Supporting Information

Phenotypic diversity in domestic mammals does not result from an increased recombination rate

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This section contains: Supporting Figures

Supporting Tables

Supporting Figure Legends

Figure S1. **MLH1 foci counts for all samples.** Graphs display MLH1 counts for all individuals analyzed: dogs and wolves (green and red, respectively, A), goats and ibexes (green and red, respectively, B) and sheep and mouflons (green and red, respectively, C). Black lines represent the average found in each sample (A-C).

Figure S2. LD patterns in dogs and wolves for each of the regions studied. Values of r^2 as a measure of pairwise LD between SNPs. Wolf genotype data was thinned to match the dog data by selecting the SNP with the same or the closest coordinates to each dog SNP. LDhat maps, based on the inference of population recombination rate (ρ), for the same markers, are plotted above each LD plot.

Figure S3. Genetic maps for the 16 genomic regions studied for dogs and wolves. Mean $\rho = 4N_e r$ estimates along each fragment (penalty 5). Each dot represents the value of ρ between each pair of SNPs. The colour of the dot indicates whether the SNP is found in an intergenic region (green), an intron (pink) or an exon (blue, synonymous change; red, non-synonymous change). The red line represents the location of the locus associated with the phenotypic character (see Table 1). The dashed line is the average recombination rate for the region.

Supporting Table Legends

Table S1 Approaches and samples used in this study to compare recombination between wild and domestic species.

Table S2 Number of observed segregating sites and estimated number of recombination breakpoints in the 16 genomic regions studied in dogs and wolves.

Supporting Tables

Table S1 Approaches and samples used in this study to compare recombination between wild and domestic species

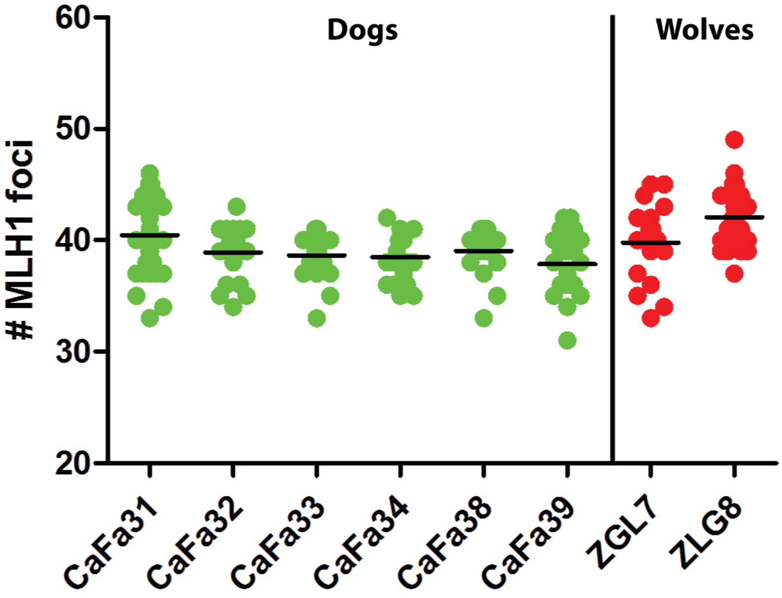
Approach	Species	Common name	Origin	Sample ID
MLH1 mapping	*Canis familiaris*	Dog	Veterinary clinic	CaFa31
	Canis familiaris	Dog	Veterinary clinic	CaFa32
	Canis familiaris	Dog	Veterinary clinic	CaFa33
	Canis familiaris	Dog	Veterinary clinic	CaFa34
	Canis familiaris	Dog	Veterinary clinic	CaFa38
	Canis familiaris	Dog	Veterinary clinic	CaFa39
	Canis lupus	Wolf	Madrid Zoo	Z/LG8
	Canis lupus	Wolf	Madrid Zoo	Z/LG7
	Capra hircus	Goat	Pilas	CaHir1
	Capra hircus	Goat	Pilas	CaHir2
	Capra hircus	Goat	Pilas	CaHir3
	Capra hircus	Goat	Pilas	CaHir4
	Capra hircus	Goat	Pilas	CaHir5
	Capra hircus	Goat	Pilas	CaHir6
	Capra pyrenaica	Spanish ibex	Cazorla	CaPyr1
	Capra pyrenaica	Spanish ibex	Cazorla	CaPyr4
	Capra pyrenaica	Spanish ibex	Cazorla	CaPyr5
	Capra pyrenaica	Spanish ibex	Cazorla	CaPyr6
	Capra pyrenaica	Spanish ibex	Cazorla	CaPyr7
	Capra pyrenaica	Spanish ibex	Cazorla	CaPyr8
	Ovis aries	Sheep	Los Corrales	OvAri1
	Ovis aries	Sheep	Los Corrales	OvAri3
	Ovis aries	Sheep	Los Corrales	OvAri4
	Ovis aries	Sheep	Los Corrales	OvAri5
	Ovis aries	Sheep	Los Corrales	OvAri6
	Ovis aries	Sheep	Pilas	OvAri8
	Ovis musimon	Mouflon	Cazorla	OvMus6
	Ovis musimon	Mouflon	Cazalla de la Sierra	OvMus11
	Ovis musimon	Mouflon	Cazalla de la Sierra	OvMus13
	Ovis musimon	Mouflon	Cazalla de la Sierra	OvMus14
	Ovis musimon	Mouflon	Cazalla de la Sierra	OvMus15
Population genomics on sequence data	*Canis familiaris*	Dog	Veterinary clinic	CaFa1Sp
	Canis familiaris	Dog	Veterinary clinic	CaFa2Sp
	Canis familiaris	Dog	Veterinary clinic	CaFa5Sp
	Canis familiaris	Dog	Veterinary clinic	CaFa8Sp
	Canis familiaris	Dog	Veterinary clinic	CaFa9Sp
	Canis lupus	Wolf	United States (captive)	465Bl
	Canis lupus	Wolf	United States (captive)	475Bl

Canis lupus	Wolf	Spain	CaLu3M
Canis lupus	Wolf	Spain	CaLu8M
Canis lupus	Wolf	Spain	CaLu9M
Canis lupus	Wolf	Spain	CaLu10M
Canis lupus	Wolf	Sweden	CaLu4M
Canis lupus	Wolf	Sweden	CaLu5M
Canis lupus	Wolf	Sweden	CaLu6M
Canis lupus	Wolf	Sweden	CaLu7M
Canis lupus	Wolf	Finland	FIN7462
Canis lupus	Wolf	Finland	FIN7760
Canis lupus	Wolf	Finland	FIN8174
Canis lupus	Wolf	Italy	IT001
Canis lupus	Wolf	Italy	IT050
Canis lupus	Wolf	Italy	IT973
Canis lupus	Wolf	North Western Territories	NRS2010.005
Canis lupus	Wolf	North Western Territories	NRS2010.016
Canis lupus	Wolf	North Western Territories	NRS2010.021
Canis lupus	Wolf	British Columbia	ex111
Canis lupus	Wolf	British Columbia	ex112

Table S2 Number of observed segregating sites and estimated number of recombination breakpoints in the 16 genomic regions studied in dogs and wolves.

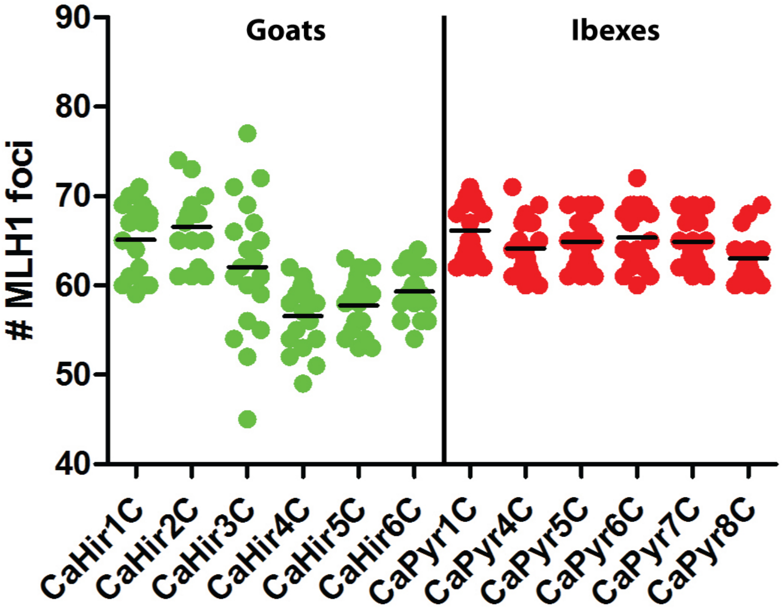
	Dogs		**Spain + Italy wolves**		**Sweden+Finland wolves**		**North American wolves**	
chr	**Segr. Sites**	**Breakpoints**	**Segr. Sites**	**Breakpoints**	**Segr. Sites**	**Breakpoints**	**Segr. Sites**	**Breakpoints**
1	247	9	268	7	324	0	353	17
9	198	9	392	16	402	11	388	10
10	46	2	72	2	92	1	290	4
12	485	25	563	23	642	19	854	33
13	494	11	481	11	606	31	748	31
15	196	9	262	15	285	9	447	18
16a	283	13	474	15	396	12	471	20
16b	928	51	907	42	1181	66	1255	71
17	435	28	485	28	503	17	598	38
18a	313	10	462	17	544	26	531	30
18b	937	44	1197	59	1212	66	1246	54
20	459	20	745	51	723	38	744	39
22	349	19	441	18	553	29	640	33
25	613	37	830	36	858	34	1144	55
27	770	40	1084	48	1159	61	1445	87
32	286	16	471	19	395	15	572	32

A



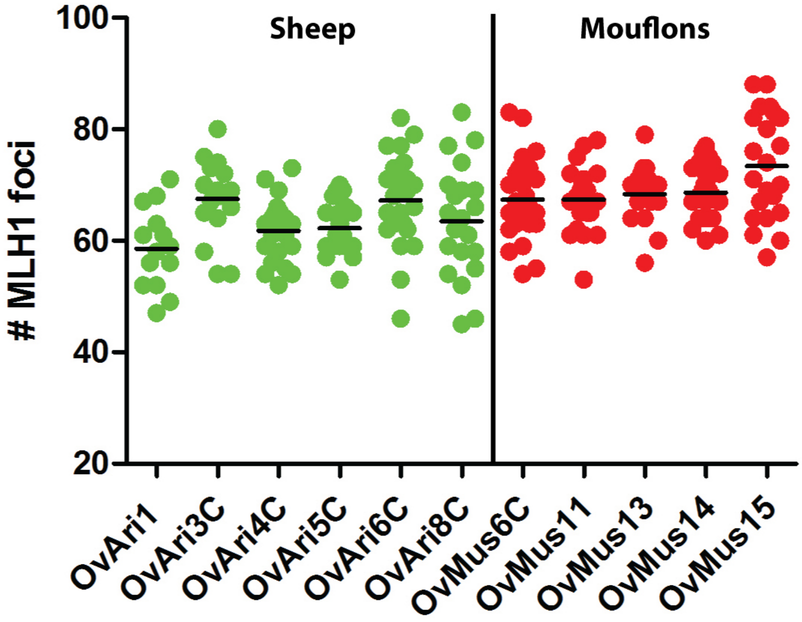
60
50
40
30
20
MLH1 foci
Dogs
Wolves
CaFa31
CaFa32
CaFa33
CaFa34
CaFa38
CaFa39
ZGL7
ZLG8

B



90
80
70
60
50
40
MLH1 foci
Goats
Ibexes
CaHir1C
CaHir2C
CaHir3C
CaHir4C
CaHir5C
CaHir6C
CaPyr1C
CaPyr4C
CaPyr5C
CaPyr6C
CaPyr7C
CaPyr8C

C



100
80
60
40
20
MLH1 foci
Sheep
Mouflons
OvAri1
OvAri3C
OvAri4C
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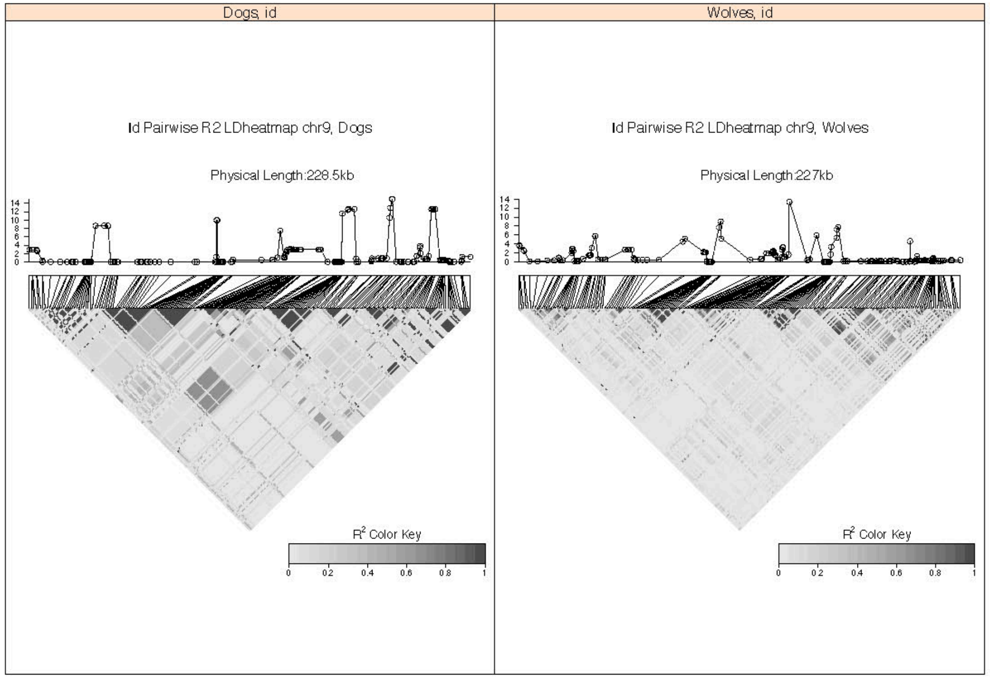
OvAri6C
OvAri8C
OvMus6C
OvMus11
OvMus13
OvMus14
OvMus15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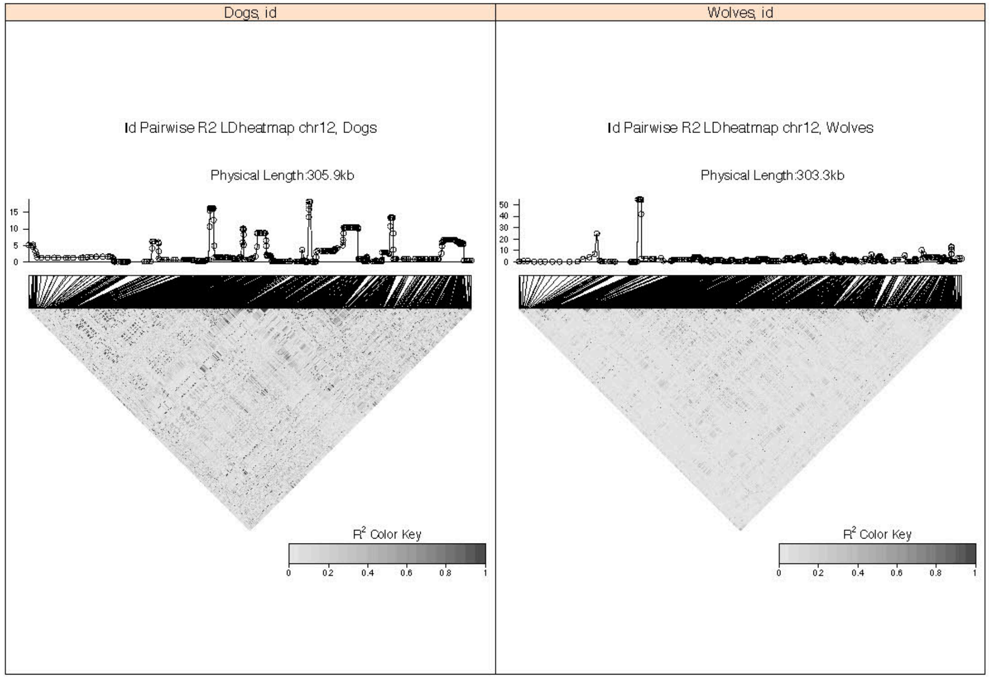
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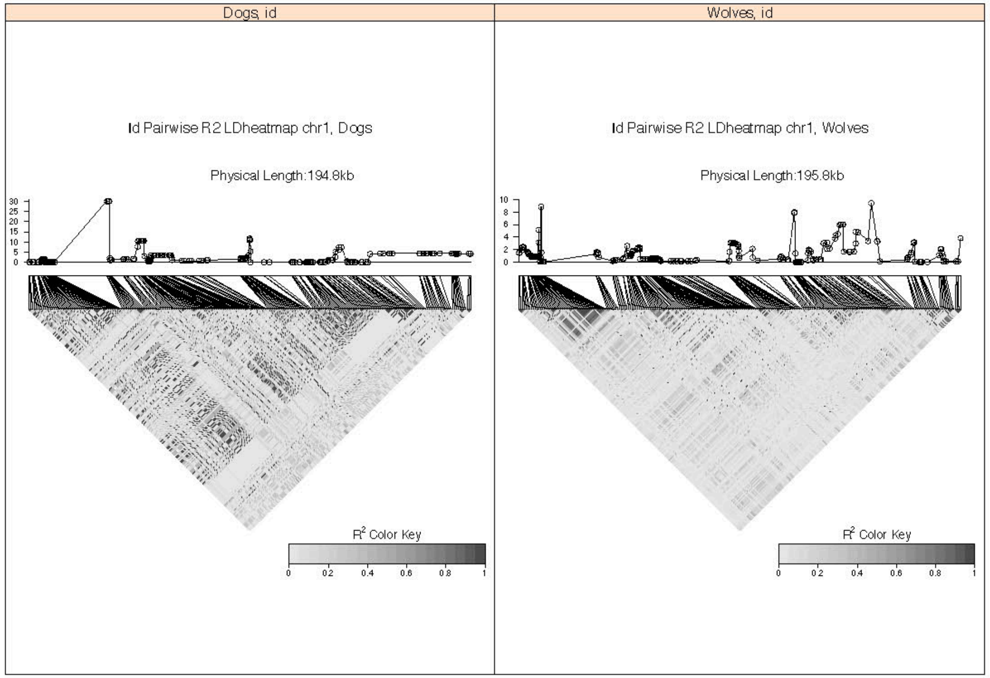
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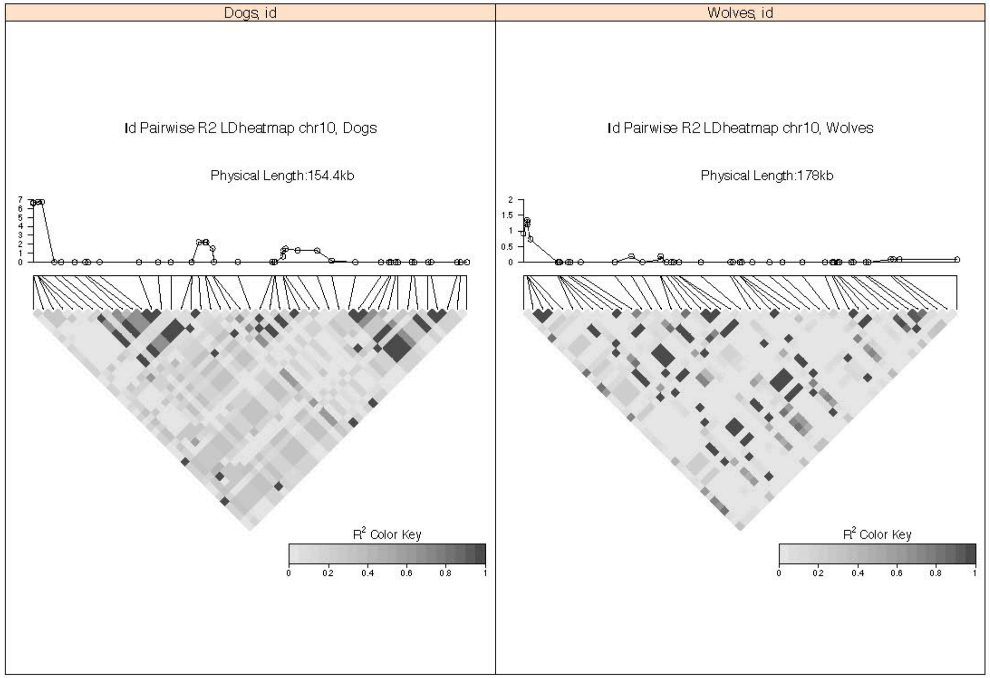
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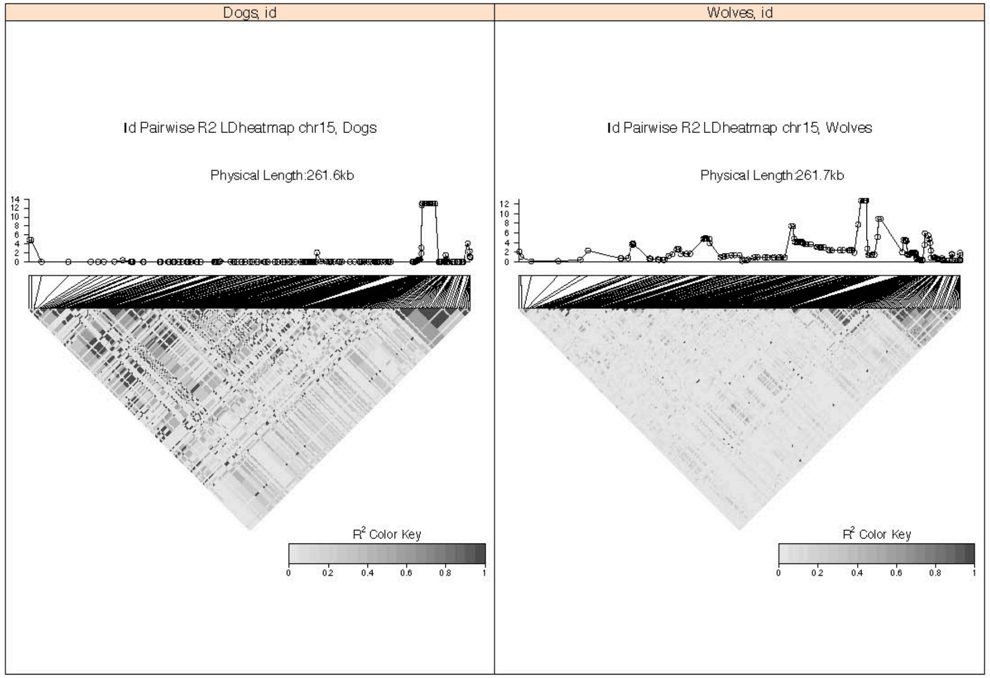
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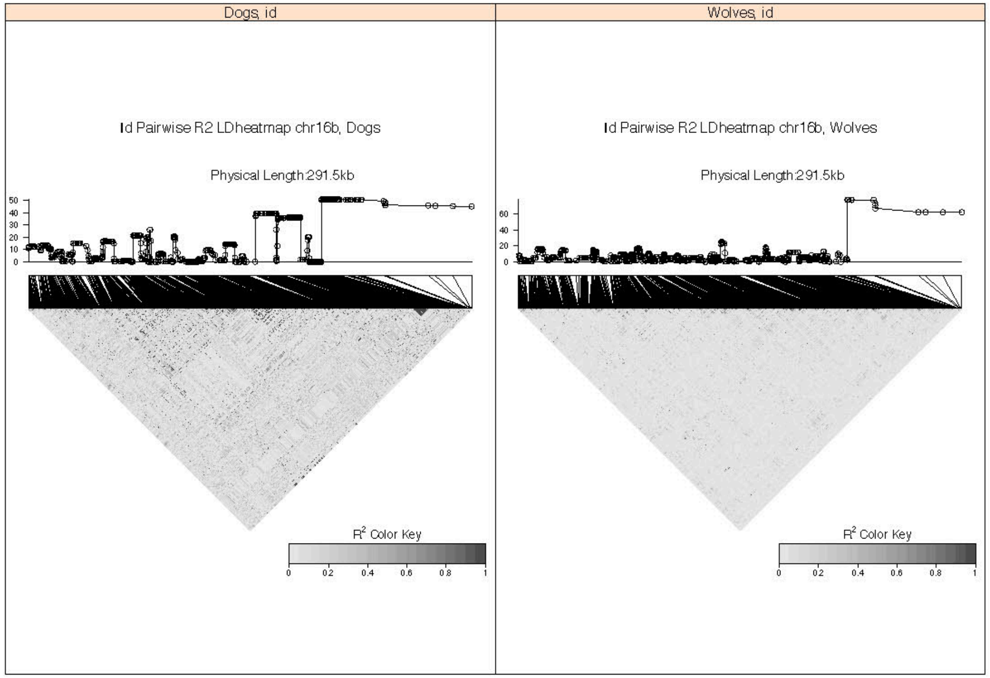
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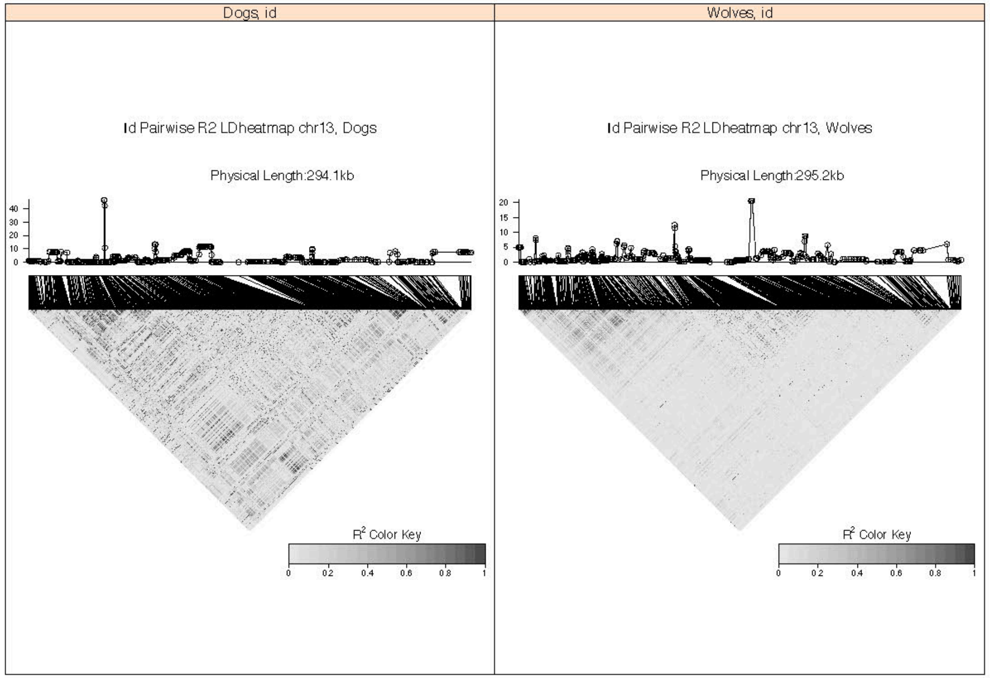
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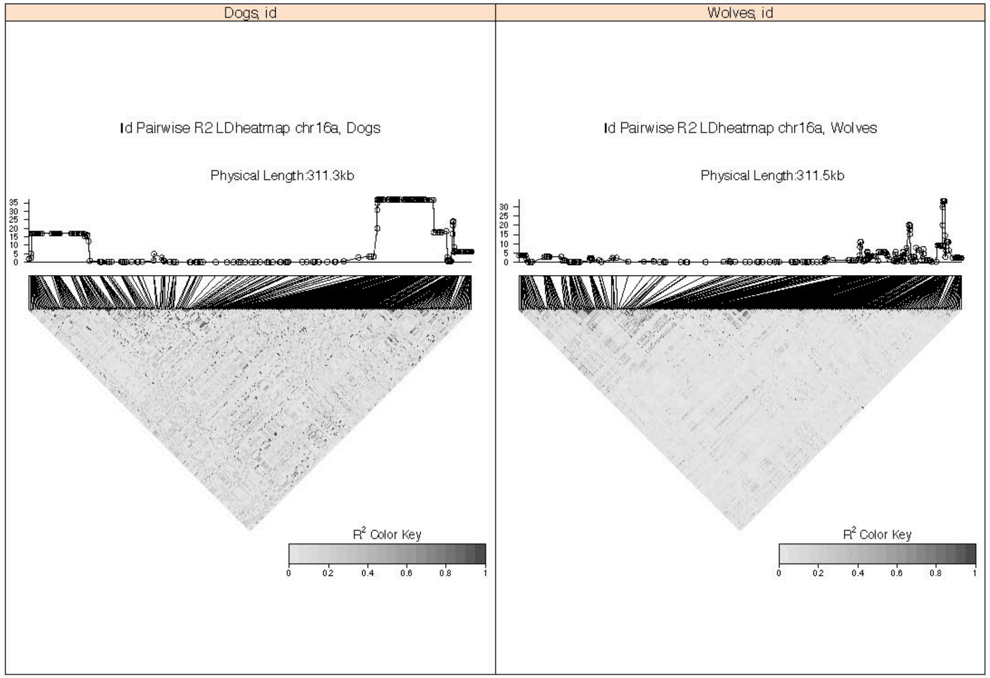
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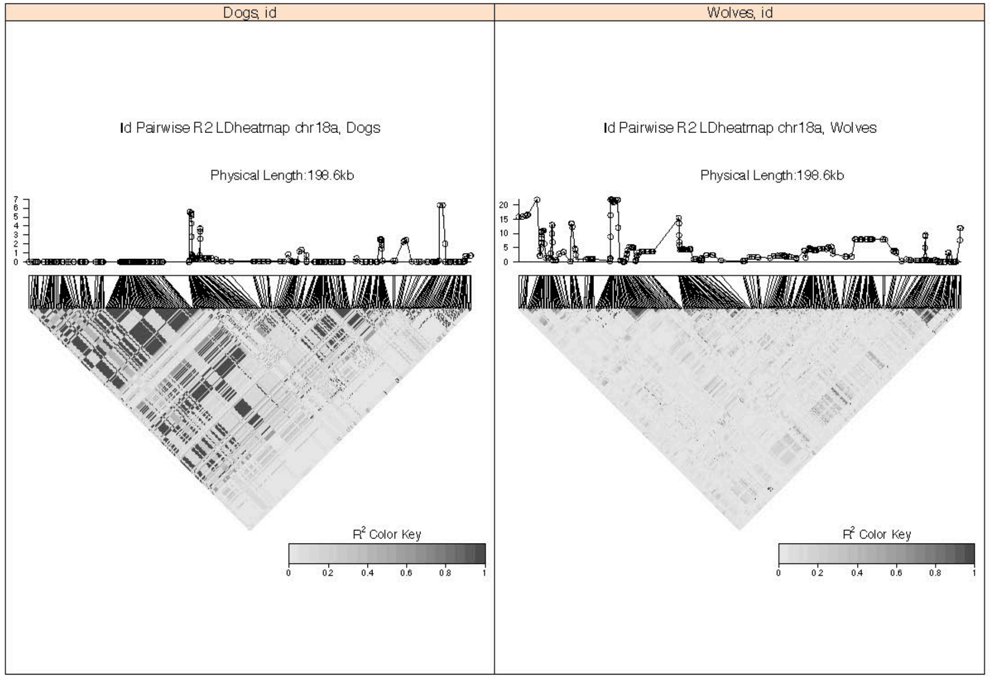
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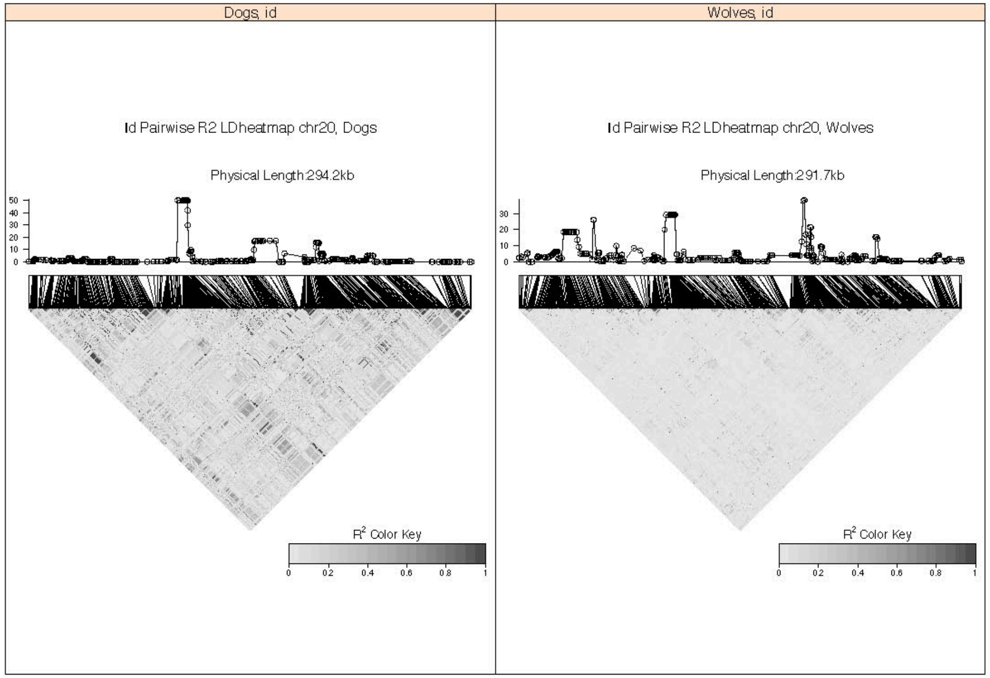
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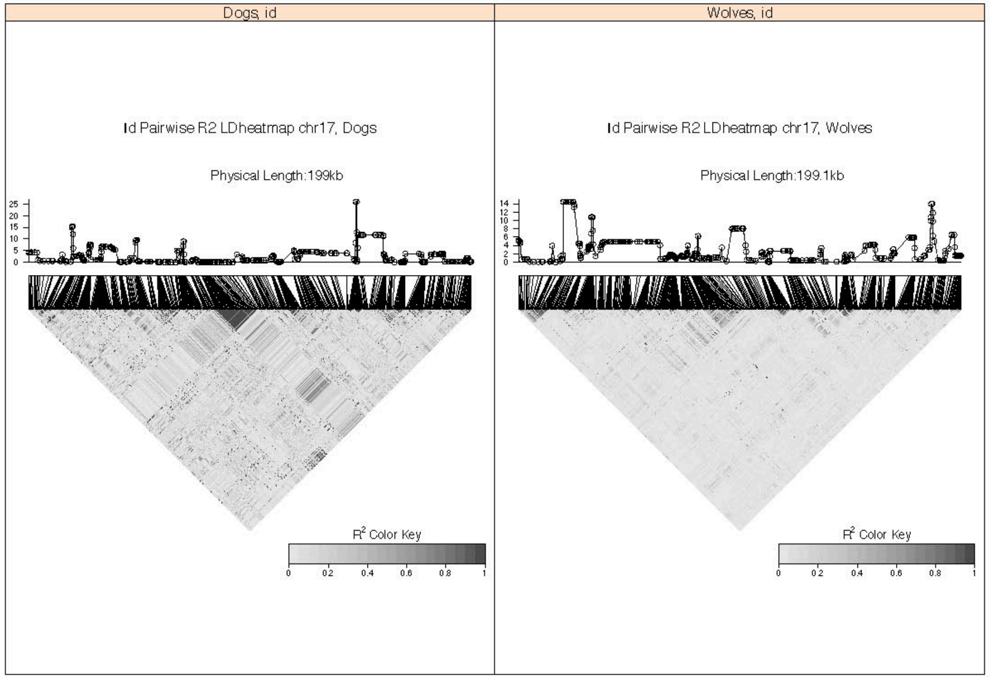
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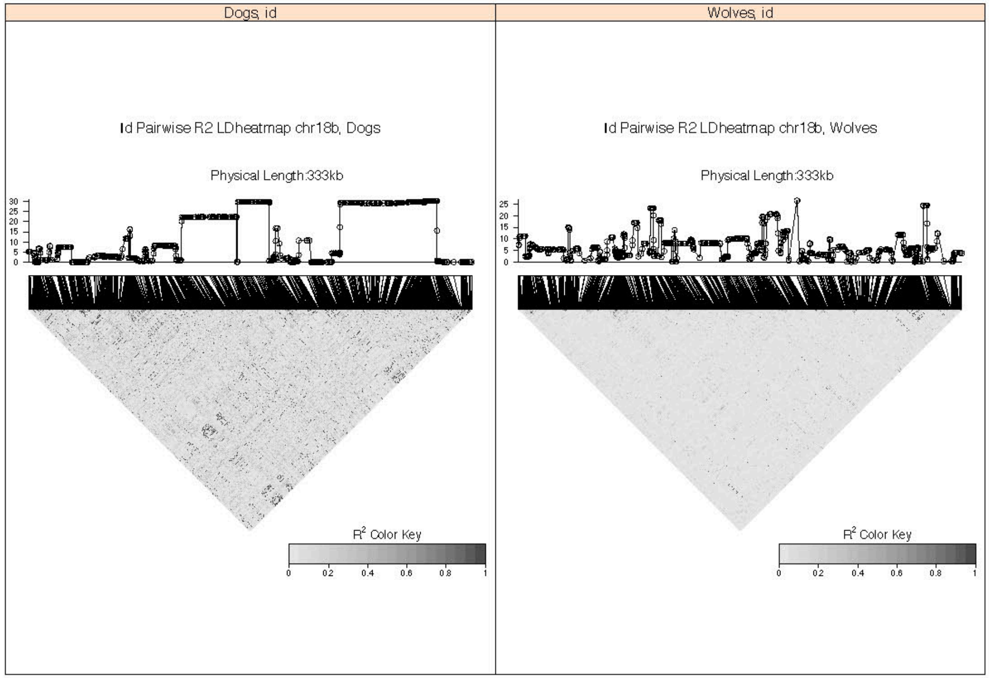
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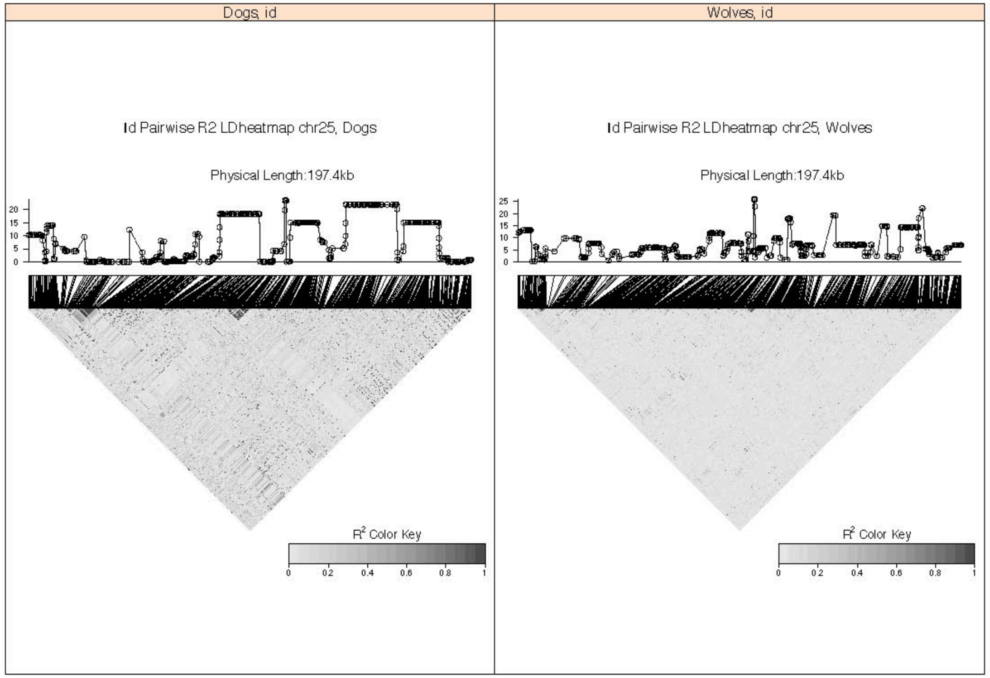
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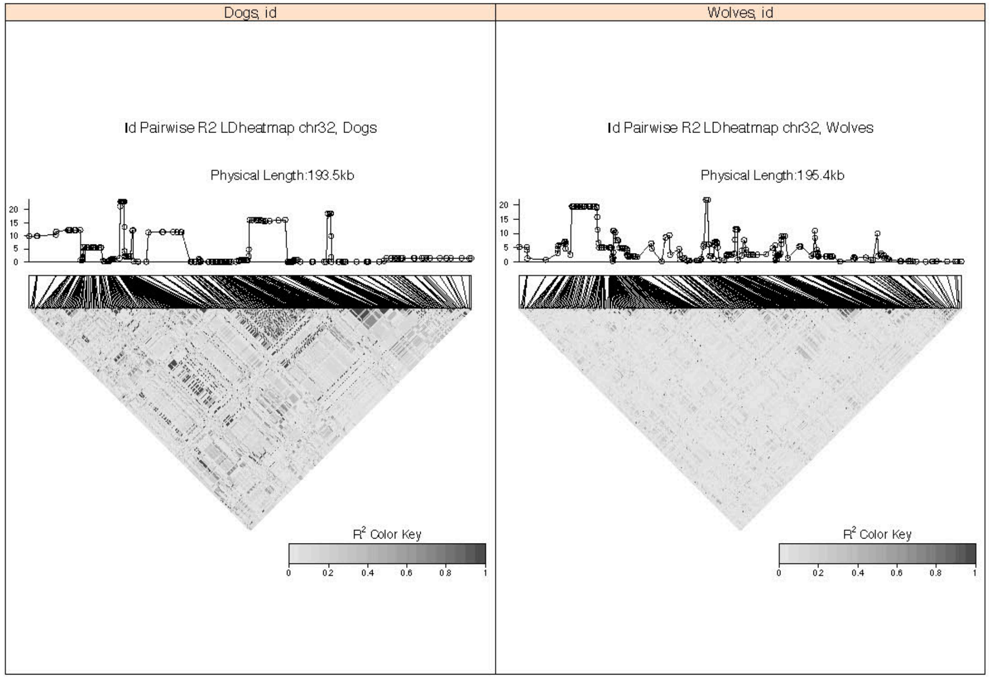
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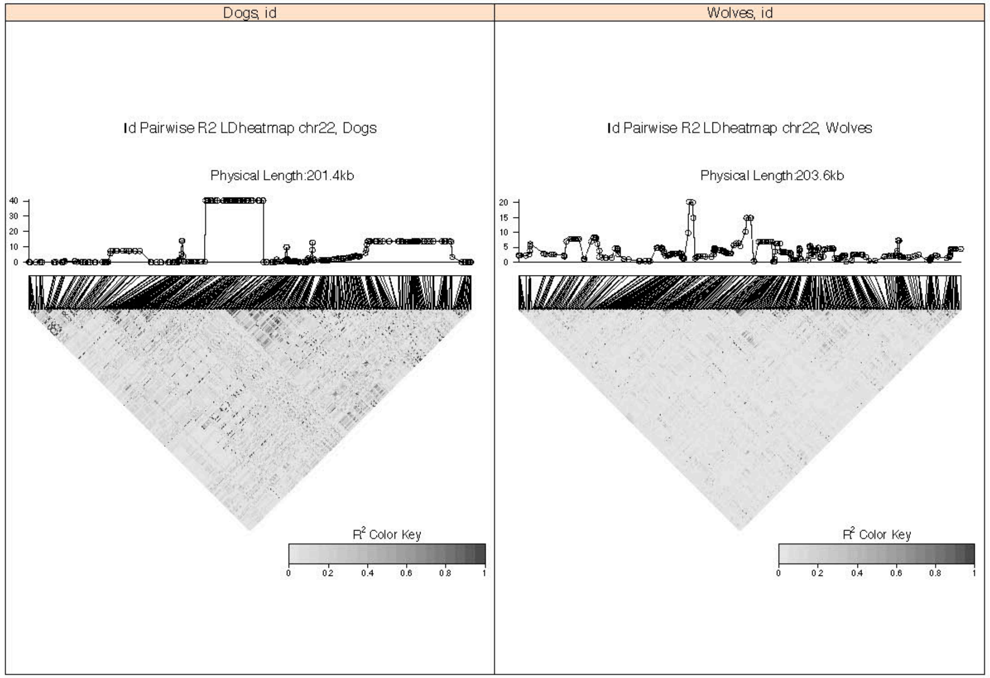
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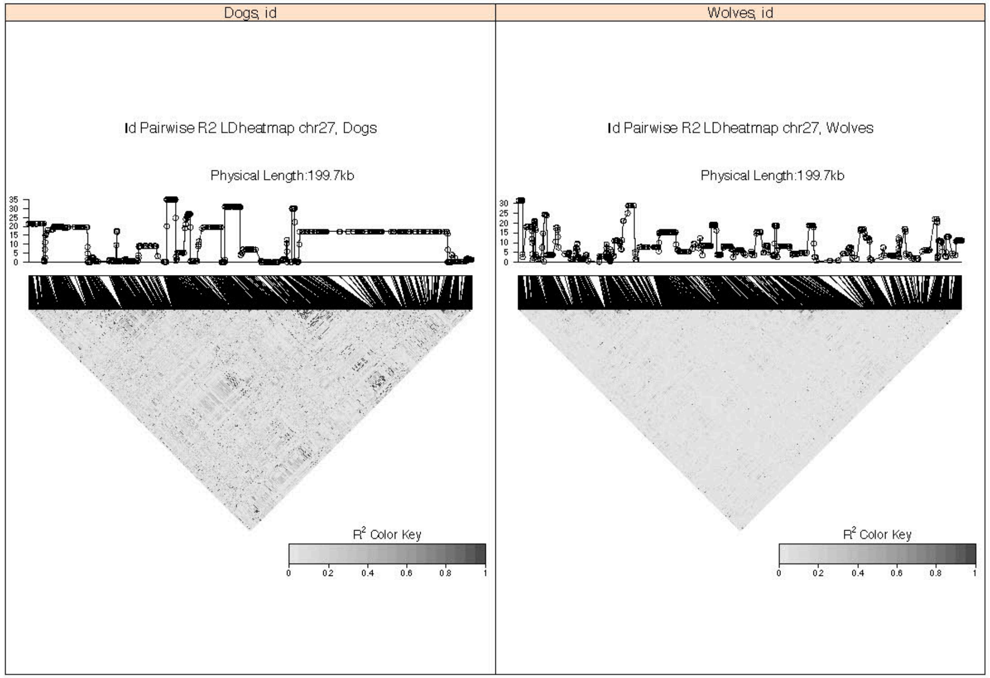
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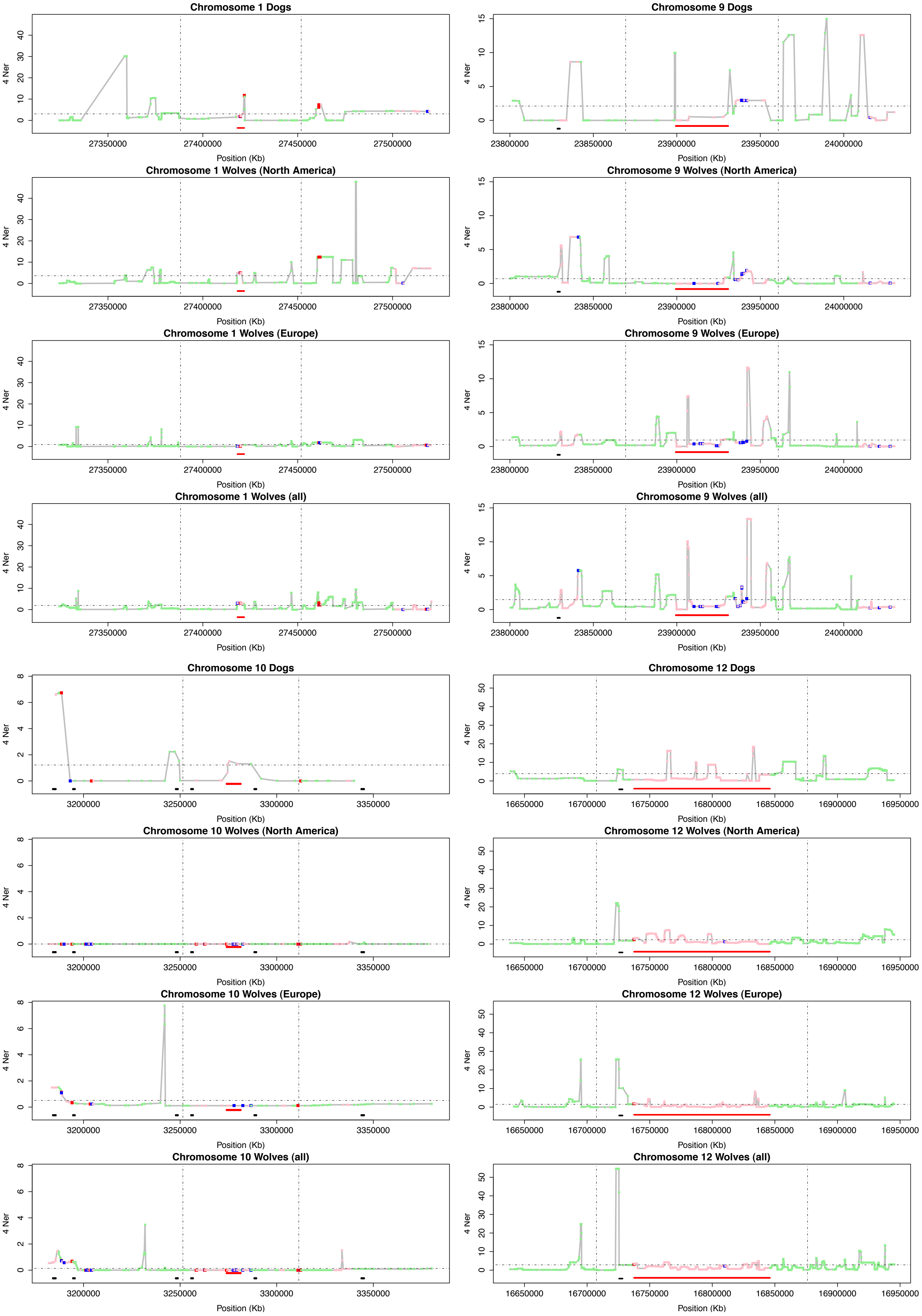
Chromosome 1 Dogs
Chromosome 1 Wolves (North America)
Chromosome 1 Wolves (Europe)
Chromosome 1 Wolves (all)
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40
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27400000
27450000
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Chromosome 9 Dogs
Chromosome 9 Wolves (North America)
Chromosome 9 Wolves (Europe)
Chromosome 9 Wolves (all)
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5
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24000000
Chromosome 10 Dogs
Chromosome 10 Wolves (North America)
Chromosome 10 Wolves (Europe)
Chromosome 10 Wolves (all)
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2
4
6
8
3200000
3250000
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3350000
Chromosome 12 Dogs
Chromosome 12 Wolves (North America)
Chromosome 12 Wolves (Europe)
Chromosome 12 Wolves (all)
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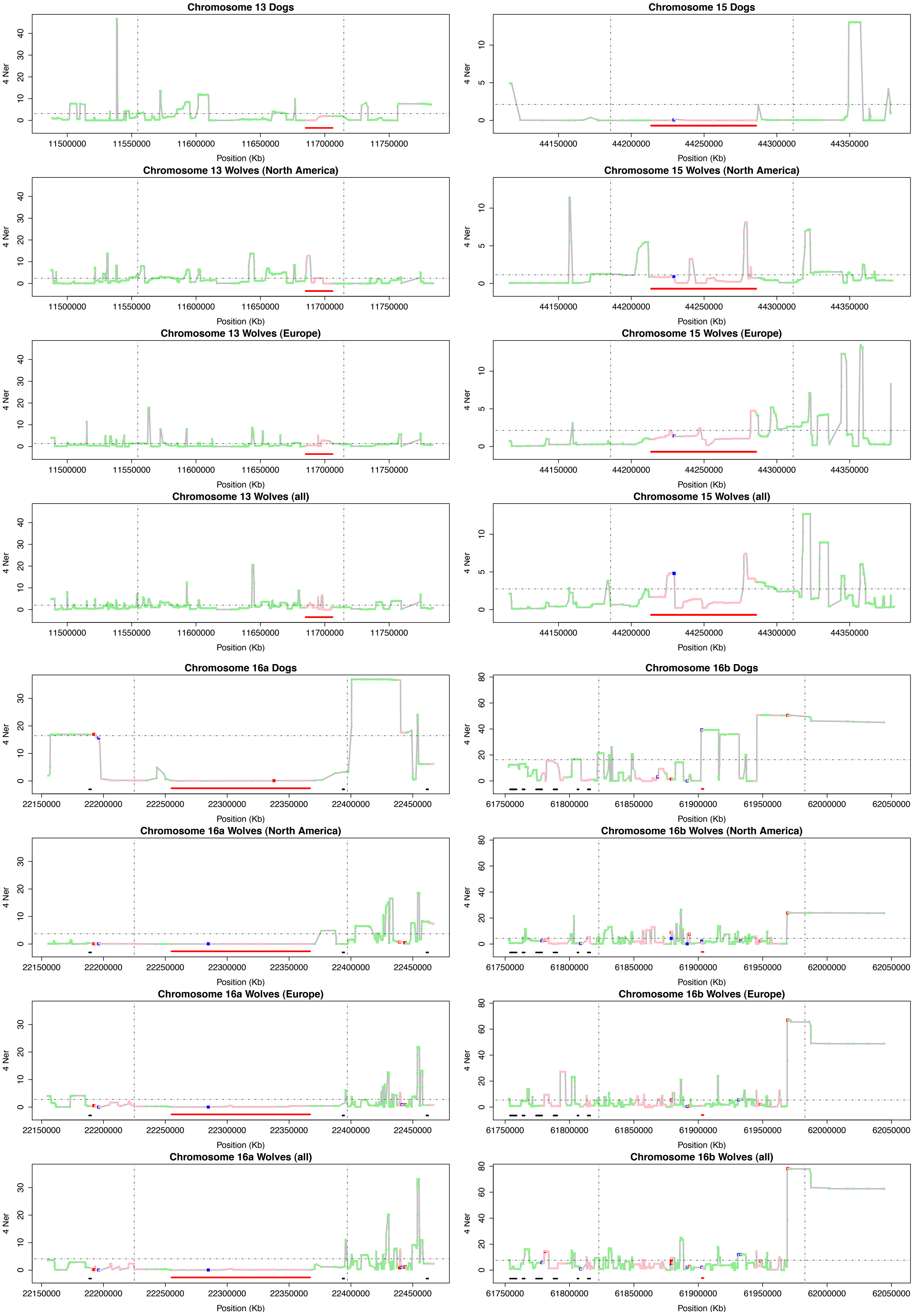
Position (Kb)



Chromosome 13 Dogs

Chromosome 15 Dogs

Chromosome 13 Wolves (North America)

Chromosome 15 Wolves (North America)

Chromosome 13 Wolves (Europe)

Chromosome 15 Wolves (Europe)

Chromosome 13 Wolves (all)

Chromosome 15 Wolves (all)

Chromosome 16a Dogs

Chromosome 16b Dogs

Chromosome 16a Wolves (North America)

Chromosome 16b Wolves (North America)

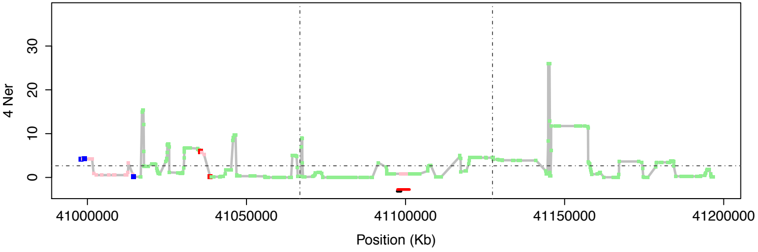
Chromosome 16a Wolves (Europe)

Chromosome 16b Wolves (Europe)

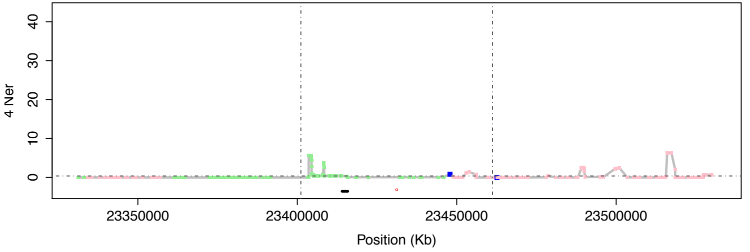
Chromosome 16a Wolves (all)

Chromosome 16b Wolves (all)

Chromosome 17 Dogs



Chromosome 18a Dogs



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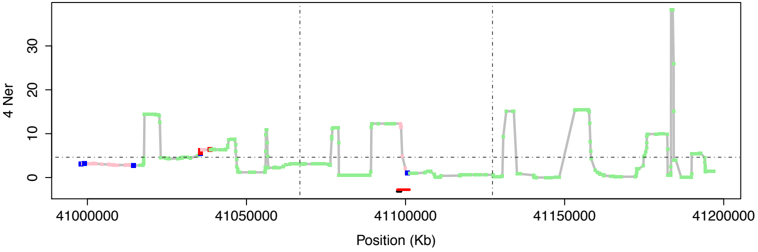

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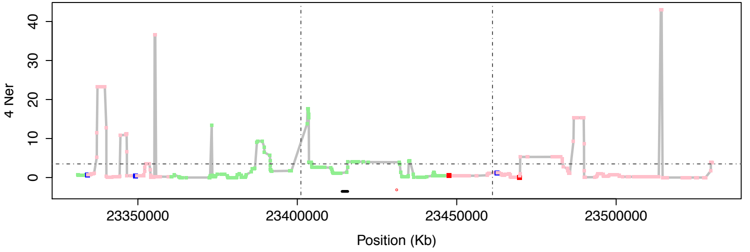

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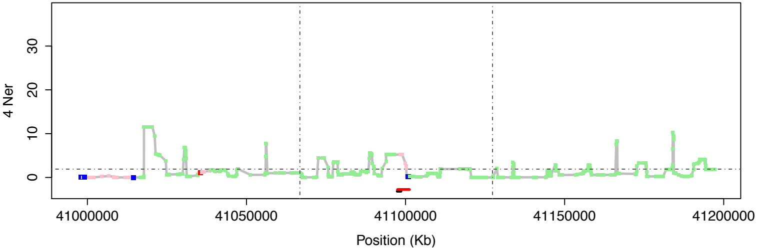

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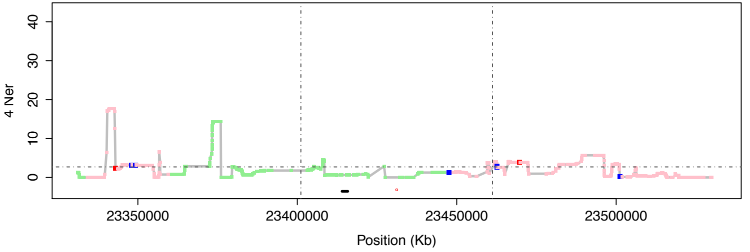

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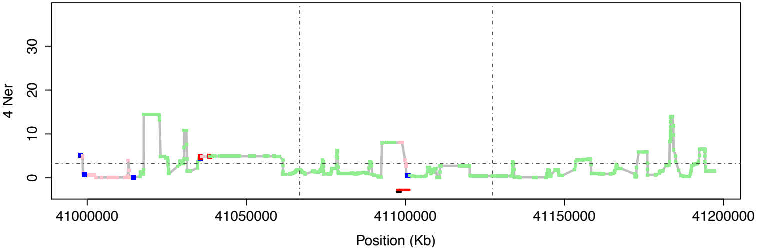

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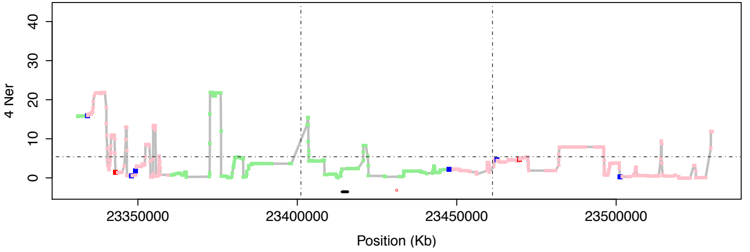

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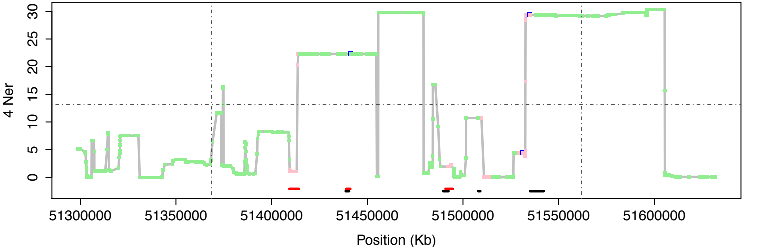

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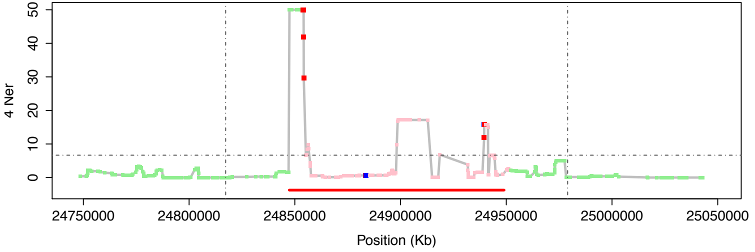
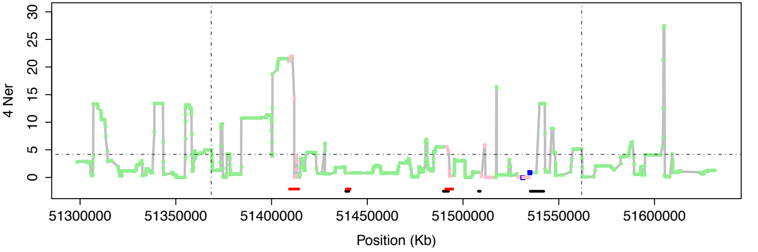


Chromosome 18b Wolves (North America)



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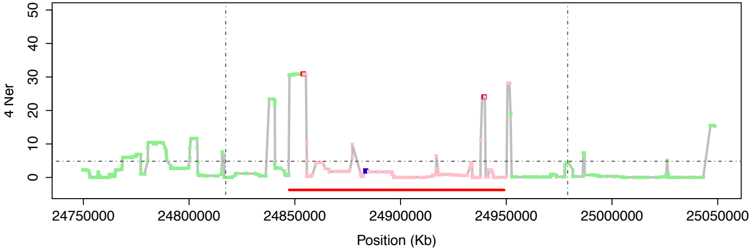

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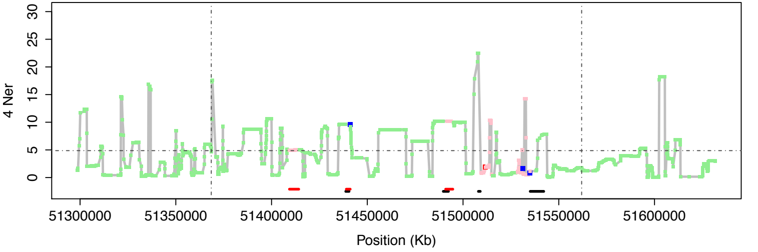
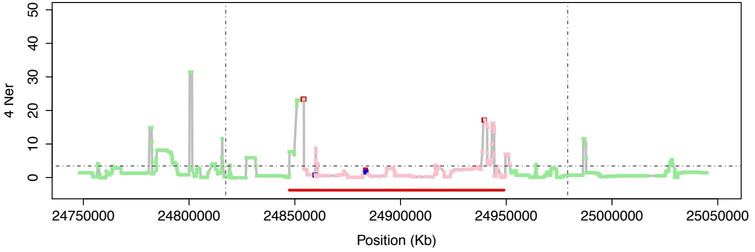
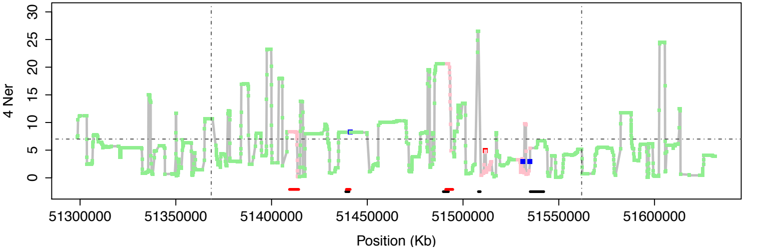


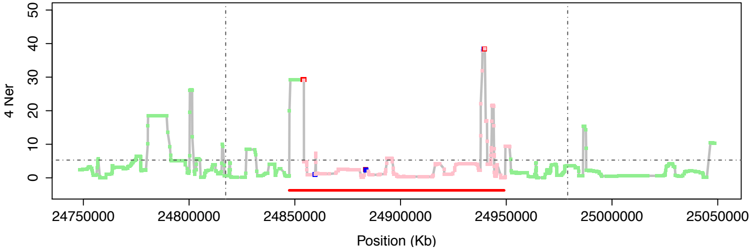
Chromosome 20 Wolves (Europe)



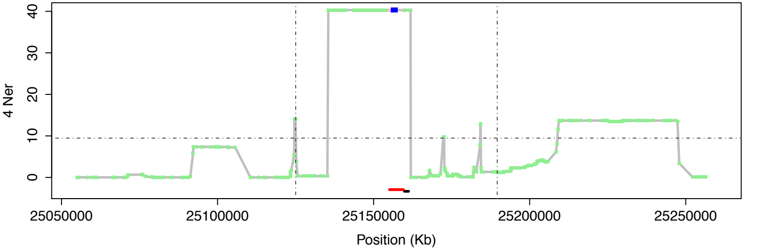
Chromosome 18b Wolves (all)



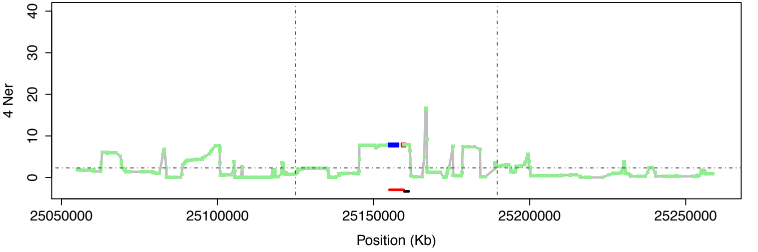
Chromosome 20 Wolves (all)



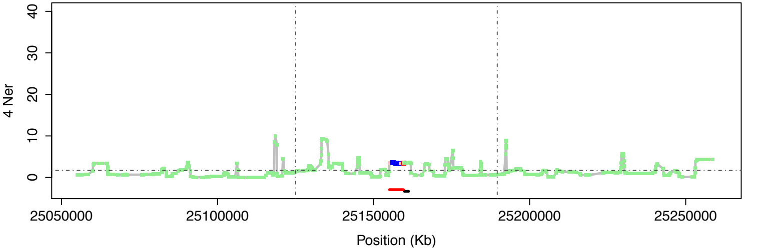
Chromosome 22 Dogs



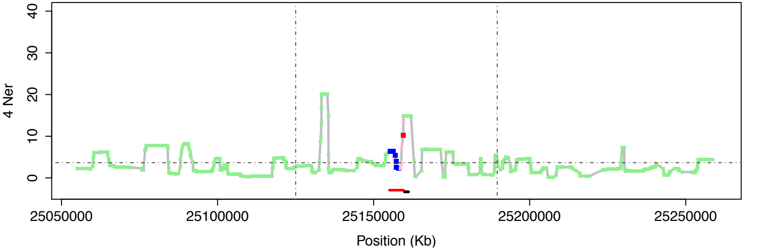
Chromosome 22 Wolves (North America)



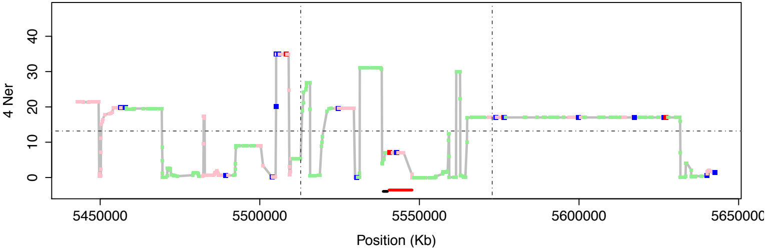
Chromosome 22 Wolves (Europe)



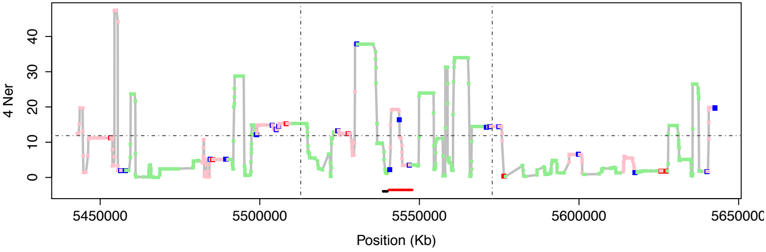
Chromosome 22 Wolves (all)



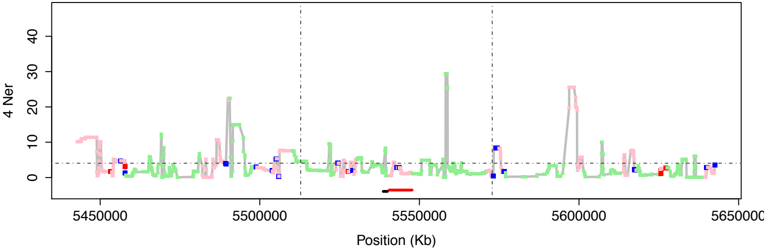
Chromosome 27 Dogs



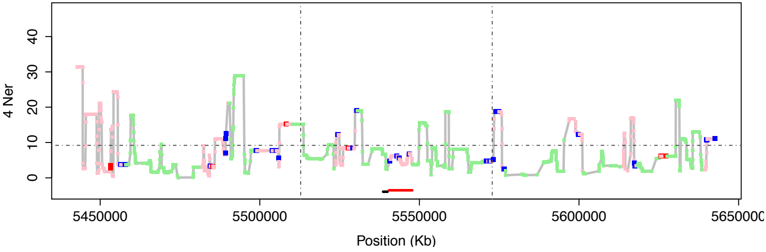
Chromosome 27 Wolves (North America)



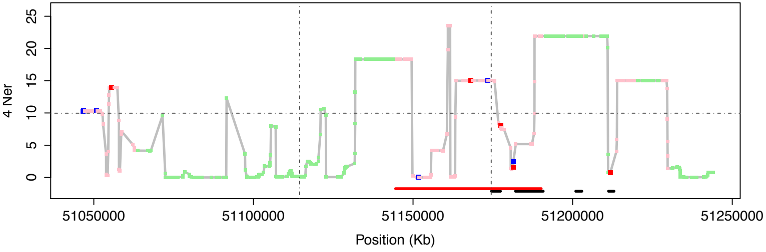
Chromosome 27 Wolves (Europe)



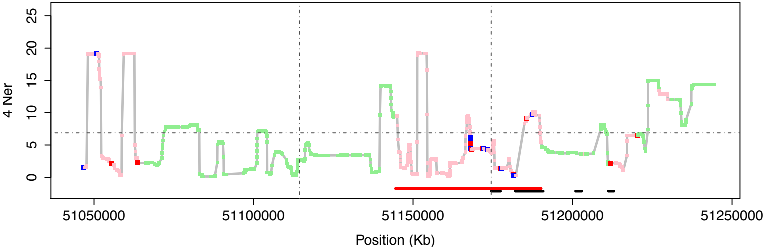
Chromosome 27 Wolves (all)



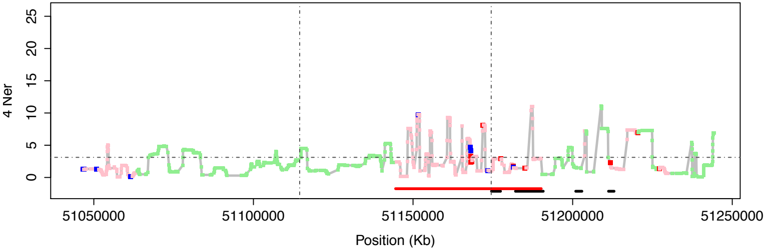
Chromosome 25 Dogs



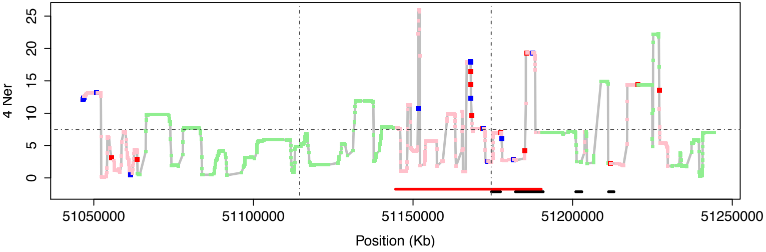
Chromosome 25 Wolves (North America)



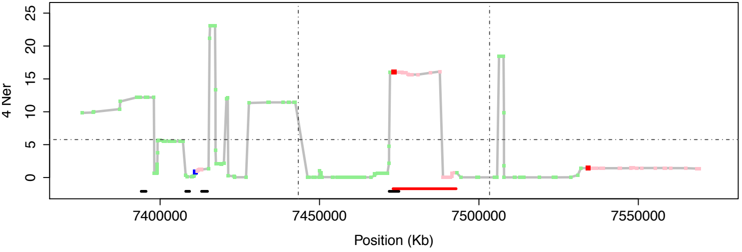
Chromosome 25 Wolves (Europe)



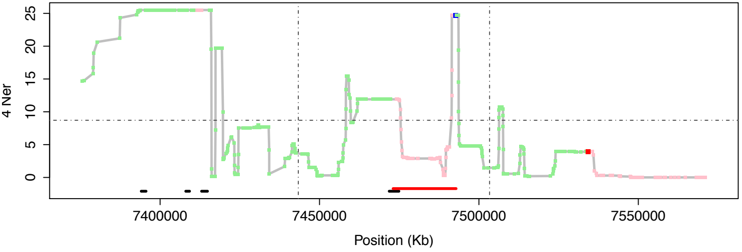
Chromosome 25 Wolves (all)



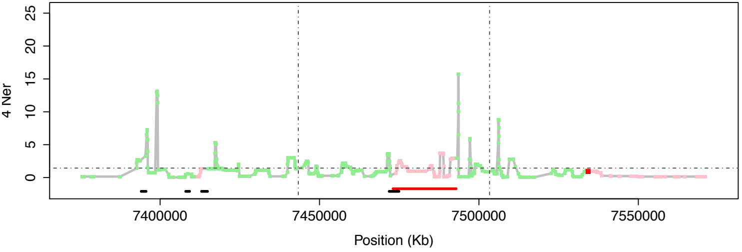
Chromosome 32 Dogs



Chromosome 32 Wolves (North America)



Chromosome 32 Wolves (Europe)



Chromosome 32 Wolves (all)