of *G. gallus* (inlcuing domestic chicken) without *G. g. bankiva* (1). Users can choose certain chicken populations (e.g. Shandong Yuanbao chicken and Daweishan mini chicken) (3) to showing genetic affinities under the PCA context (2). One Serama sample (ID YPT2423) was indicated (4).



6. ADMIXTURE analysis.

Serama chicke	n		
Jump to section	Background Information Genetic Affinity Linkage Disequilibrium Decay	Variants Annotation&Density ADMIXTURE Analysis Demographic History	Genetic Differentiation Runs of Homozygosity Selection

Population structure and genetic admixture were shown by length of each colored bar represents the proposed proportion of representative ancestry in the individual. One Serama sample (ID YPT2423) was indicated under k7 condition. The Shandong Yuanbao chicken and Daweishan Mini chicken were used for comparison.



7. Runs of homozygosity.

Serama chicke	n		
Jump to section	Background Information Genetic Affinity Linkage Disequilibrium Decay	Variants Annotation&Density ADMIXTURE Analysis Demographic History	Constic Differentiation Runs of Homozygosity Selection

The inpopulationing and bottleneck were reflected by Runs of Homozygosity (ROH). The number and length of ROH for each Serama sample (e.g. ID YPT2423) were shown with the category of '0.1Mb=<ROH<0.5Mb'. The Shandong Yuanbao chicken and Daweishan Mini chicken samples were used for comparison.



The number or length of ROH for the Serama population were shown. The category of ROH range could be defined. The Shandong Yuanbao chicken and Daweishan Mini chicken populations were used for comparison.



8. Linkage disequilibrium decay.



Linkage disequilibrium (LD) decay is measured by r^2 . The other populations/populations could be selected to show with the Serama population for comparison.



9. Demographic history.

Serama chicken

Jump to section	Background Information Genetic Affinity Linkage Disequilibrium Decay	Variants Annotation&Density ADMIXTURE Analysis Demographic History	Genetic Differentiation Runs of Homozygosity Selection

The effective population size change along time schedule of the Serama population is inferred by using SMC++. The other populations/populations with interests could be selected to show with the Serama population for comparison.



10. Selective signals.

Serama chicken

	-		
Jump to section	Background Information Genetic Affinity Linkage Disequilibrium Decay	Variants Annotation&Density ADMIXTURE Analysis Demographic History	Genetic Differentiation Runs of Homozycosity Selection

The selective signals in the target population are detected with multiple methods. The calculations of Pi-ratio with red junglefowl (wild progenitor population) and SweeD for each variant are indicated in Method-YL (Y axis of Left), whereas the results of Pi, Tajima's D, and Fst with red junglefowl based on 5 kb sliding window are displayed in Method-YR (Y axis of Right). The chromosome and region with interests can be defined by input the number of chromosome and the range of physical position. The genes along the region are shown. The levels of statistical significance are indicated by different colors.



11. Phylogenetic tree.

Go to "Phylogeny".



The Phylogeny is an interactive dynamic evolutionary tree based on Phylogeny.IO and can be scalable and collapsible. Users can freely view the whole as well as details for each branch with interests. Here are some tips:

1. User can zoom and pan around the tree using trackpad or mouse.

2. Clicking on a branch: show the image and sample information, clicking image to jump to the corresponding population page.

- 3. Double-clicking on a node: collapsing or extending a clade.
- 4. Hovering over a node displays associated information.

5. Sliders control the geometry of the tree. User can adjust the relative length of the branches and the space between them.

6. The items for tree displaying.



12. Variation

Go to "Variation".



There are three items: SNPs statistics for each sample (1), search or browse SNPs in populations/populations (2), and browse for SNPs in populations/populations (3).

Showing 1 to 9 of 9 entries									
Original ID	Data Breed		Continents	Species Taxonomy	Sampling Location	Depth	Coverage	Statistics	
Search		serama	All	All	Search				
YPT2374	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	4.85094	0.945002	4476822	
YPT2375	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	5.27874	0.950706	4602617	
YPT2376	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	4.06283	0.925825	3953048	
YPT2416	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom Malaysia		7.28006	0.962456	5250528	
YPT2420	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	5.04192	0.947485	4753577	
YPT2421	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	5.43834	0.950236	4911244	
YPT2422	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	8.03419	0.965364	5255140	
YPT2423	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	4.13269	0.928937	4159381	
YPT2425	Chicken2K	Serama chicken	Southeast Asia	Gallus gallus dom esticus	Malaysia	4.67610	0.941716	4533777	
showing 1 to 9 of 9 entries				·	·				

Go to "Browse of SNPs statistics". User can search for the sequencing information of samples.

Go to "Search&Browse SNPs in populations". User can search for SNPs in region with interests.

Chr 1 Feature intronic Populatio Surena	m			•	Pos 500 - (Gene ID gene id Submit	150000 Reset		Ref all Biotype protein	e _coding	•	Alt all dbSNP rsID dbSNP rsID		
Chr	Pos	Ref	Alt	Feature	Gene ID	Symbol	Detail	Strand	Biotype	Exonic_feature	Dbsnp_rsid	Transcript_id	Maf_surena
1	137880	с	А	Intronic	ENSGALG00000051297			+	Protein_coding				A:0.25
1	136573	G	Т	Intronic	ENSGALG00000051297			+	Protein_coding				T:0.0833333
1	136463	С	Т	Intronic	ENSGALG00000051297			+	Protein_coding				T:0.107143
													C
1	136454	Α	G	Intronic	ENSGALG00000051297		1.1	+	Protein_coding	-			G:0.135355
1	136454 136452	A G	G	Intronic	ENSGALG00000051297 ENSGALG00000051297	•	•	+ +	Protein_coding Protein_coding	•		•	G:0.1333333 A:0.06666667
1 1 1	136454 136452 136431	A G T	G A C	Intronic Intronic Intronic	ENSGALG00000051297 ENSGALG00000051297 ENSGALG00000051297	•	•	+ + +	Protein_coding Protein_coding Protein_coding	-	- - -		G:0.133333 A:0.06666667 C:0.133333

Go to "JBrowse for SNPs". User can check the characters for the SNPs of interests across populations/species/continents/regions/locations.

✓ My Tracks Currently Active	Back to brows	171 tracks		
Recently Used		Track	Dataset	Breed
Breed	✓	DNA	DNA	
▼ Continents 2 (no data)	✓	Gene	Protein Coding Gene	
6 Africa 2 Central Asia	✓	vd/gallus.cleansnp.Afghan_Native_chicken.maf0.0 5_missing0.8_alleles2.nuclear.recode.vd.gz	Afghan Native chicken	Afghan Native chicken
1 Ceylon Jungle Fowl 49 Europe		vd/gallus.cleansnp.Aijiao_chicken.maf0.05_missin g0.8_alleles2.nuclear.recode.vcf.gz	Aijiao chidken	Aijiao chidken
1 Grey Jungle Fowl 1 Grey Jungle Fowl 10 North America		vcf/gallus.cleansnp.America_Commercial_Broiler. maf0.05_missing0.8_alleles2.nuclear.recode.vcf.gz	America Commercial Broiler	America Commercial Broiler
20 Northern East Asia 1 Red Jungle Fowl		vcf/gallus.cleansnp.Ancona.maf0.05_missing0.8_a Ileles2.nuclear.recode.vcf.gz	Ancona	Ancona
1 South America 6 South Asia	✓	vcf/gallus.cleansnp.Andalusian.maf0.05_missing0. 8_alleles2.nuclear.recode.vcf.gz	Andalusian	Andalusian
15 Southeast Asia 51 Southern East Asia 5 Wortern Aria		vcf/gallus.cleansnp.Anyi_Gray_chicken.maf0.05_m issing0.8_alleles2.nuclear.recode.vcf.gz	Anyi Gray chicken	Anyi Gray chicken
► Region		vcf/gallus.cleansnp.Appenzeller.maf0.05_missing0. 8_alleles2.nuclear.recode.vcf.gz	Appenzeller	Appenzeller
 Sampling location 		vcf/gallus.cleansnp.Aseel.maf0.05_missing0.8_alle les2.nuclear.recode.vcf.oz	Aseel	Aseel

Genome	Track	View Help	Tools													
0	10,000,000	20,000,000	30,000,000	40,000,000	50,000,000	60,000,000	70,000,000	80,000,000	90,000,000	100,000,000	110,000,000	120,000,000	130,000,000	140,000,000	150,000,000	160,000,000
								$\rightarrow Q$	ર @ 🕀	1 • 1:20000	20500 (501 b)	Go	🌛 💷+			
A Select	<u> </u>	20,050		20,100		20,150		20,200		20,250		20,300		20,350		20,400
¶ tracks																
2000					nn n							in gin T				
					_					_		- C	_		-	
									-							
S Protein	Coding Gene															
Afghan I	Native chick	en	SNV T -> C		SNV C -> T	SNV	V G -> A		SNV C → T				ŚN	V C → T	SNV C -> C	SNV G -> A
			SNV C	⇒ T												
() Andalus	ian		NV T -> C		NV C o T	NV A ->	6			SNV A -> G	NV G -> C					
C Prindings			SNV C	⇒T												