GENETICS

Supporting Information
http://www.genetics.org/cgi/content/full/genetics.109.105486/DC1

A New Standard Genetic Map for the Laboratory Mouse

Allison Cox, Cheryl L. Ackert-Bicknell, Beth L. Dumont, Yueming Ding, Jordana Tzenova Bell, Gudrun A. Brockmann, Jon E. Wergedal, Carol Bult, Beverly Paigen, Jonathan Flint, Shirng-Wern Tsaih, Gary A. Churchill and Karl W. Broman

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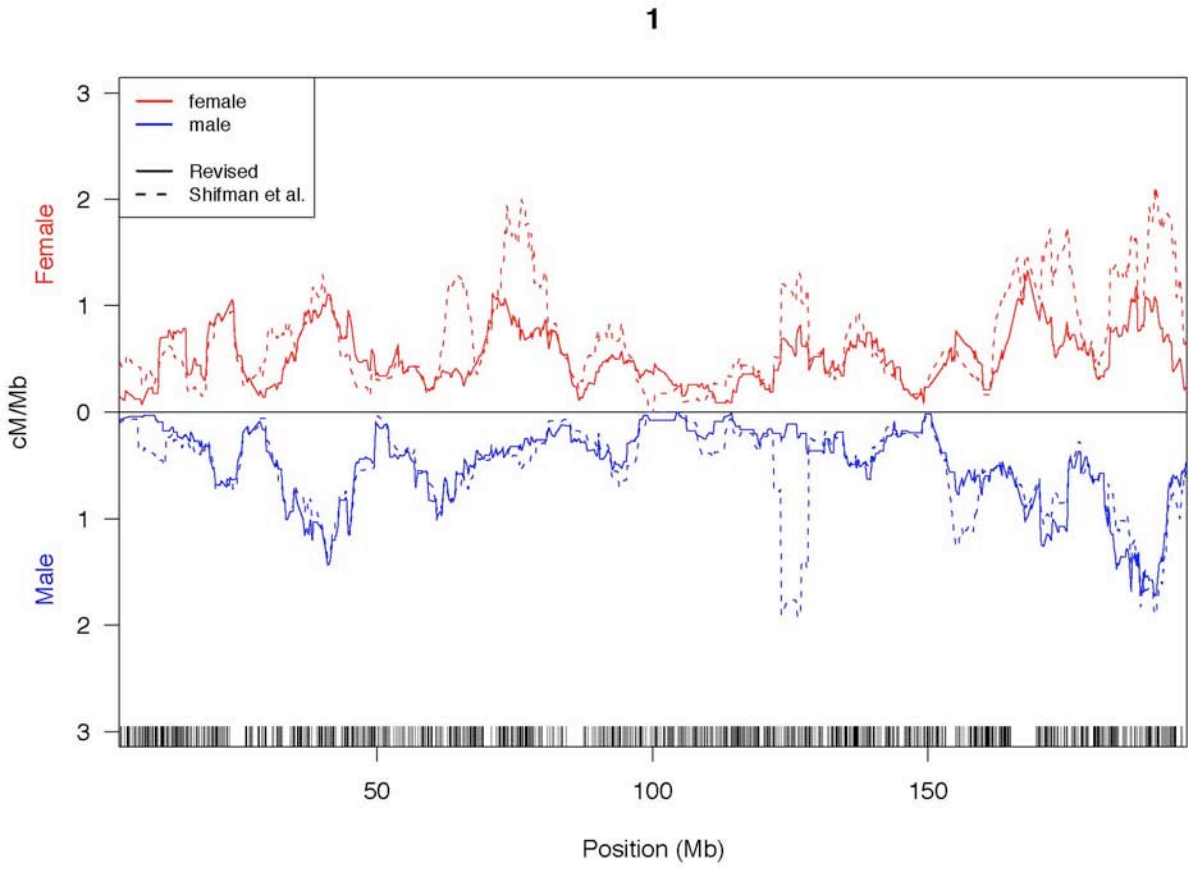
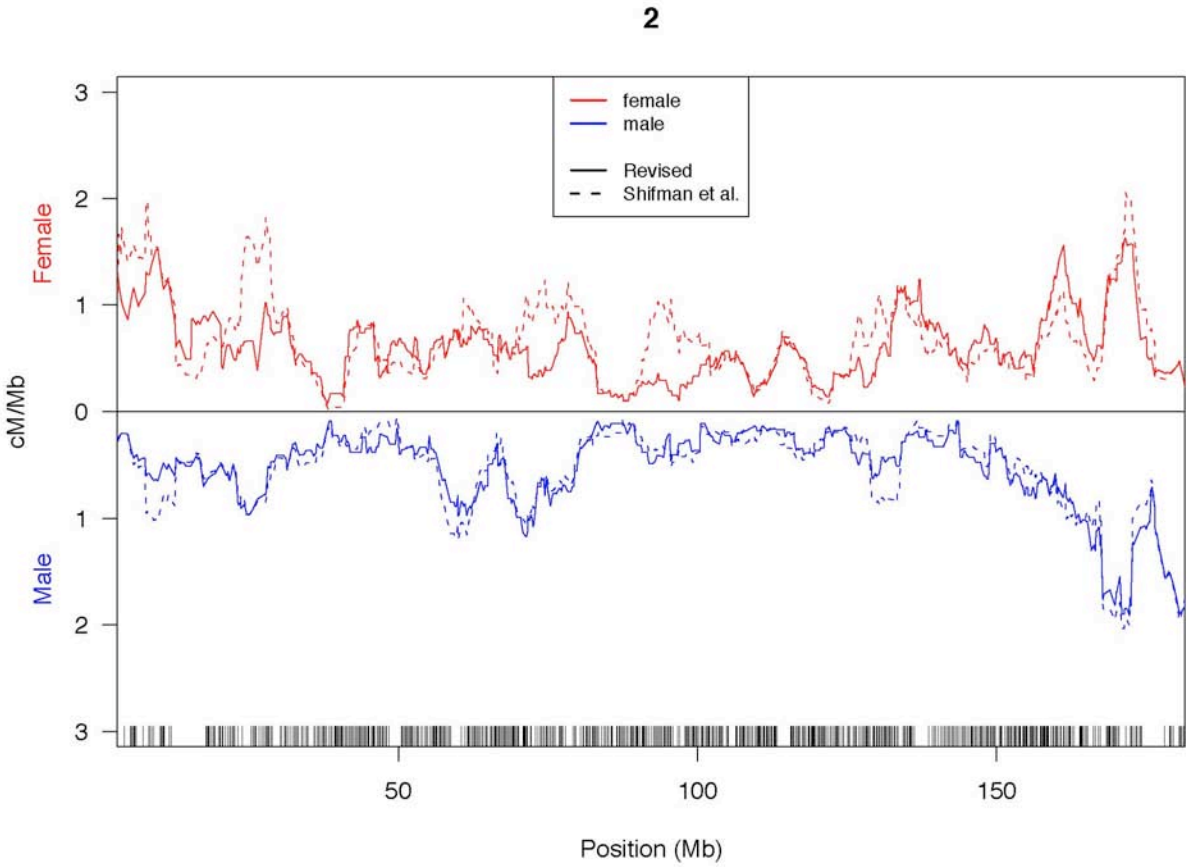
FIGURE S1


1
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
50
100
150
Position (Mb)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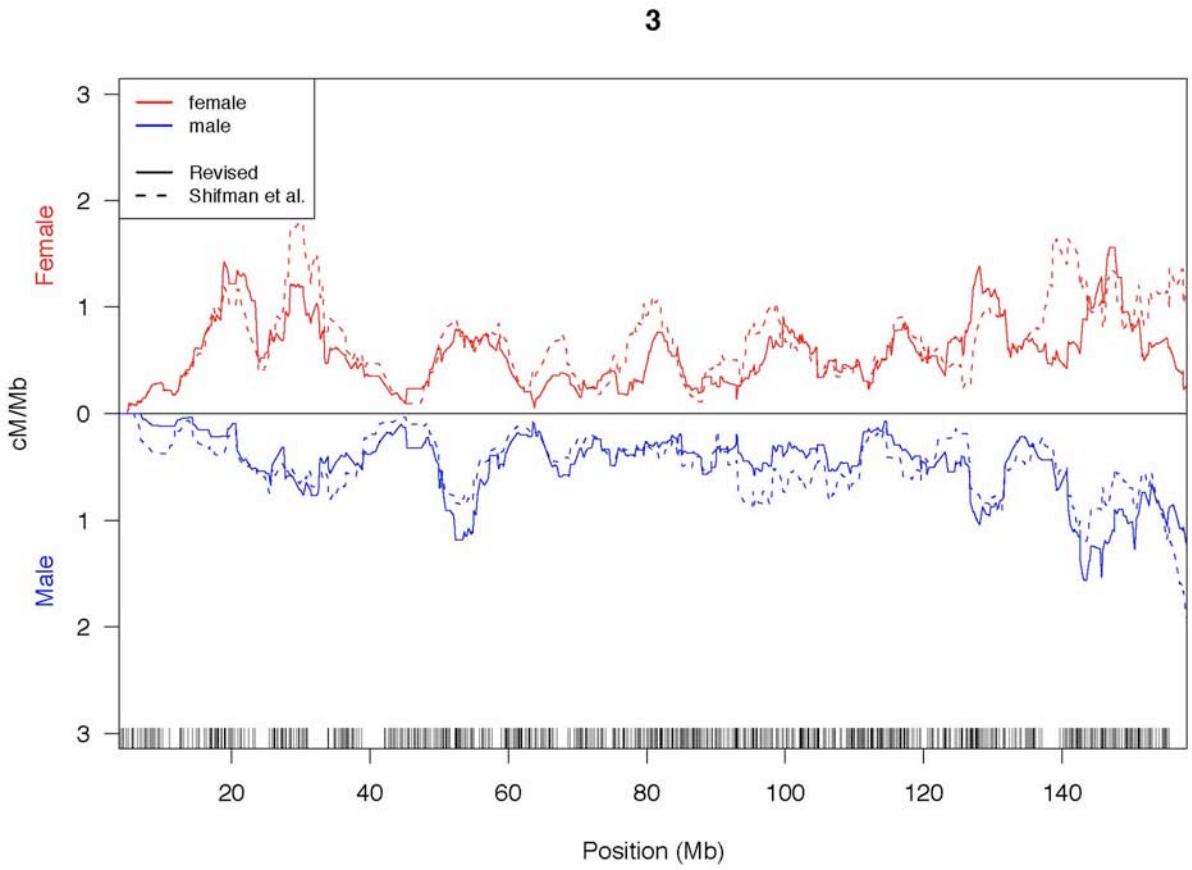
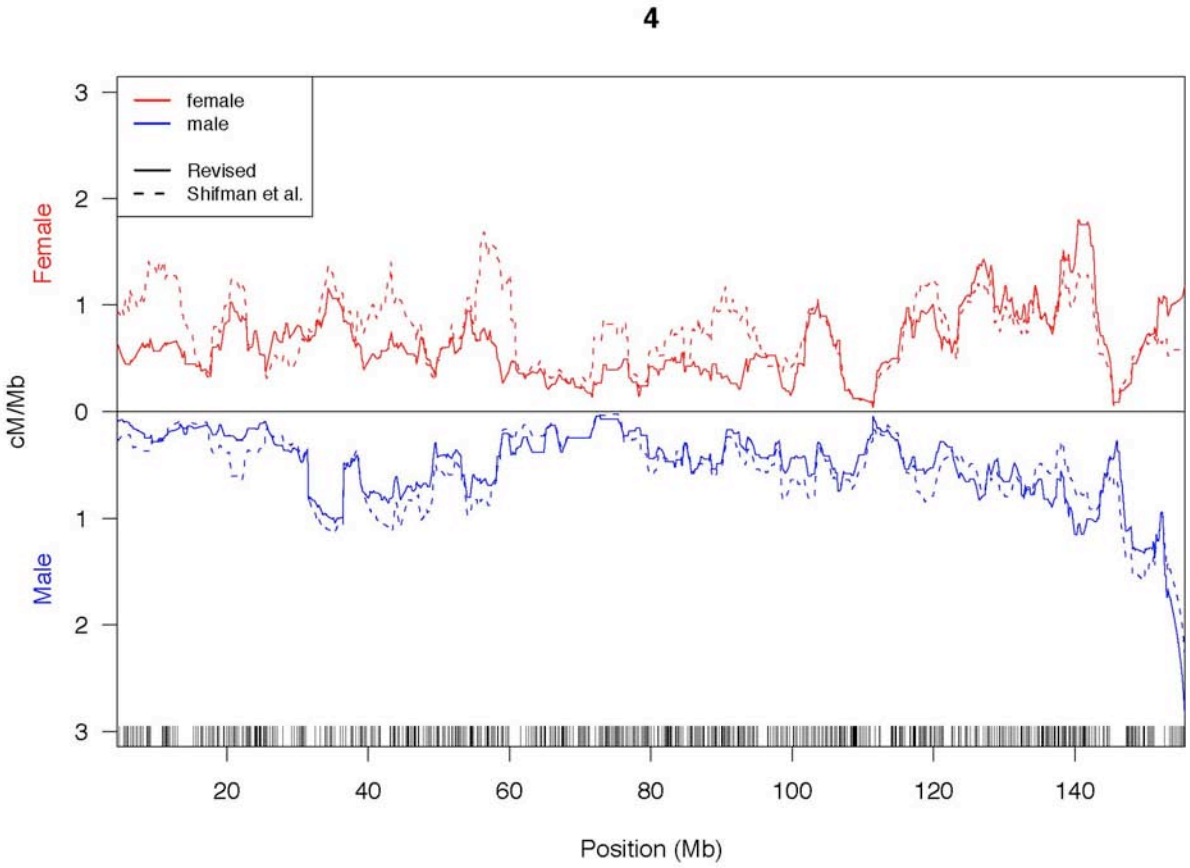
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
50
100
150
Position (Mb)


3
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
100
120
140
Position (Mb)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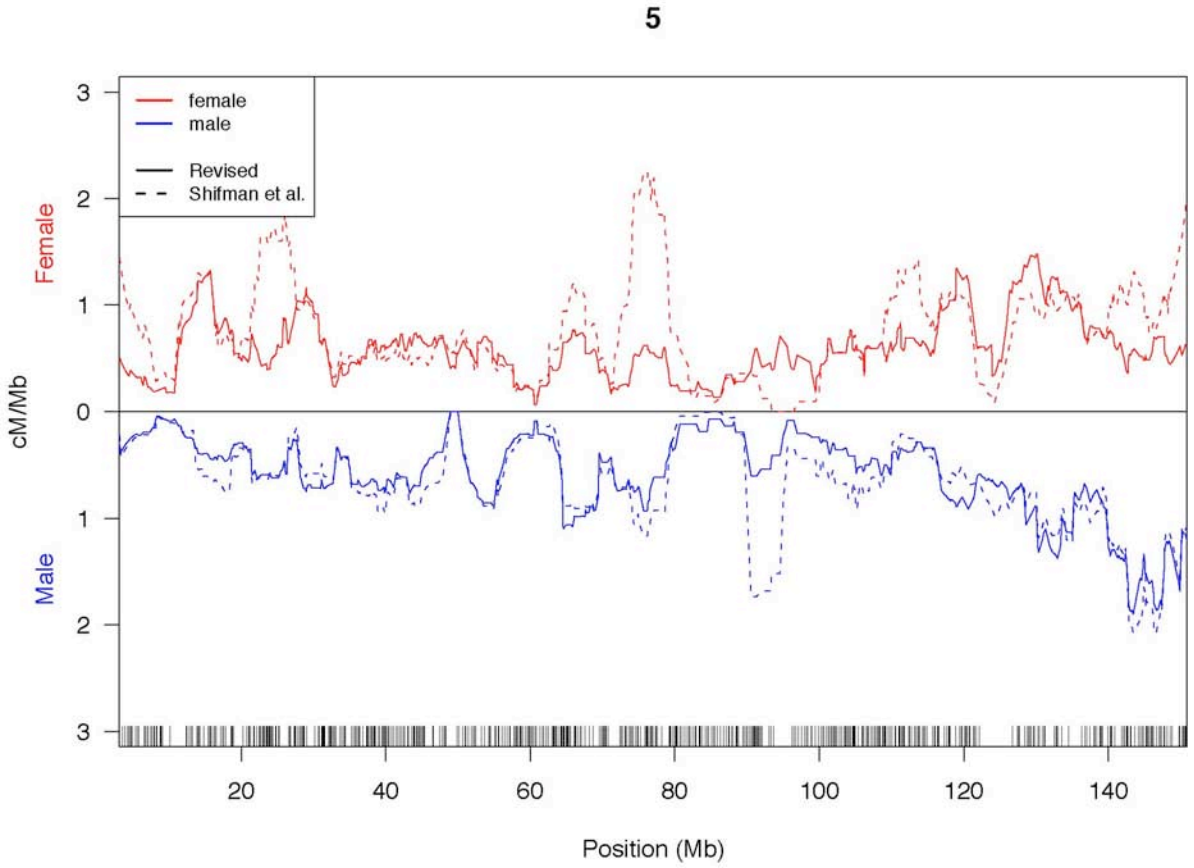
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
100
120
140
Position (Mb)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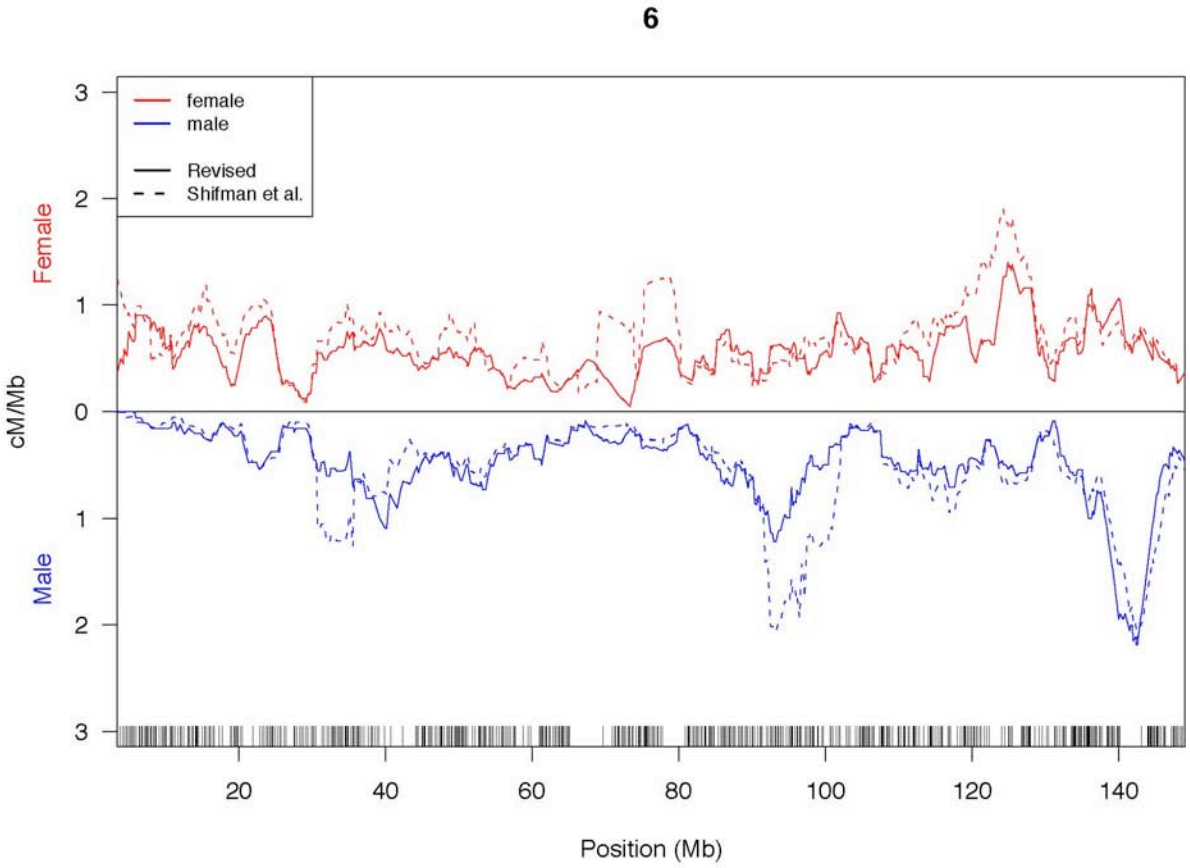
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
100
120
140
Position (Mb)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female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
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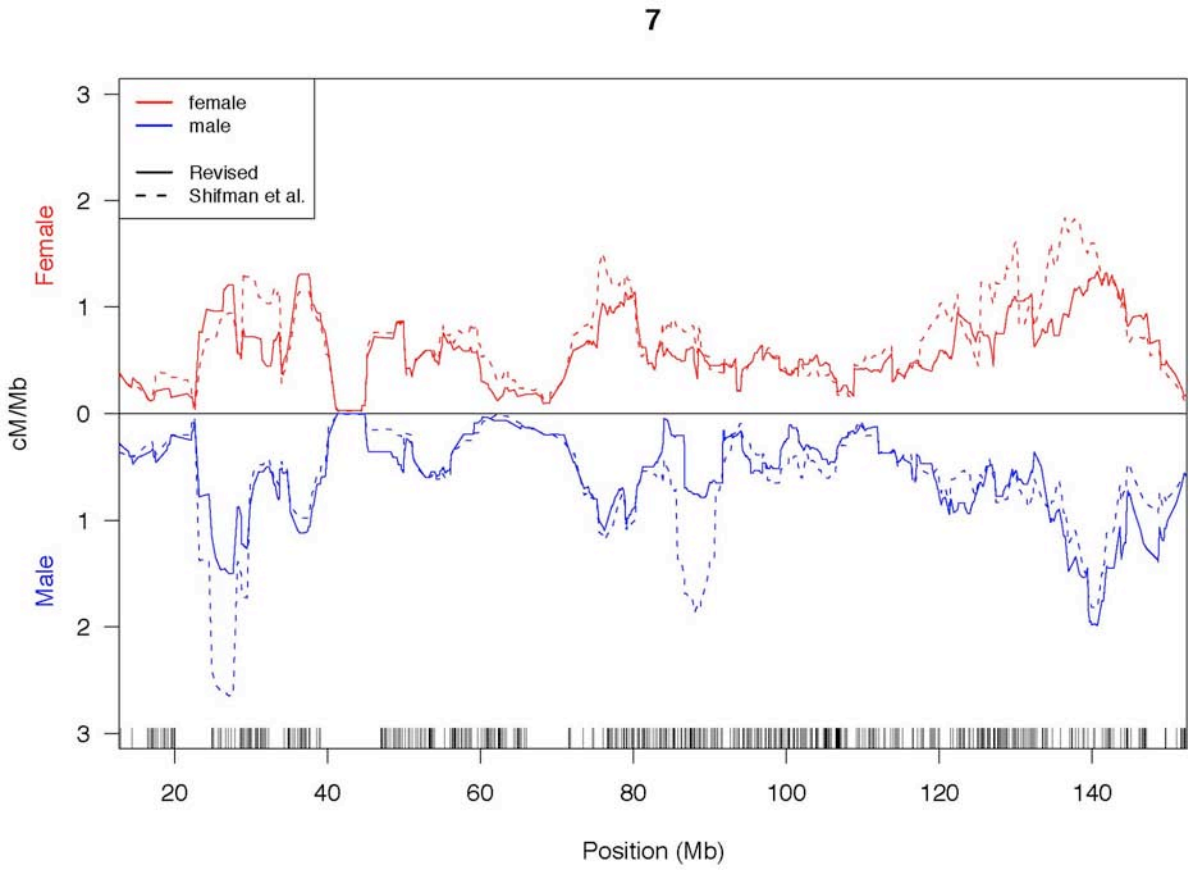
40
60
80
100
120
140
Position (Mb)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male
Revised
Shifman et al.
Female
Male
cM/Mb
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2
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0
1
2
3
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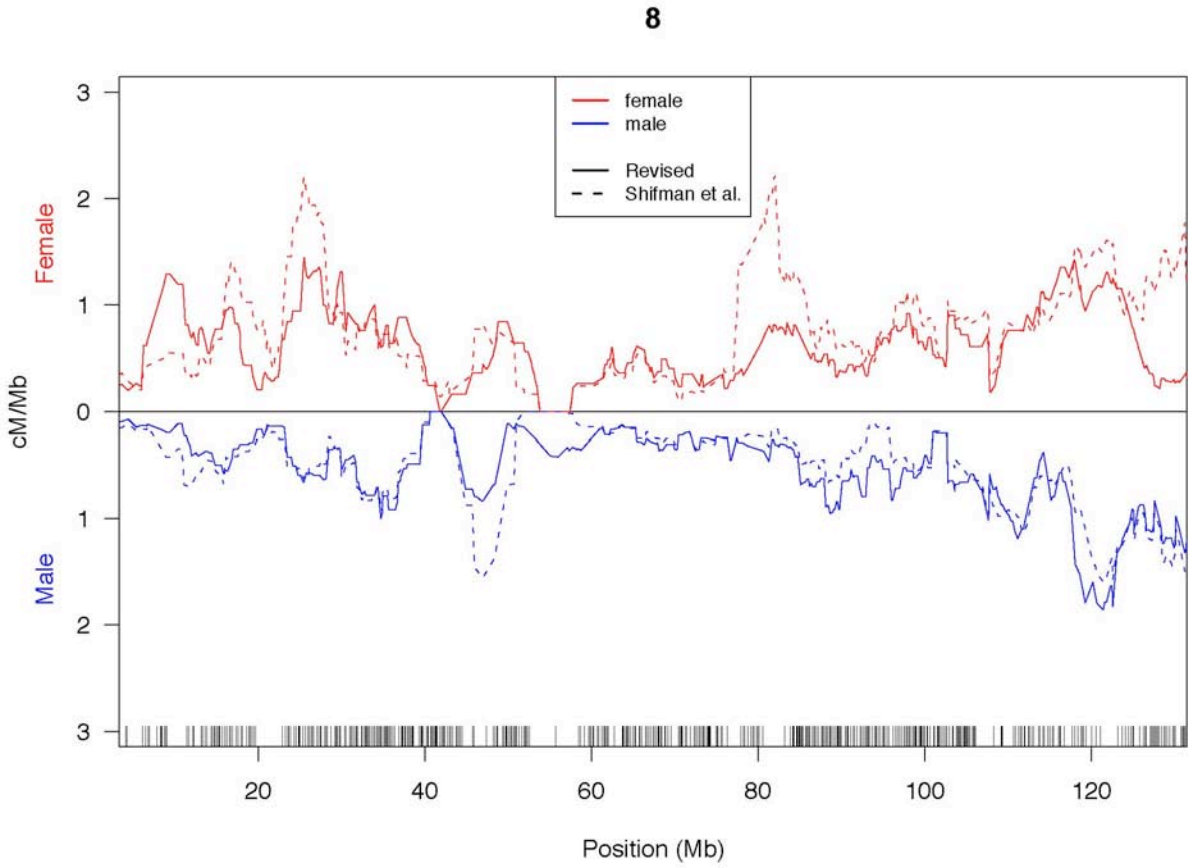
40
60
80
100
120
140
Position (Mb)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female
male
Revised
Shifman et al.
Female
Male
cM/Mb
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2
1
0
1
2
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40
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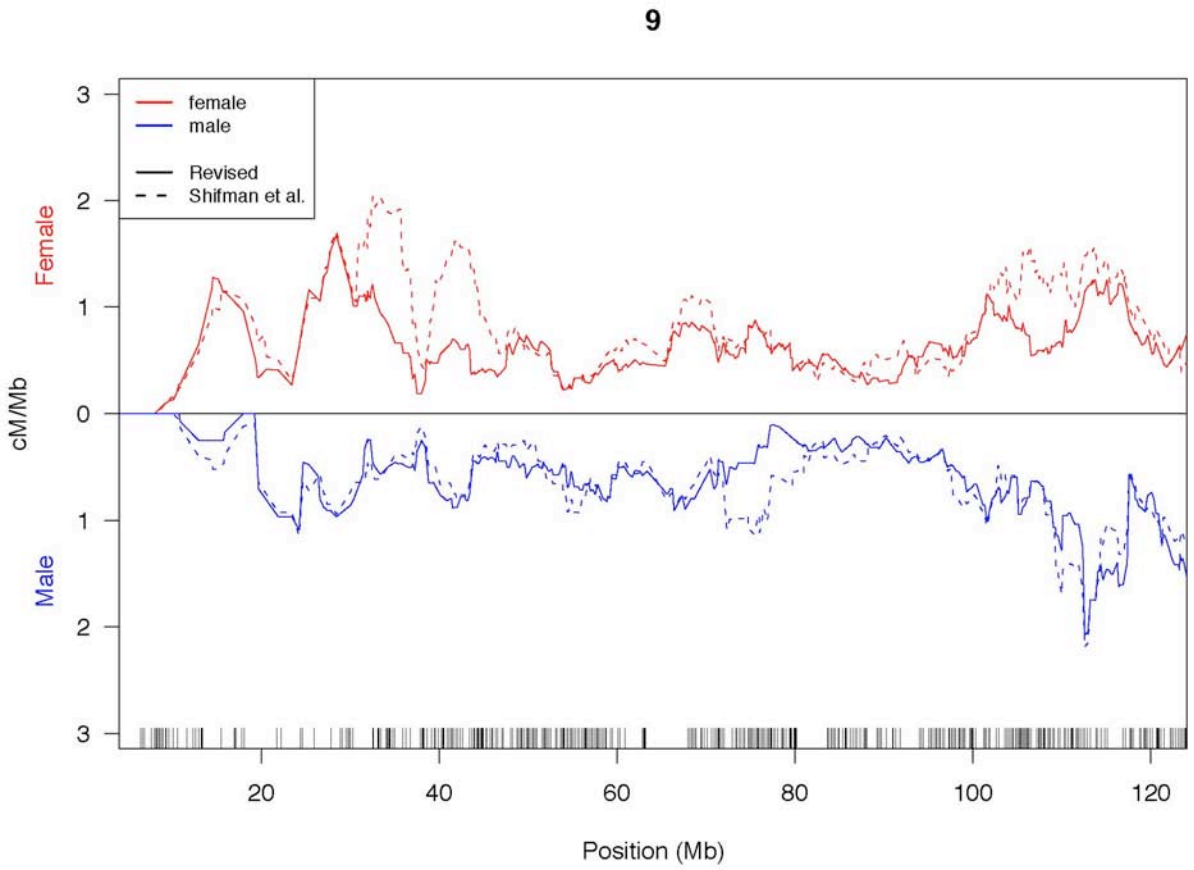
80
100
120
Position (Mb)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female
male
Revised
Shifman et al.
Female
Male
cM/Mb
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2
1
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2
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20
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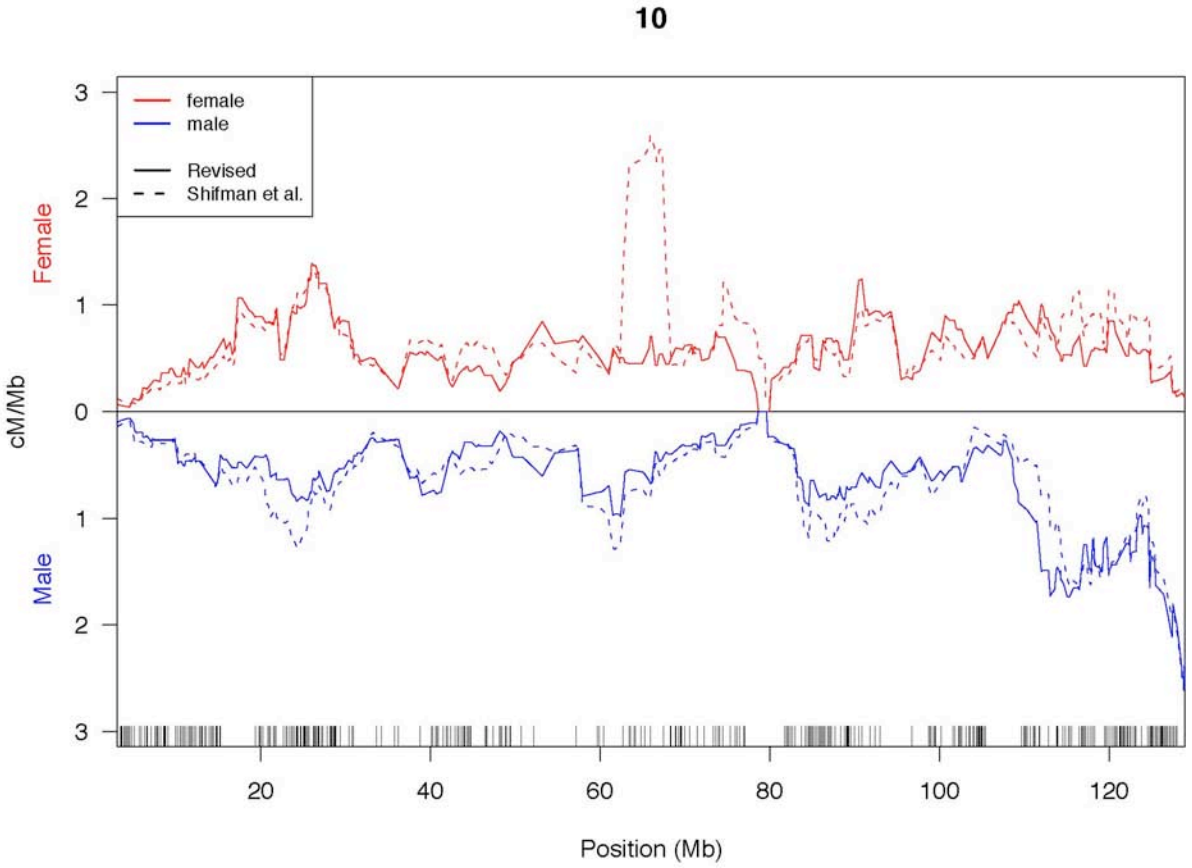
100
120
Position (Mb)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female
male
Revised
Shifman et al.
Female
Male
cM/Mb
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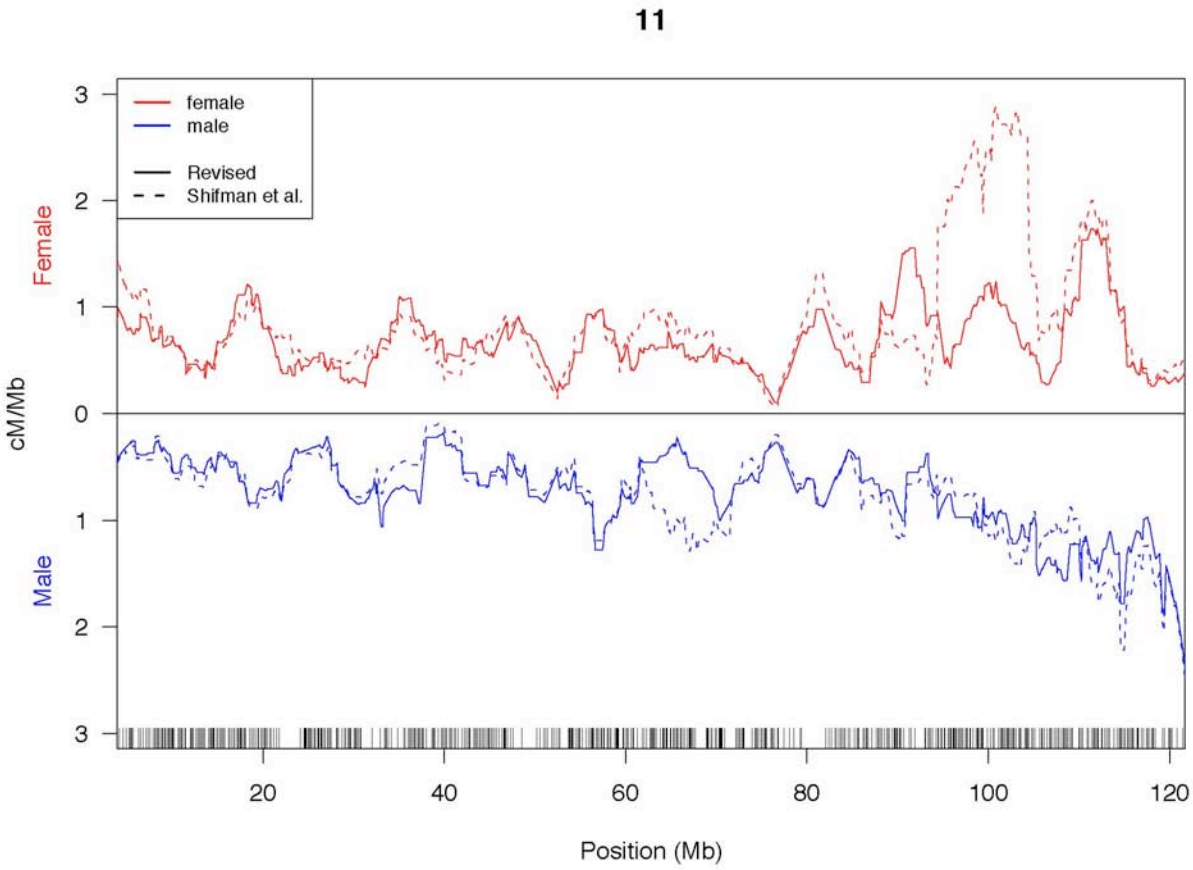
2
1
0
1
2
3
20
40
60
80
100
120
Position (Mb)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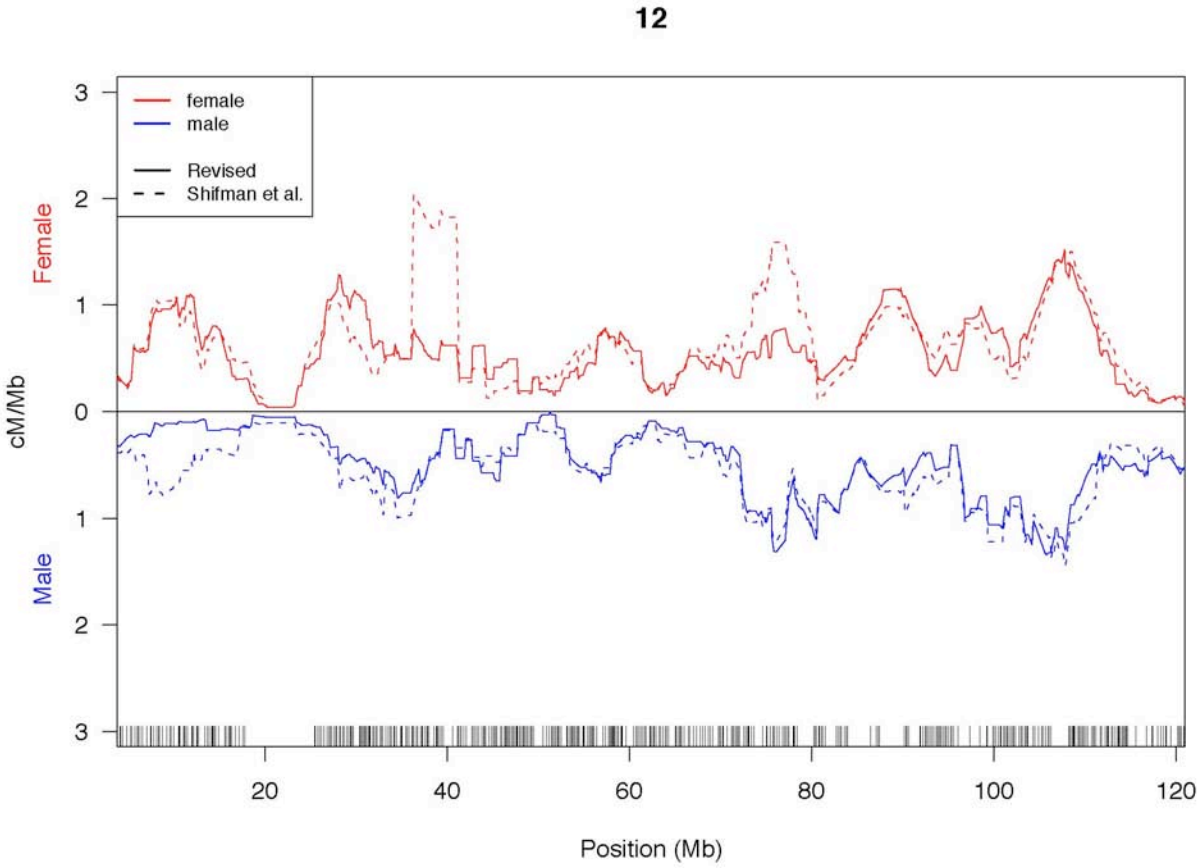
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
100
120
Position (Mb)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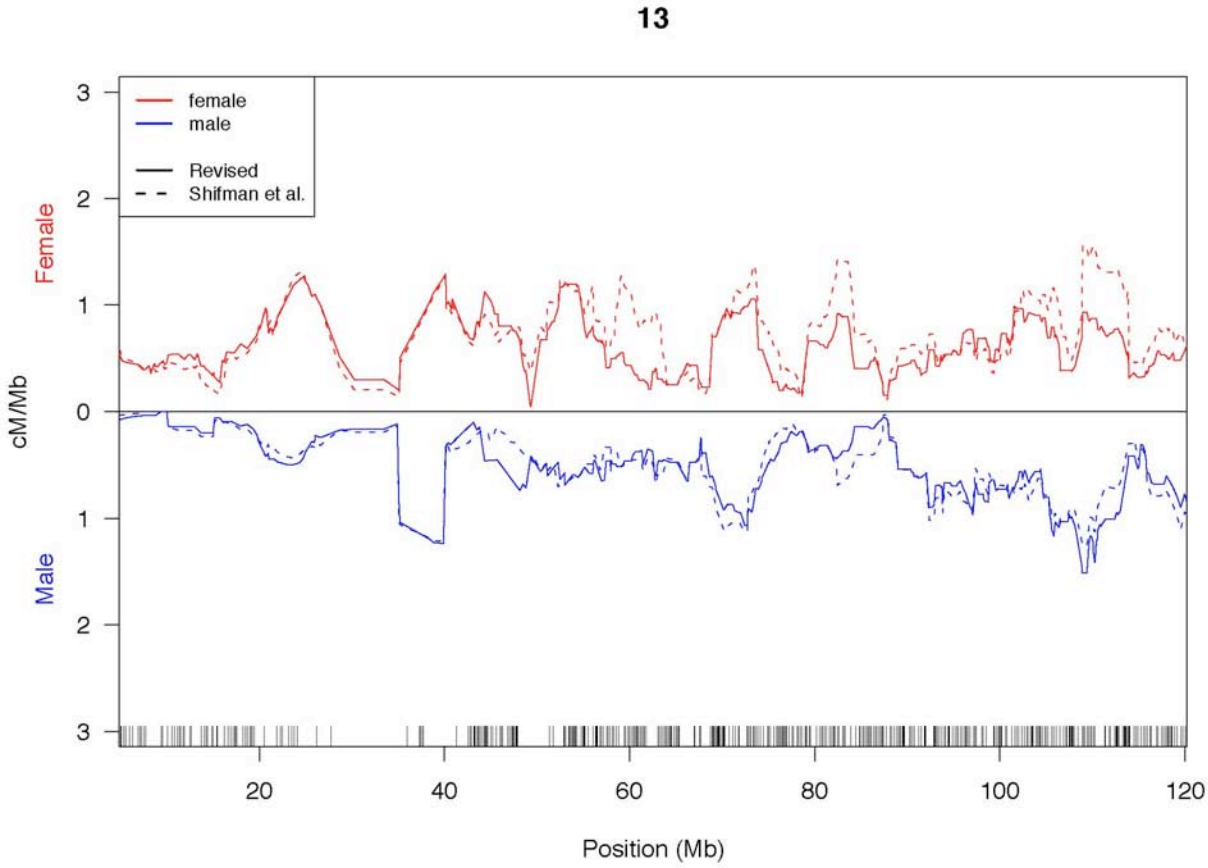
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
100
120
Position (Mb)


13
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
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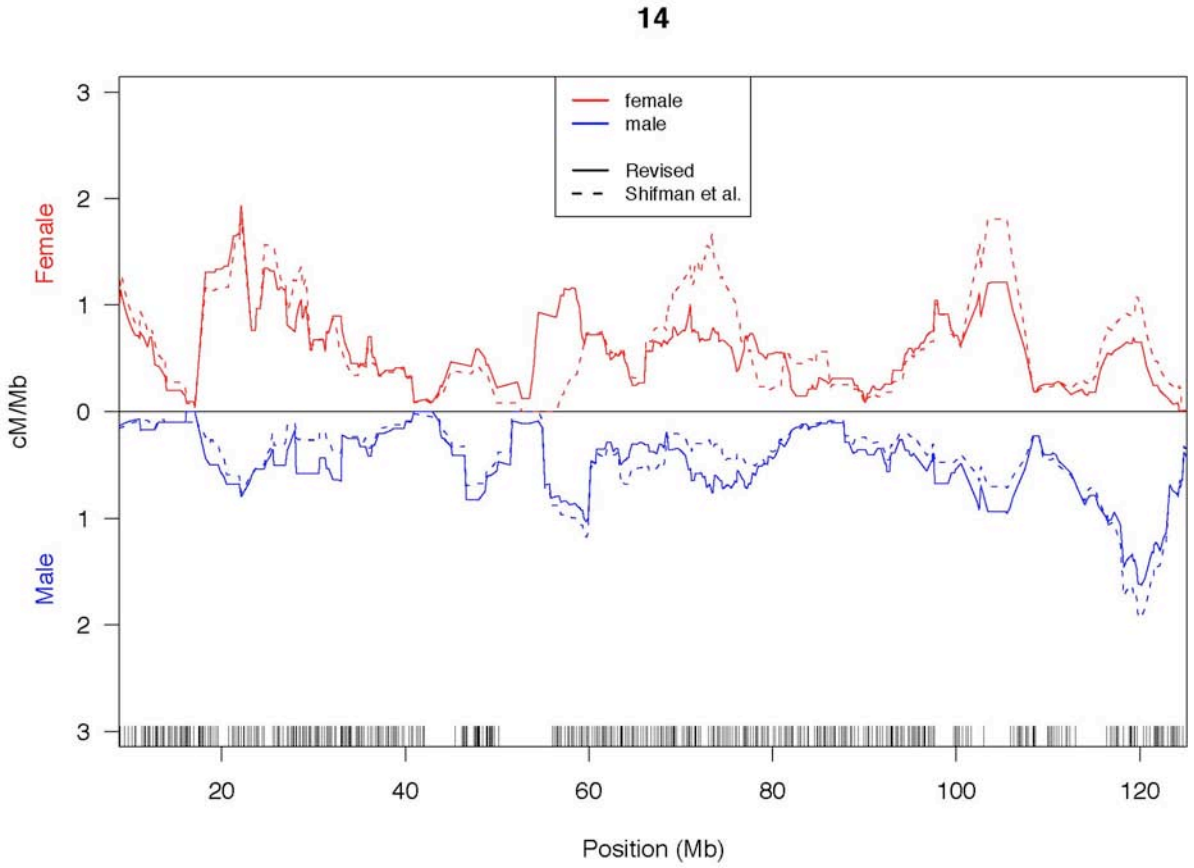
2
1
0
1
2
3
20
40
60
80
100
120
Position (Mb)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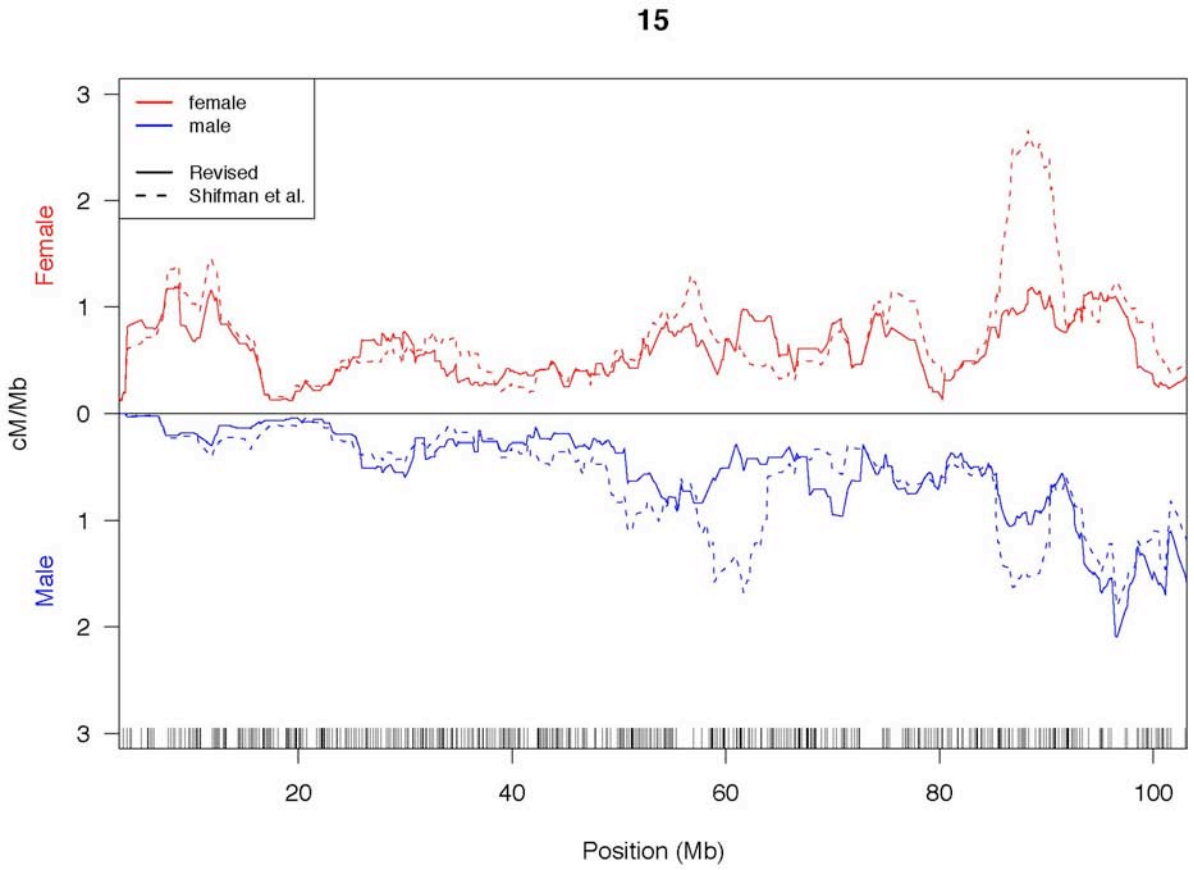
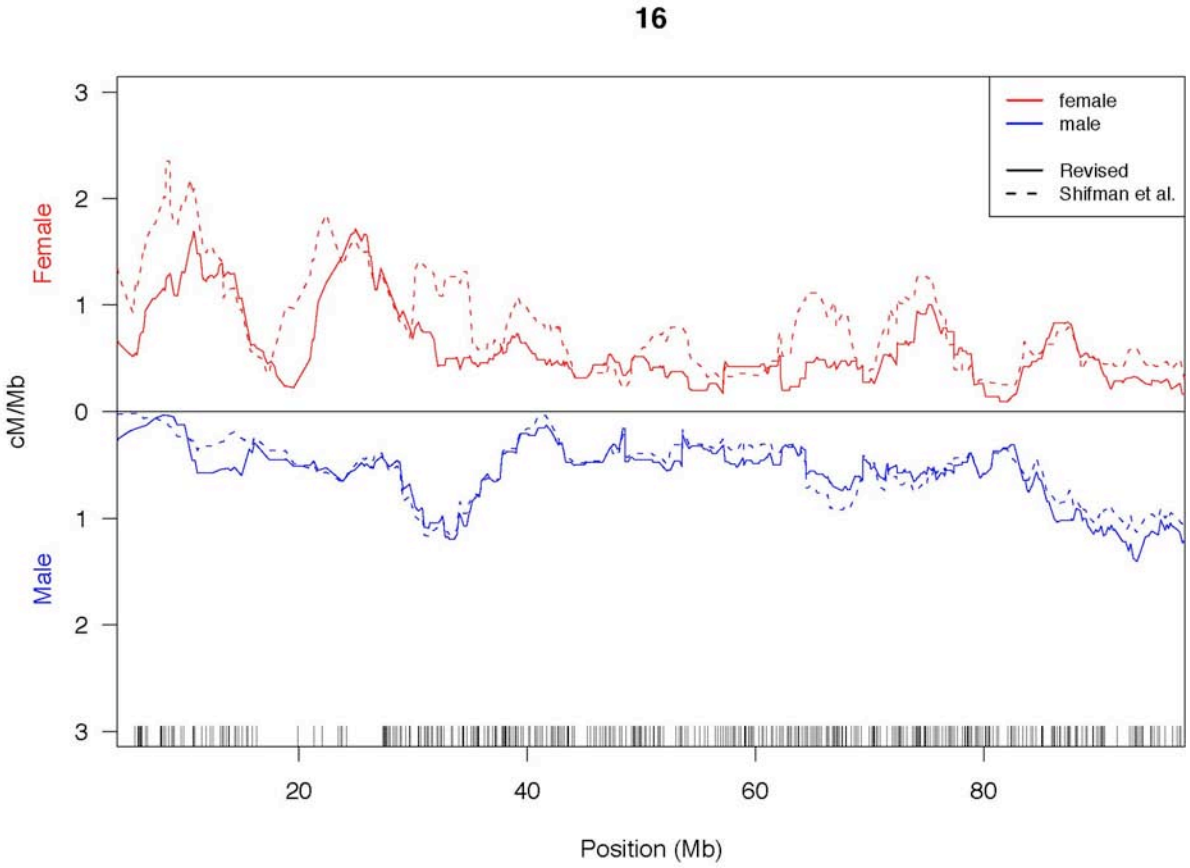
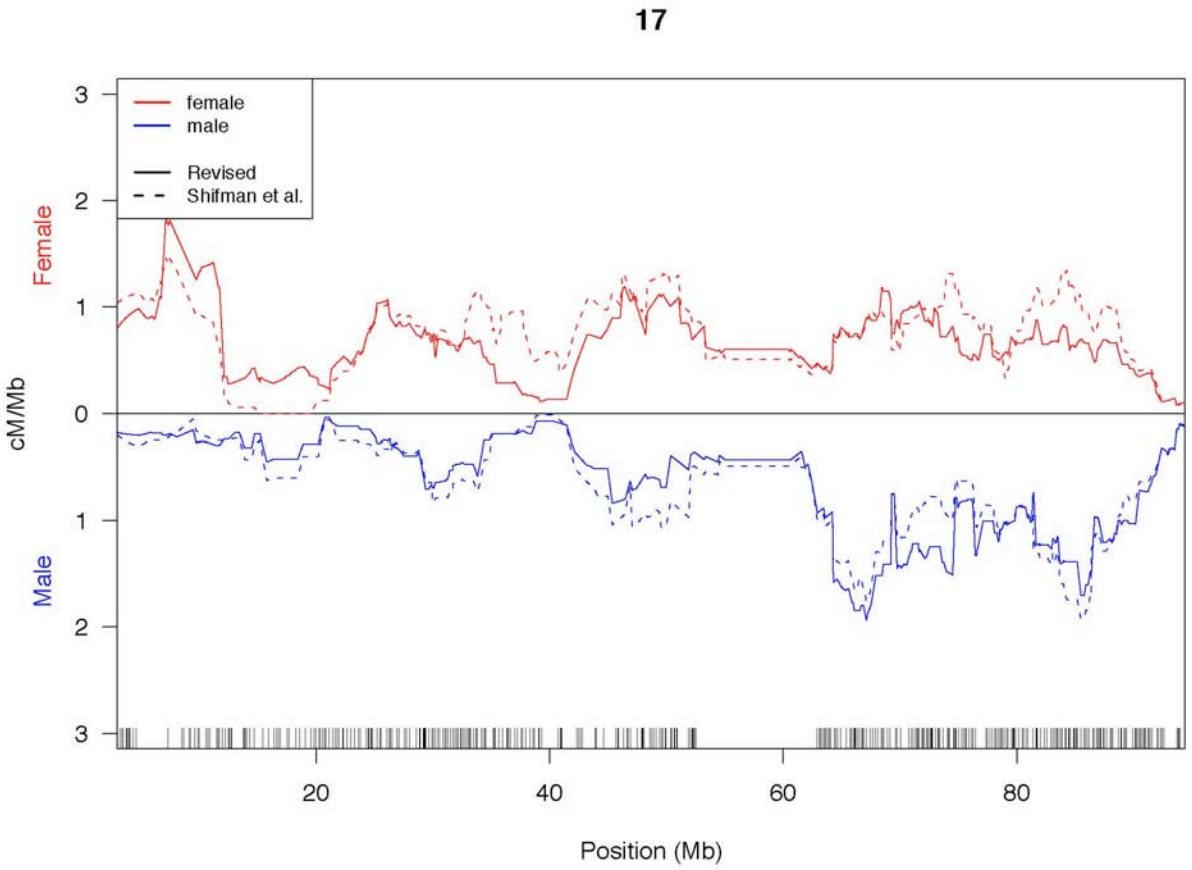
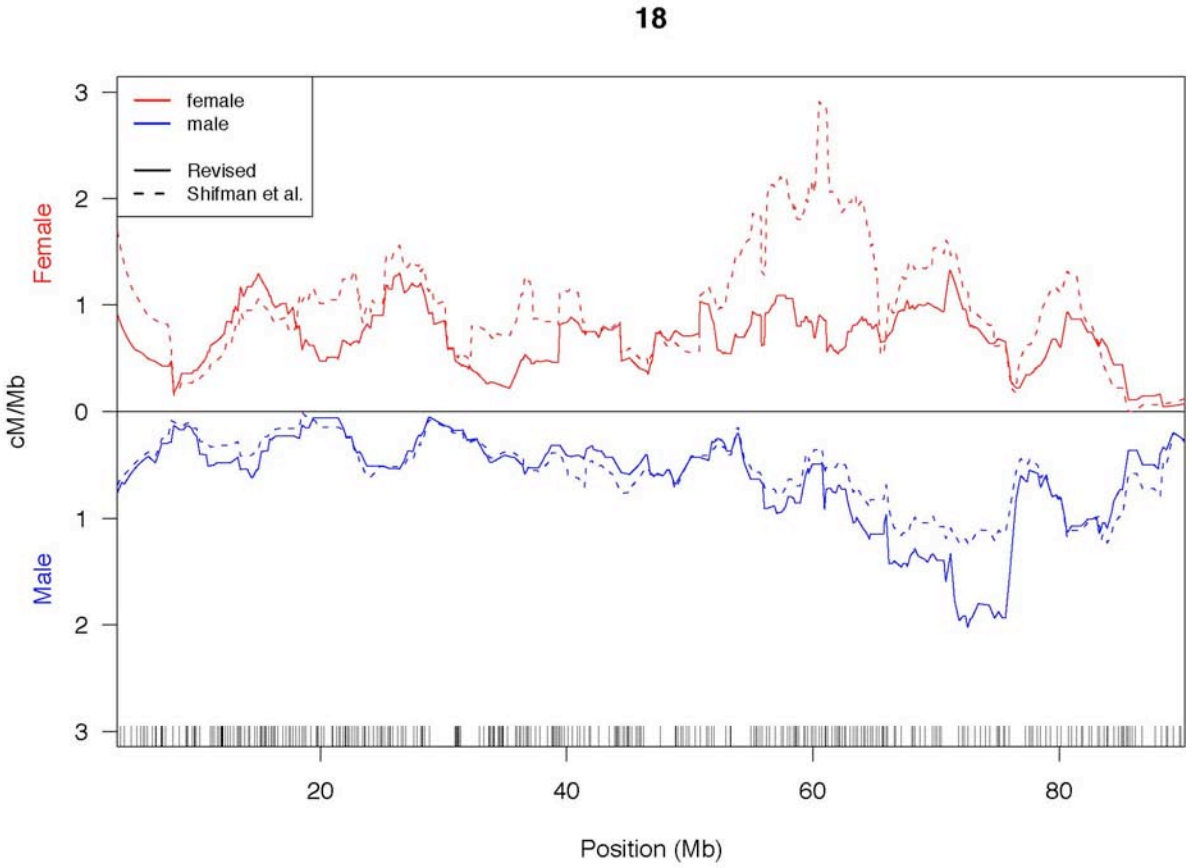
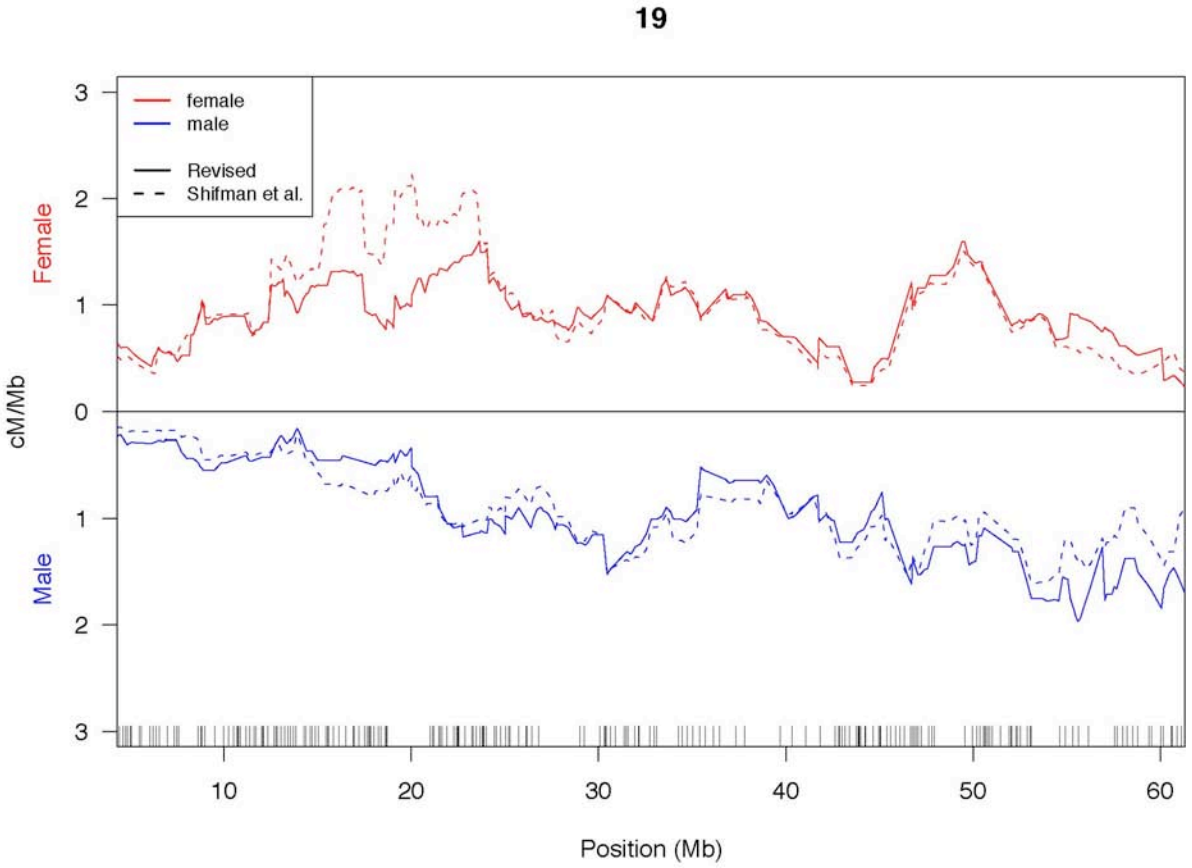
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
100
120
Position (Mb)


15
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
100
Position (Mb)


16
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
Position (Mb)


17
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
Position (Mb)


18
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
20
40
60
80
Position (Mb)


19
female
male
Revised
Shifman et al.
Female
Male
cM/Mb
3
2
1
0
1
2
3
10
20
30
40
50
60
Position (Mb)

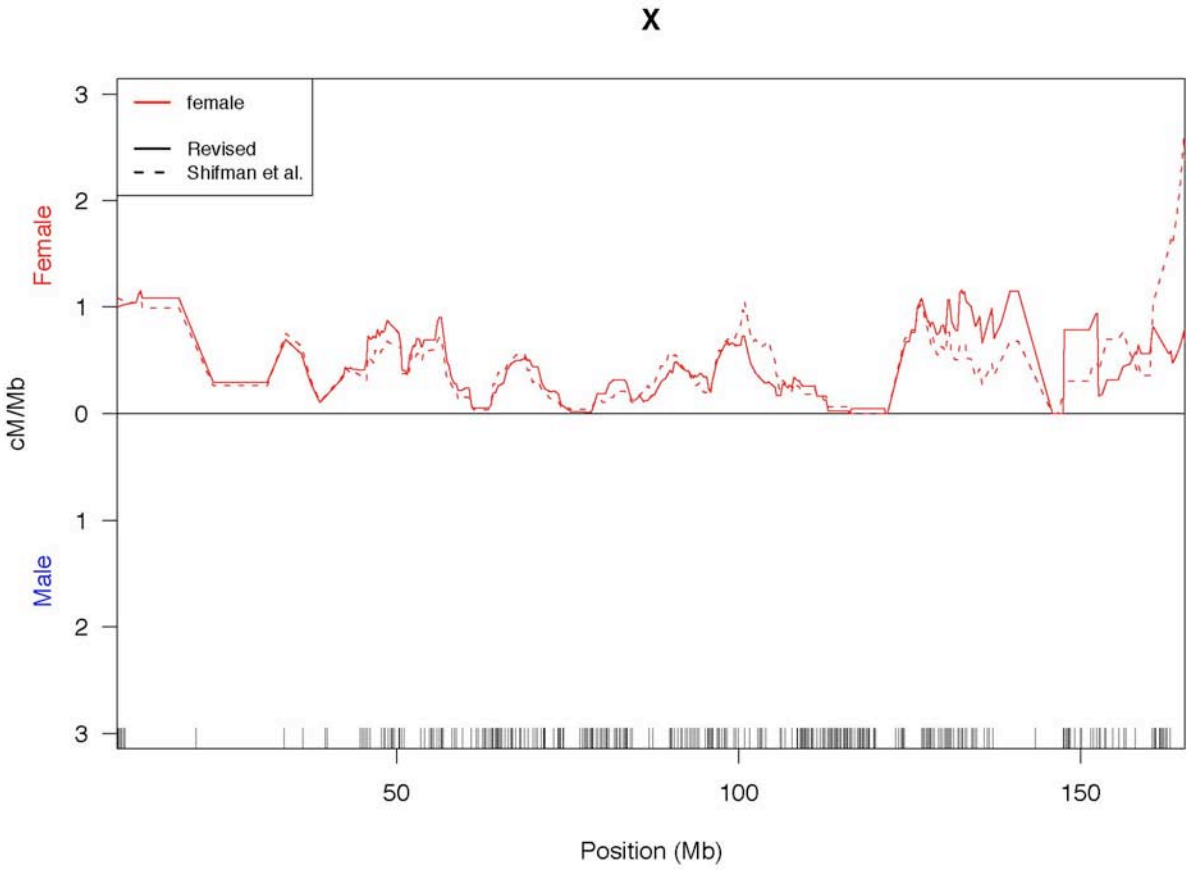
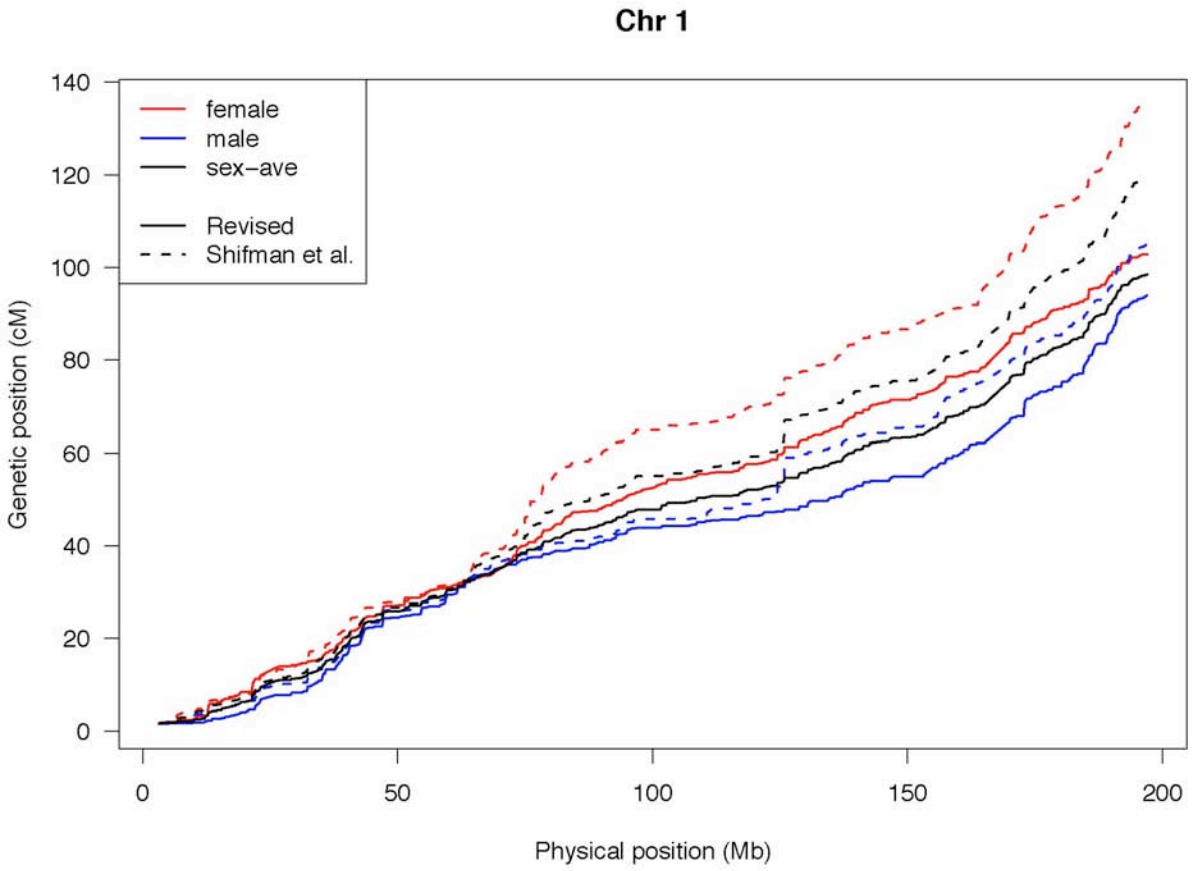
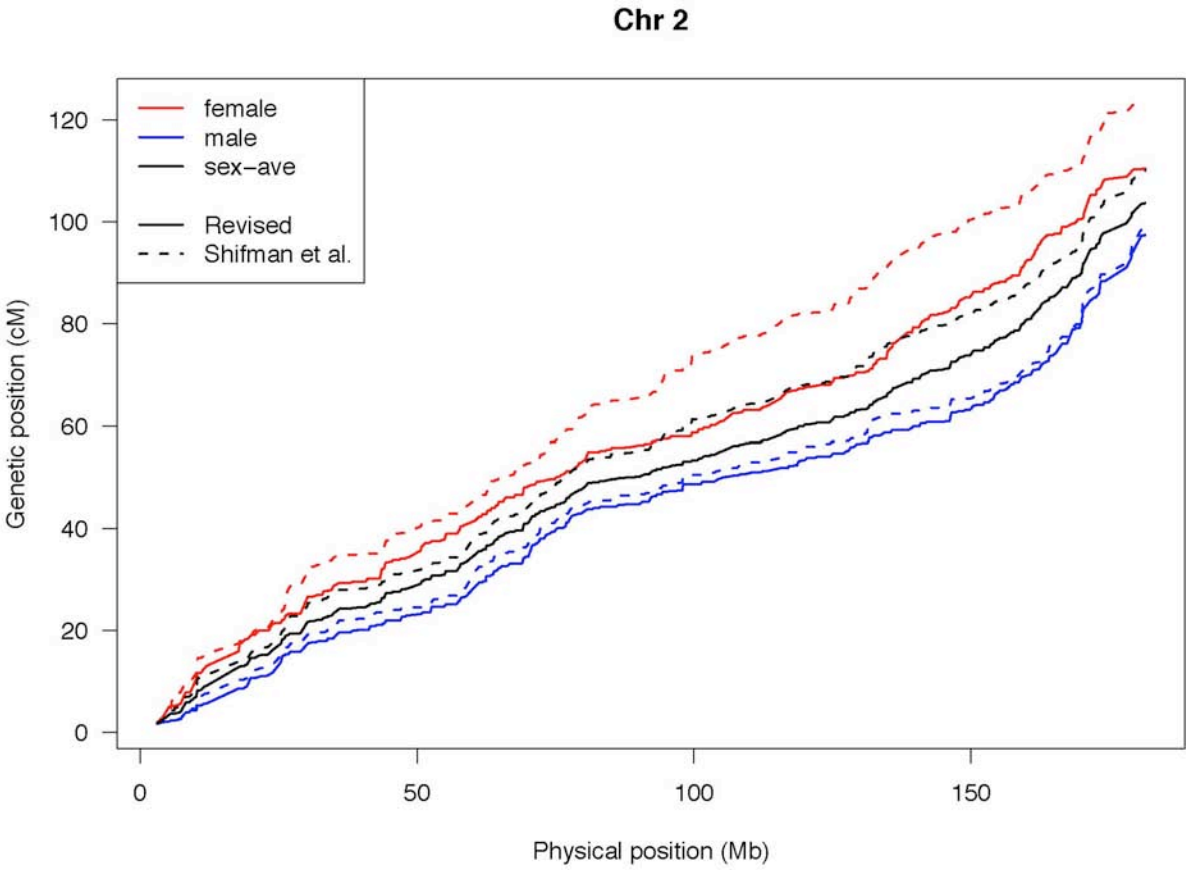
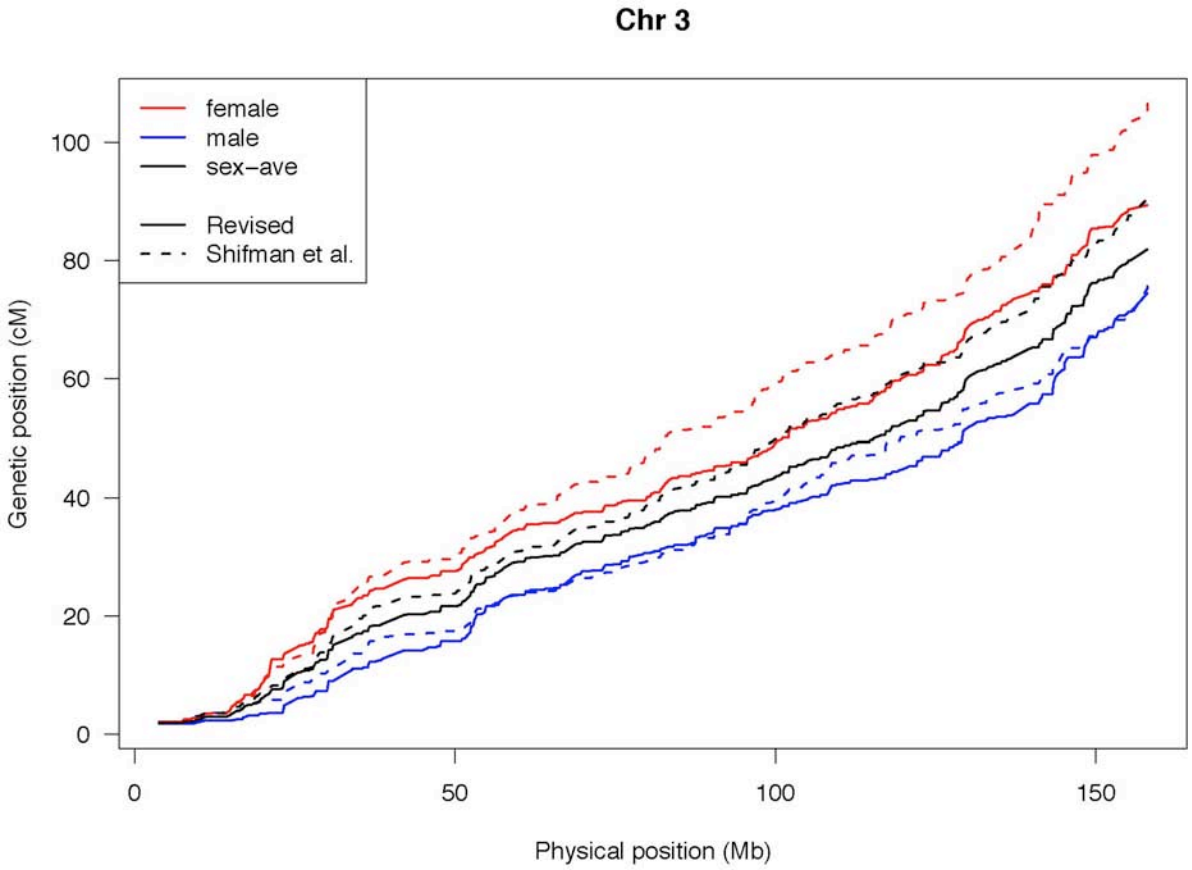


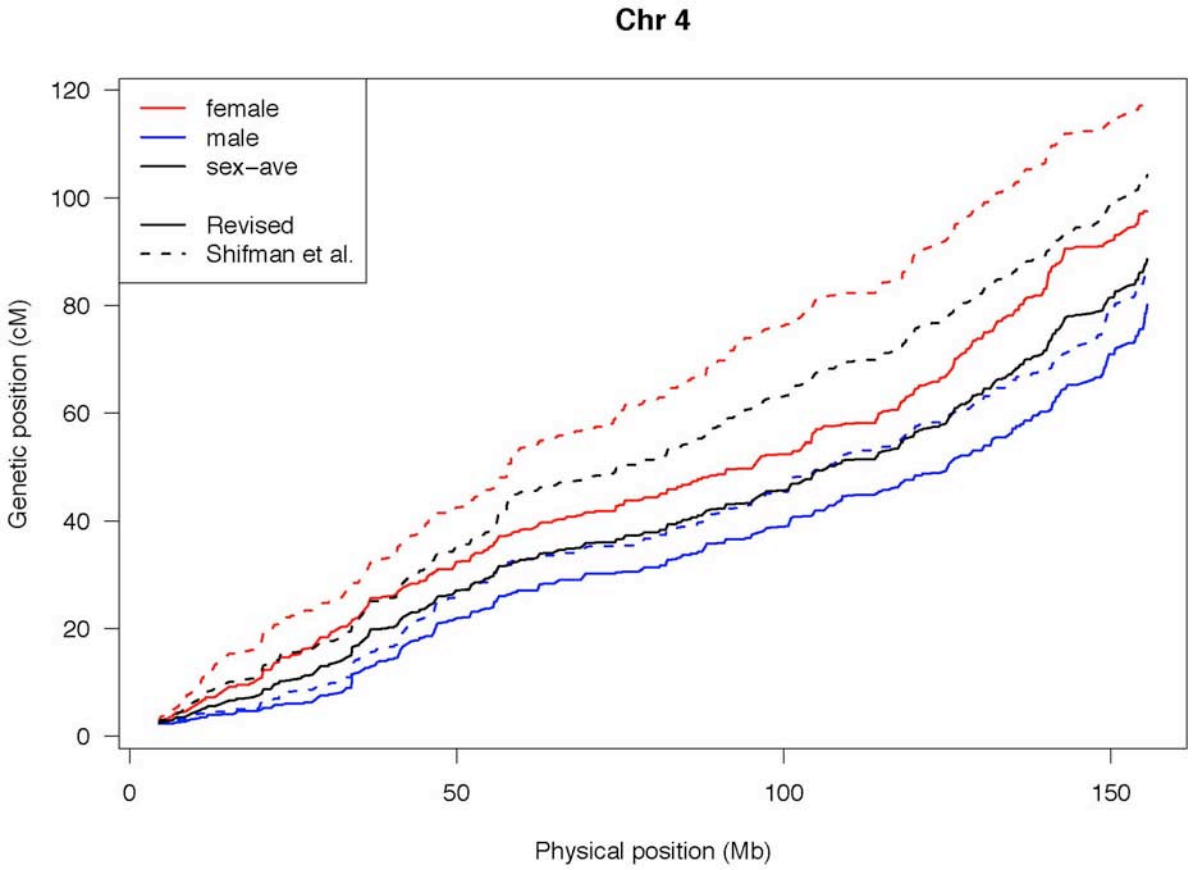
FIGURE S1.— Recombination rates in the original and revised genetic maps. Sex-specific recombination rates for the original and revised genetic maps of all Chromosomes. Maps are based on data from Shifman et al., (2006) as described in Methods.

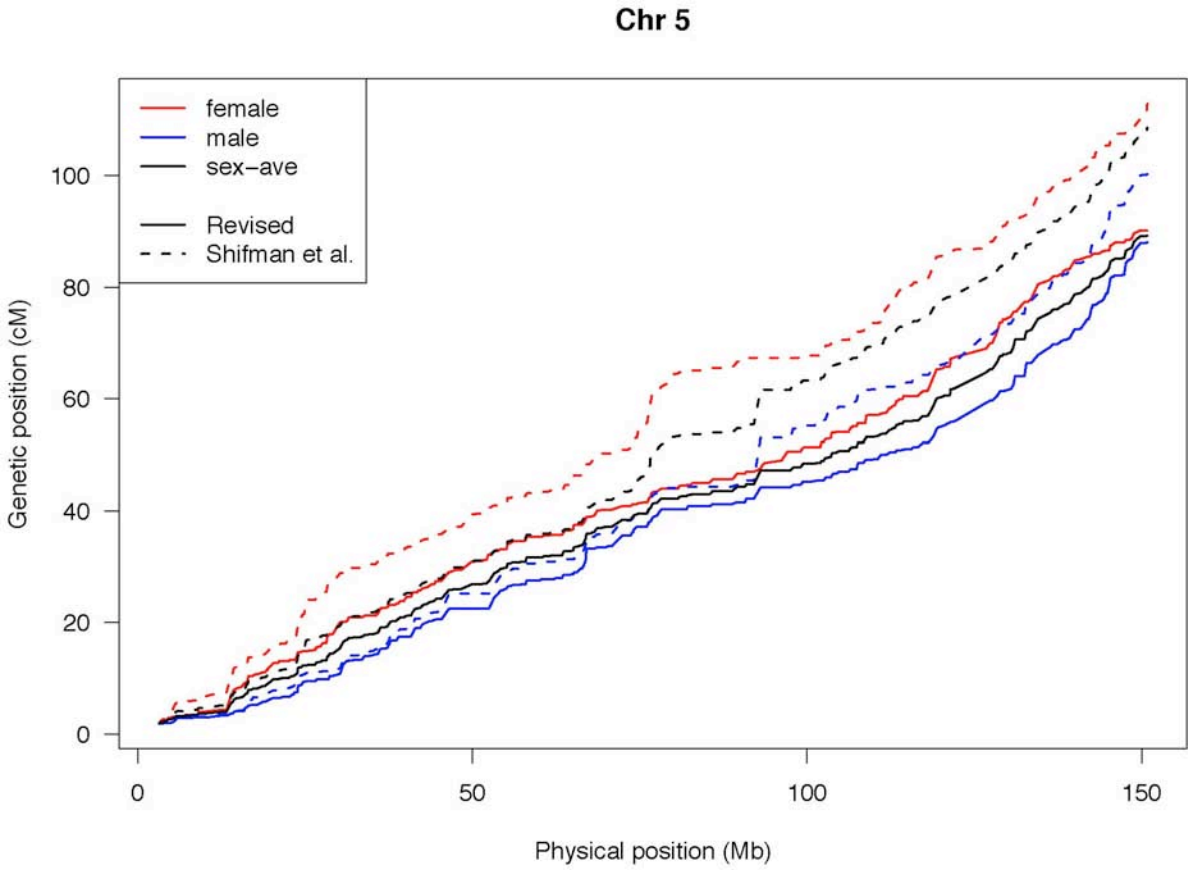
FIGURE S2

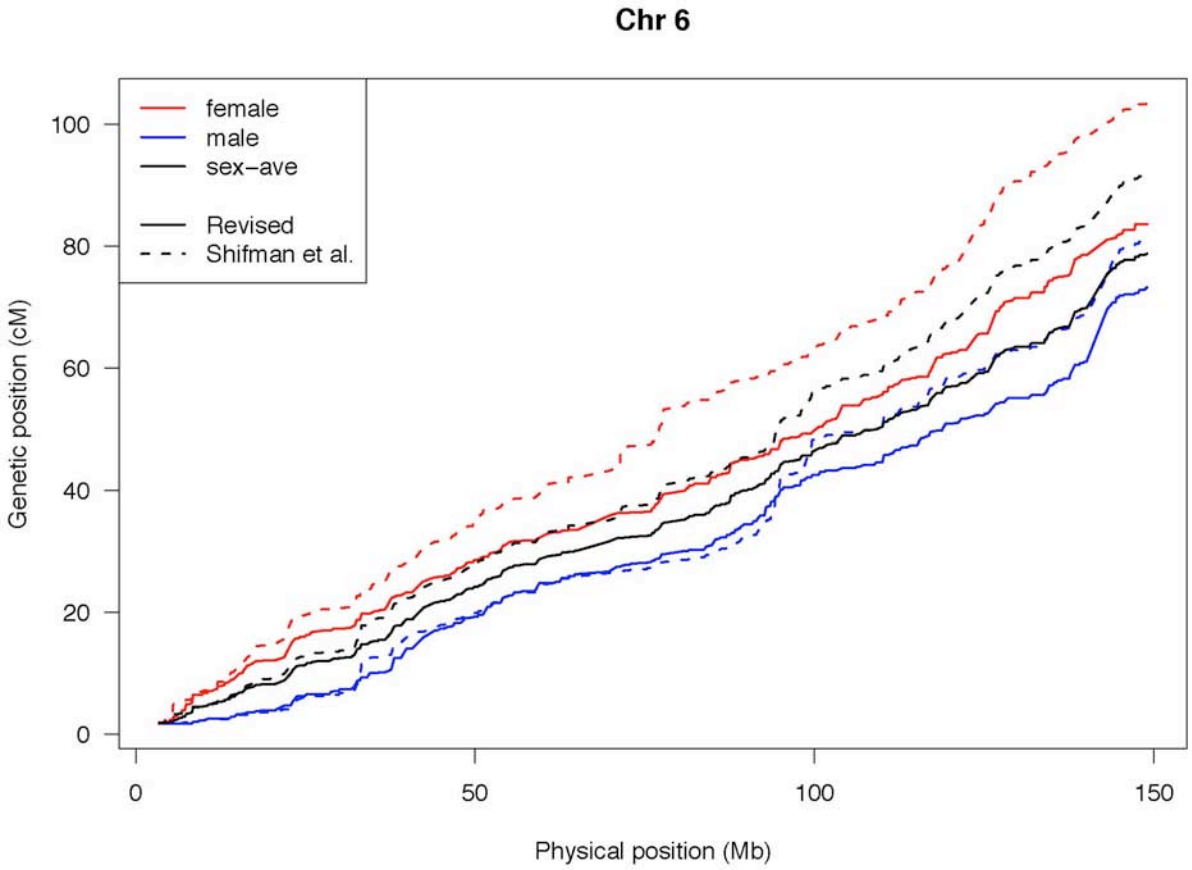

Chr 1
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
Physical position (Mb)
0
20
40
60
80
100
120
140
0
50
100
150
200

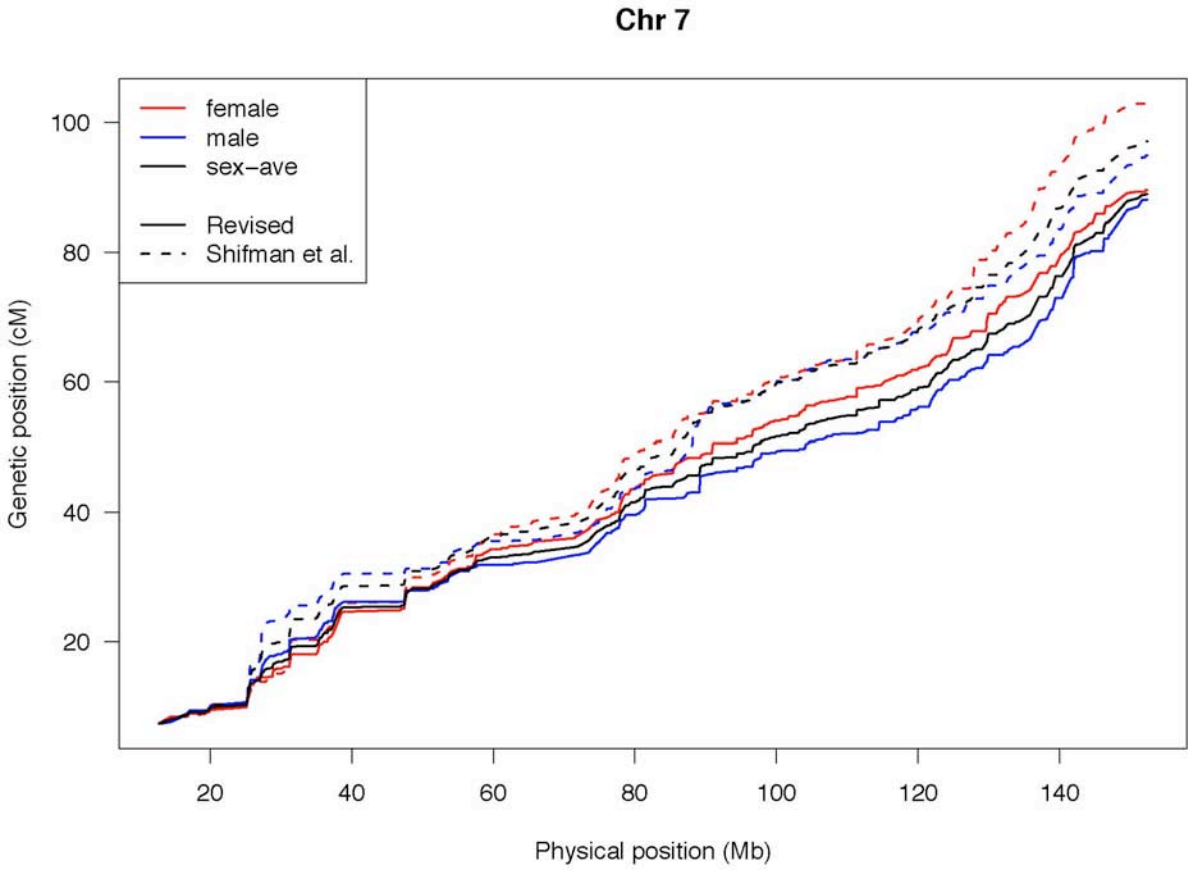

Chr 2
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
100
120
0
50
100
150
Physical position (Mb)

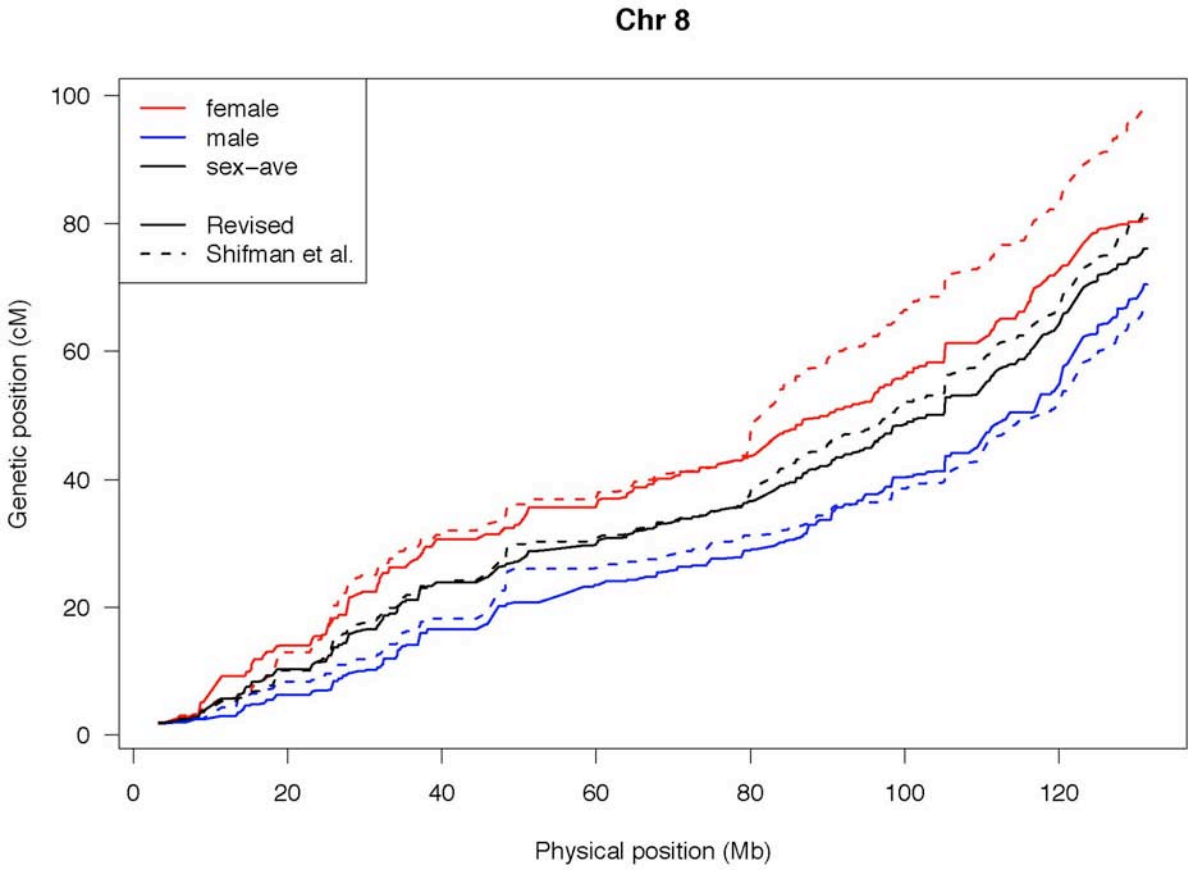

Chr 3
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
100
0
50
100
150
Physical position (Mb)

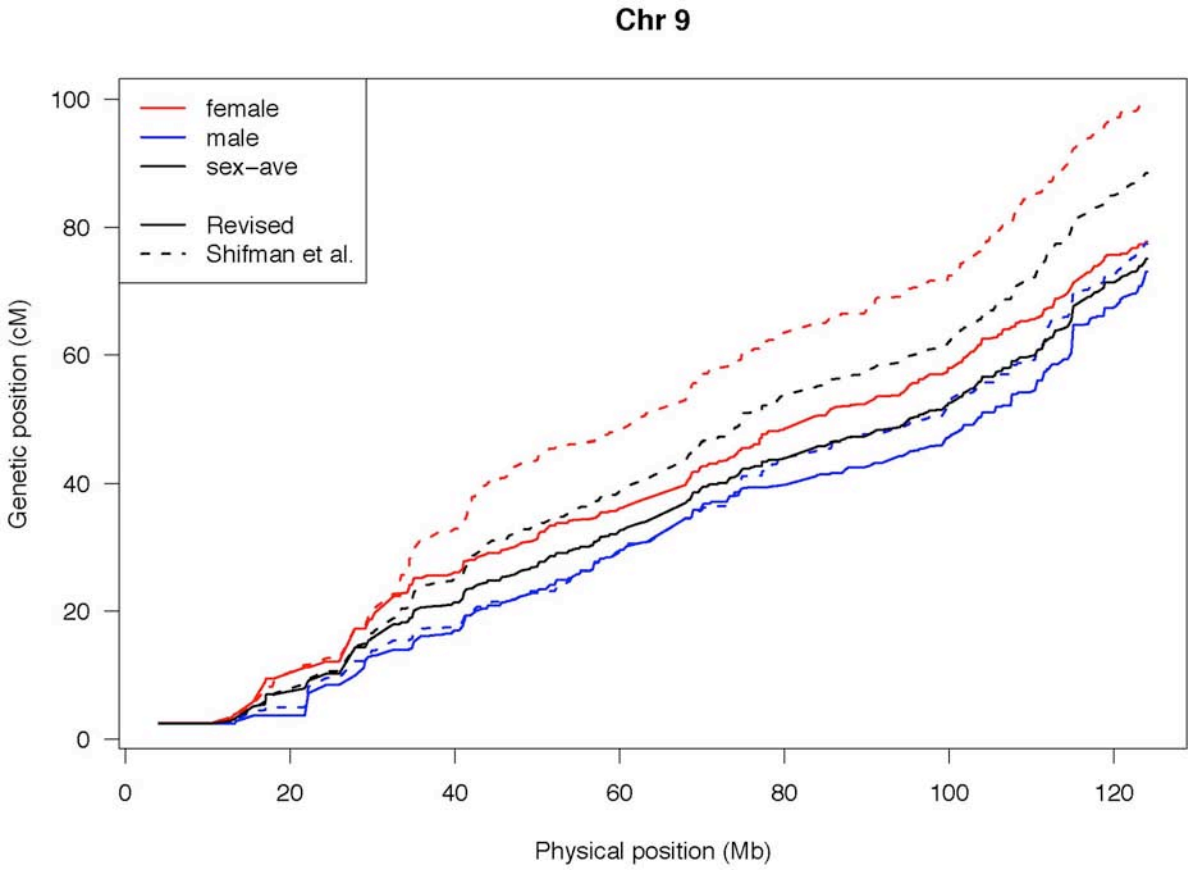

Chr 4
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
100
120
0
50
100
150
Physical position (Mb)


Chr 5
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
100
0
50
100
150
Physical position (Mb)


Chr 6
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
100
0
50
100
150
Physical position (Mb)


Chr 7
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
20
40
60
80
100
Physical position (Mb)
20
40
60
80
100
120
140


Chr 8
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
Physical position (Mb)
0
20
40
60
80
100
120


Chr 9
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
Physical position (Mb)
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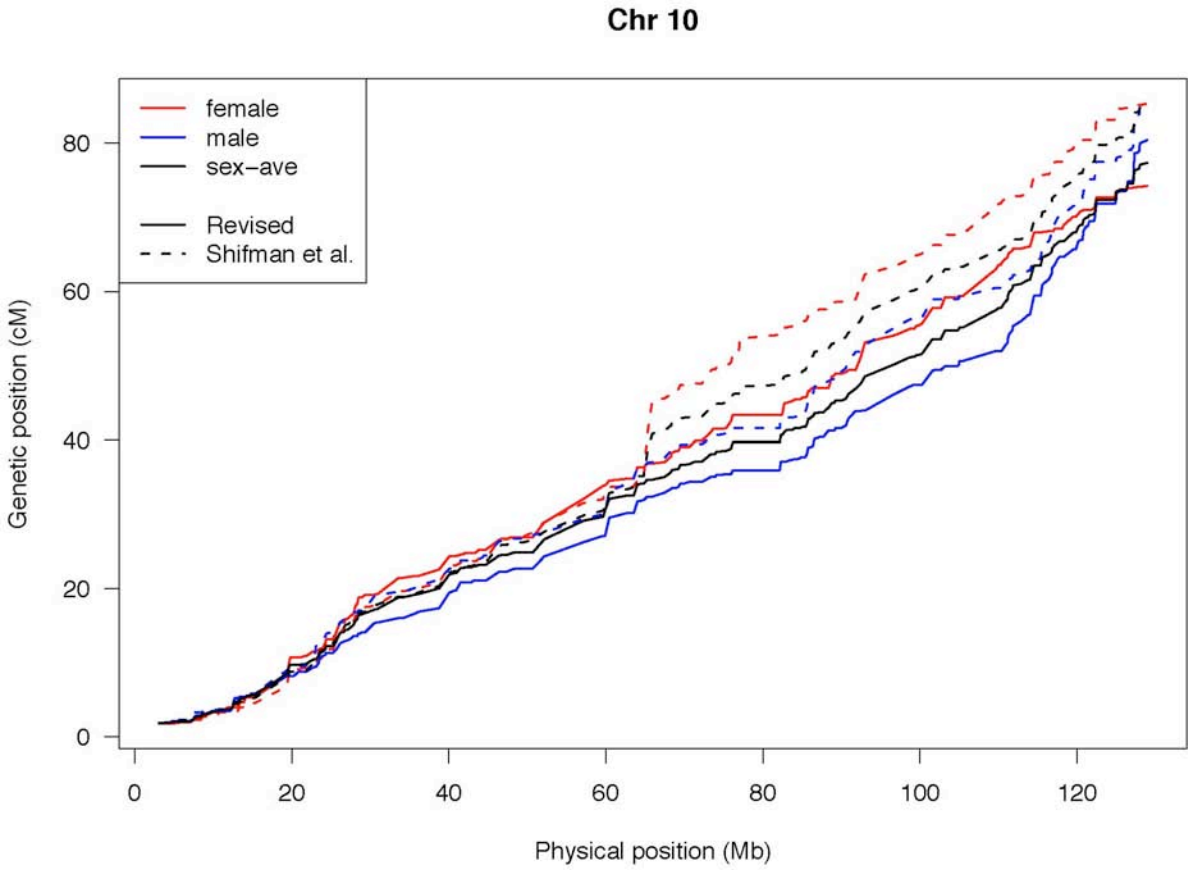
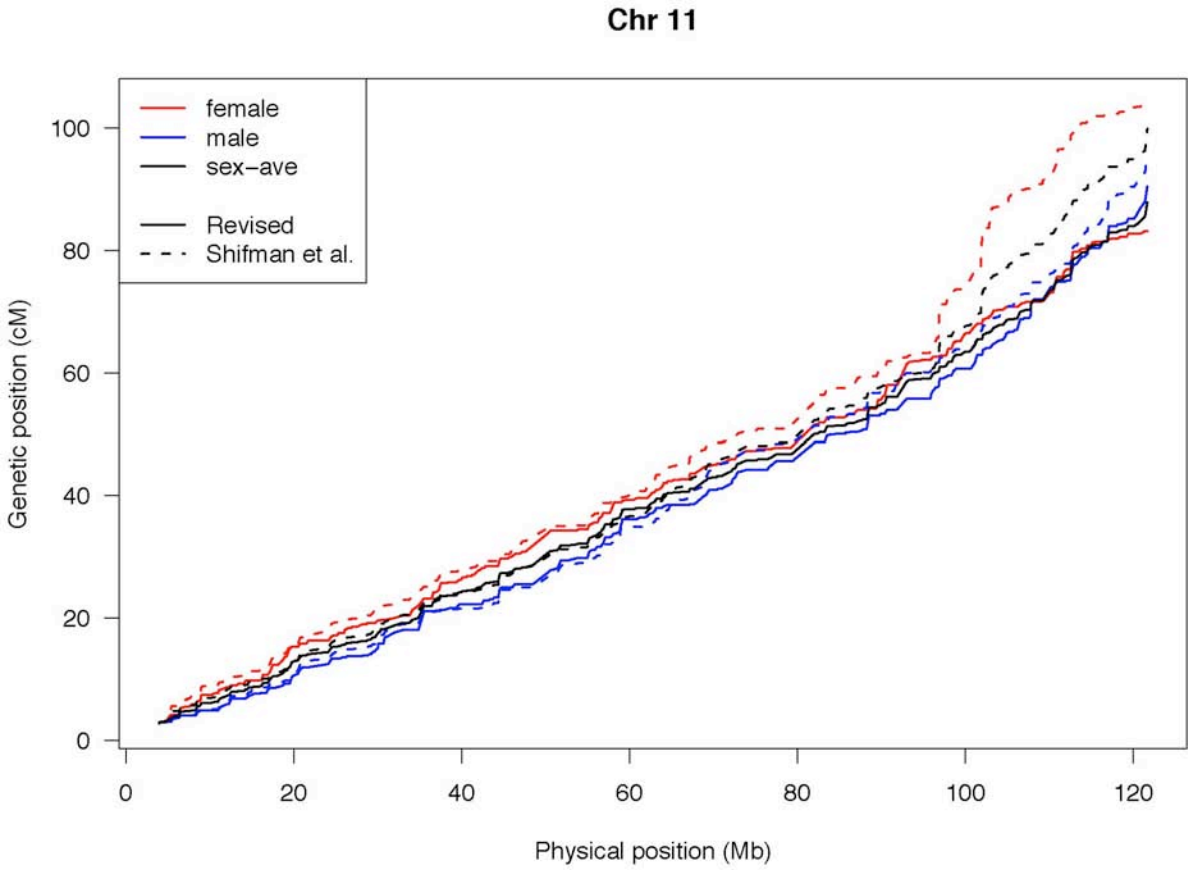
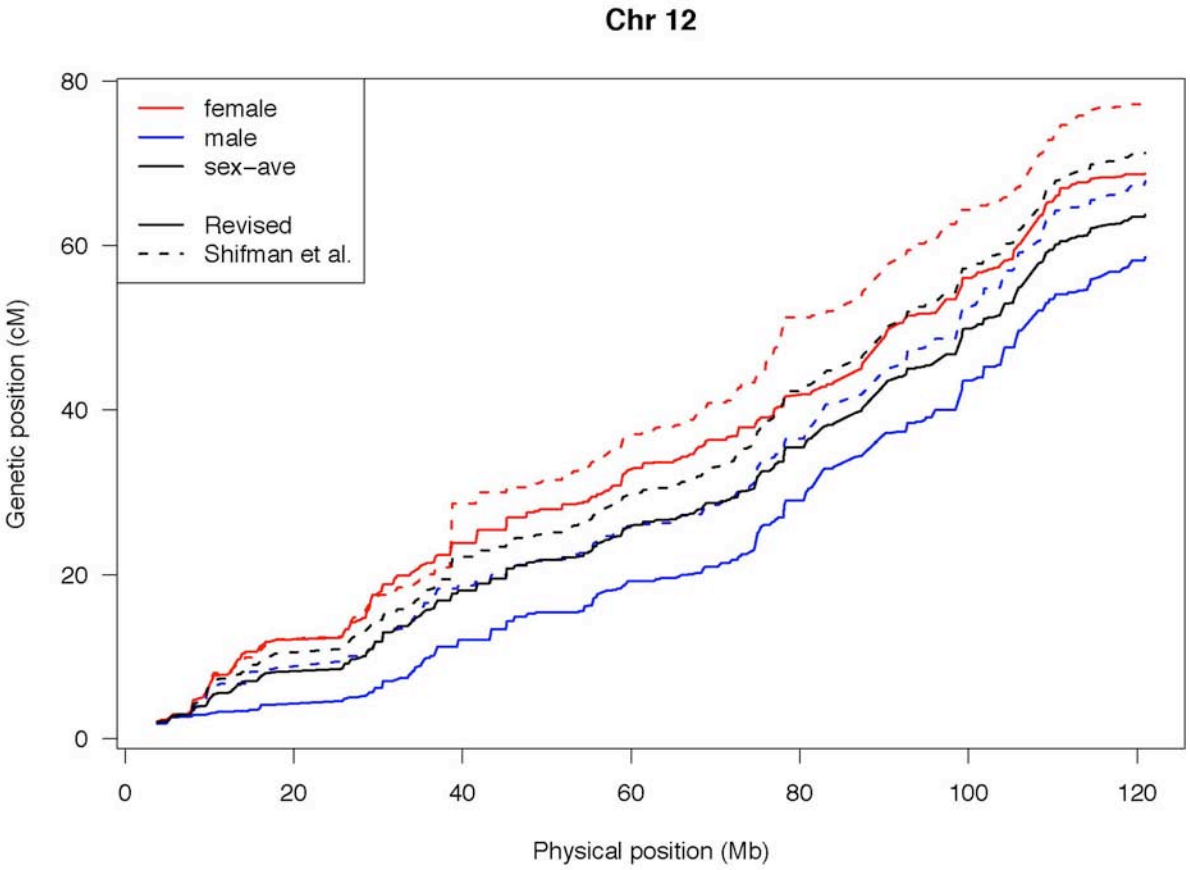
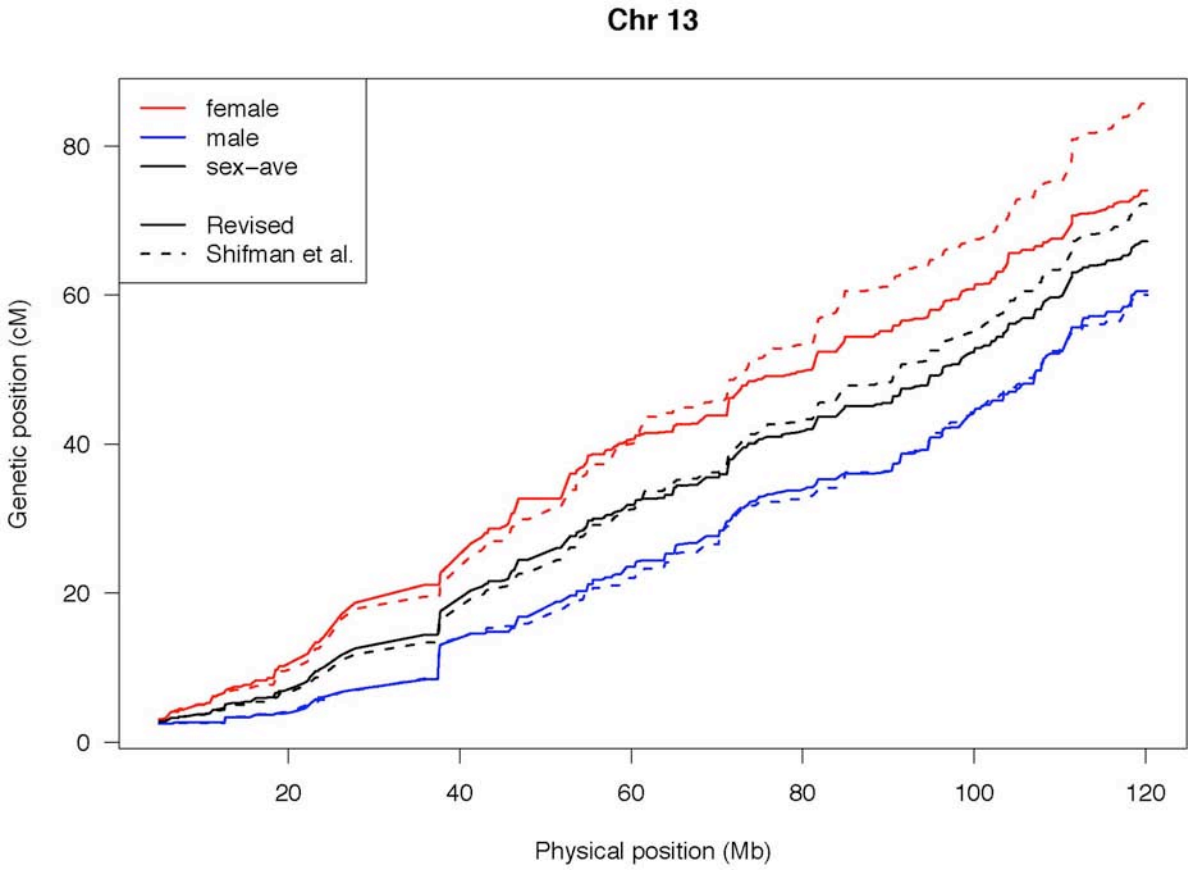
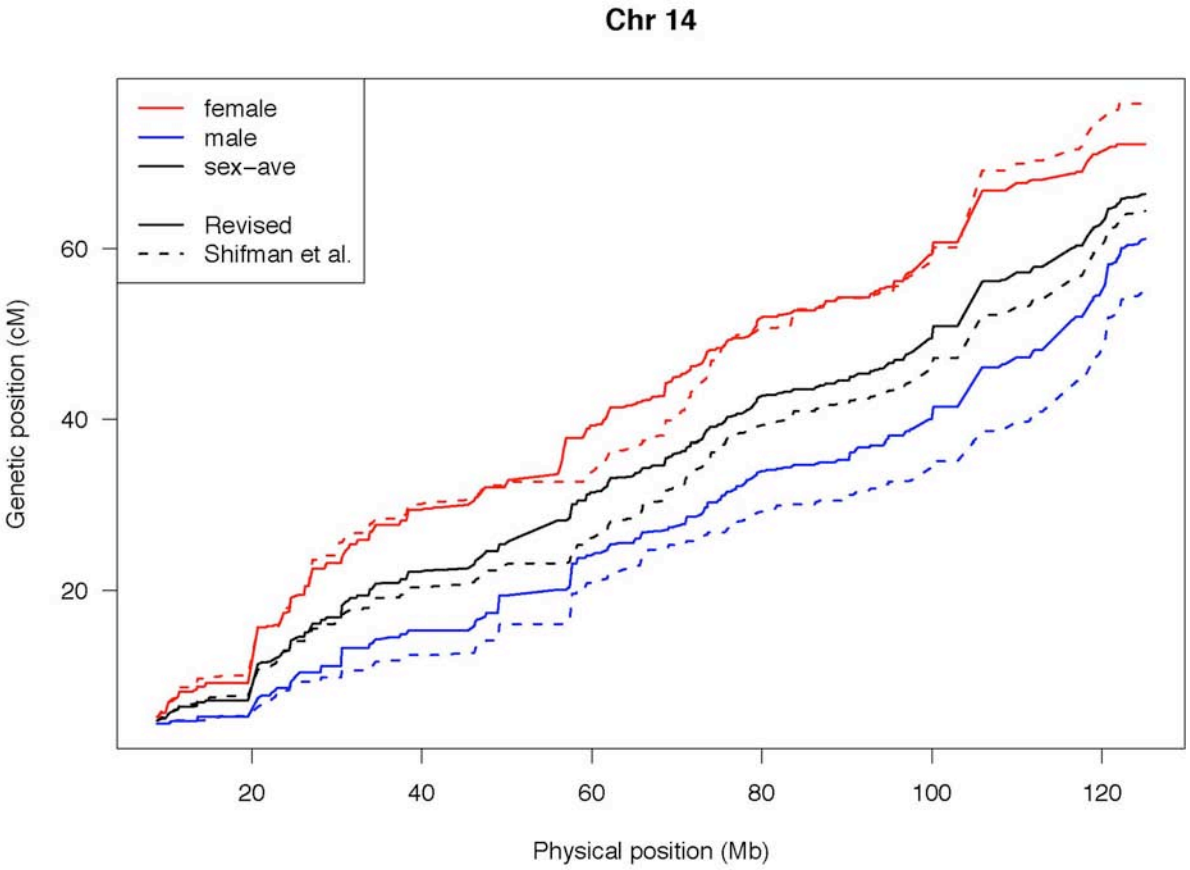
20
40
60
80
100
120


Chr 10
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
0
20
40
60
80
100
120
Physical position (Mb)


Chr 11
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
100
Physical position (Mb)
0
20
40
60
80
100
120


Chr 12
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
Physical position (Mb)
0
20
40
60
80
100
120


Chr 13
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
0
20
40
60
80
20
40
60
80
100
120
Physical position (Mb)


Chr 14
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
20
40
60
Physical position (Mb)
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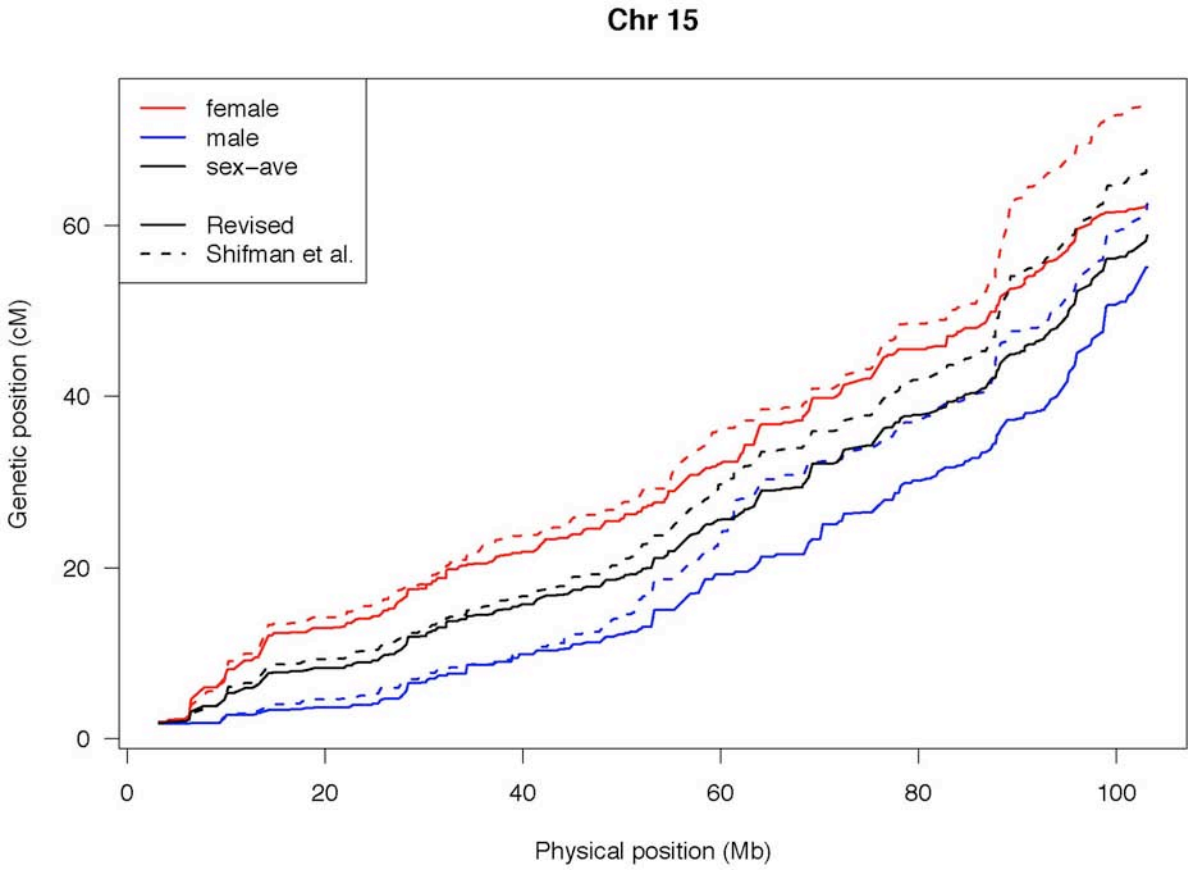
40
60
80
100
120


Chr 15
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
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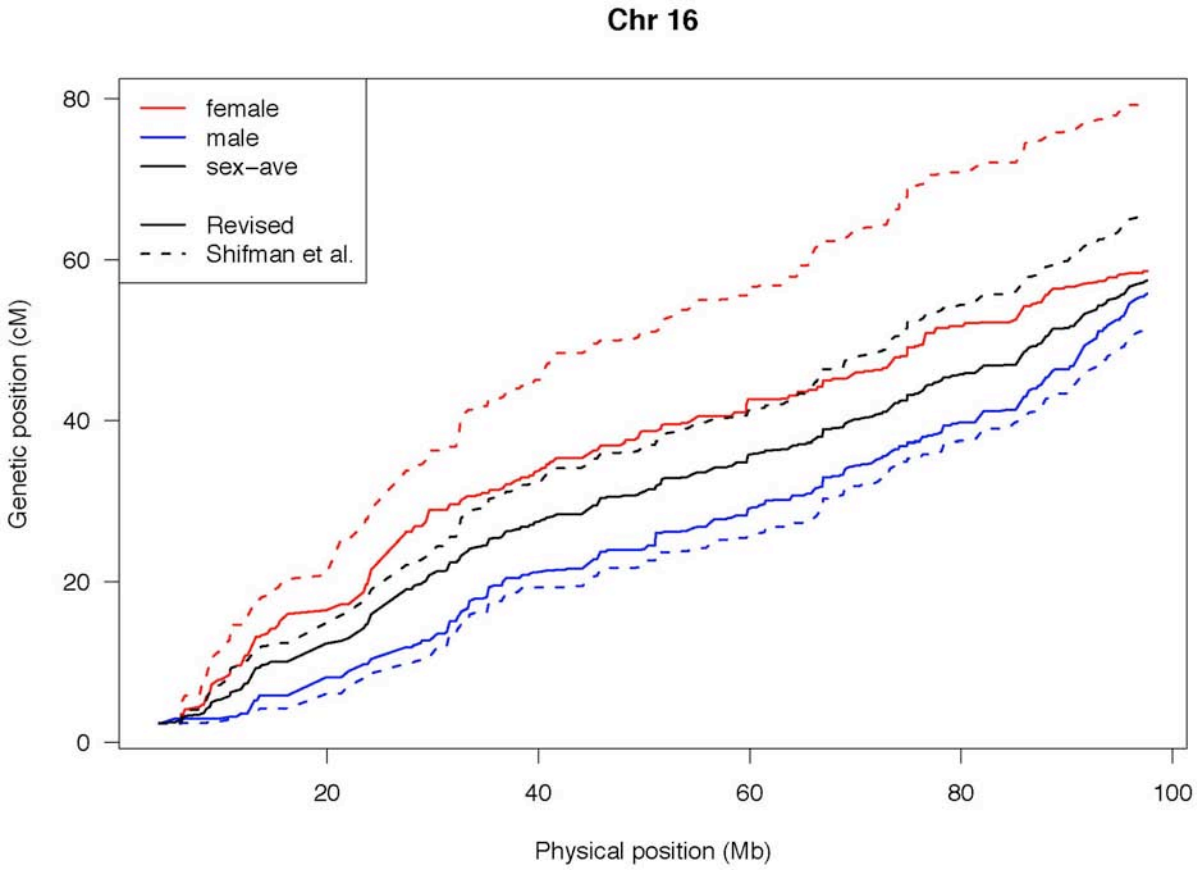
20
40
60
0
20
40
60
80
100
Physical position (Mb)


Chr 16
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
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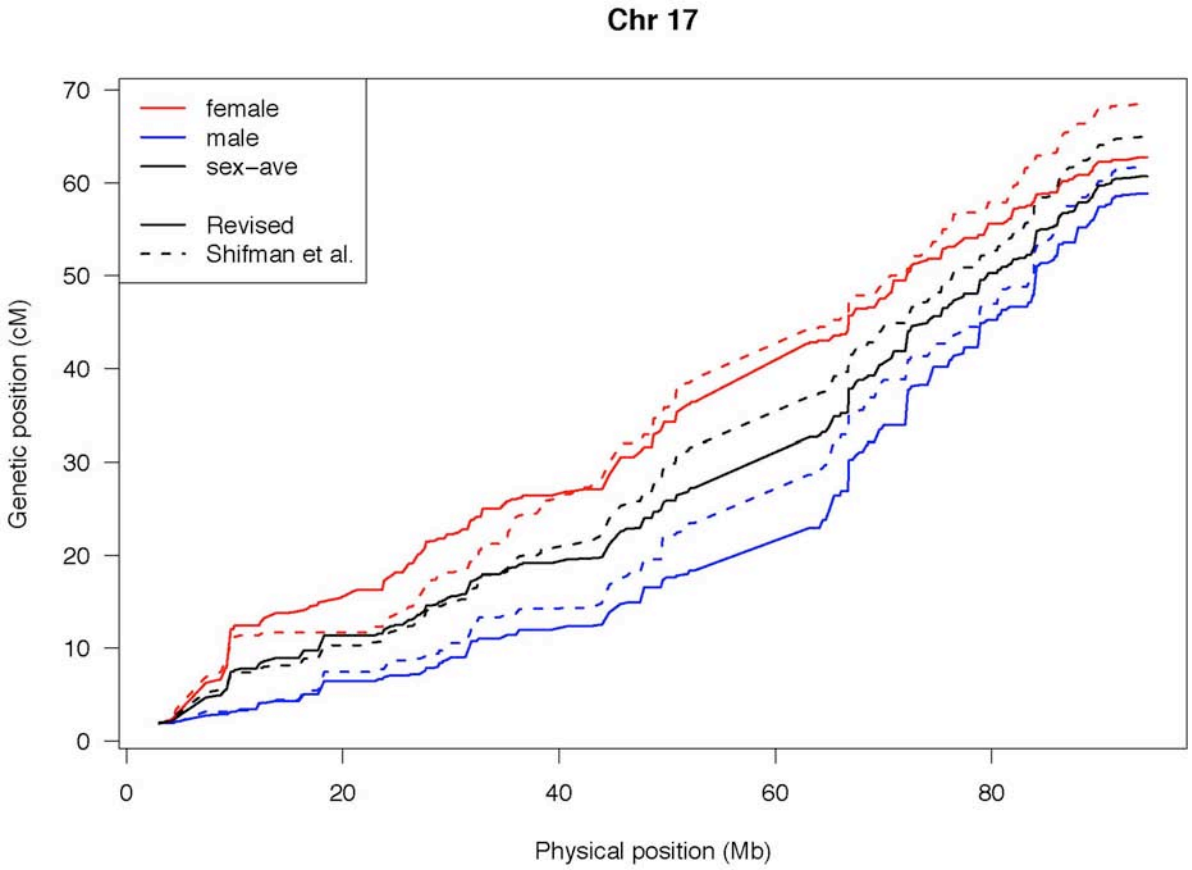
20
40
60
80
20
40
60
80
100
Physical position (Mb)


Chr 17
female
male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
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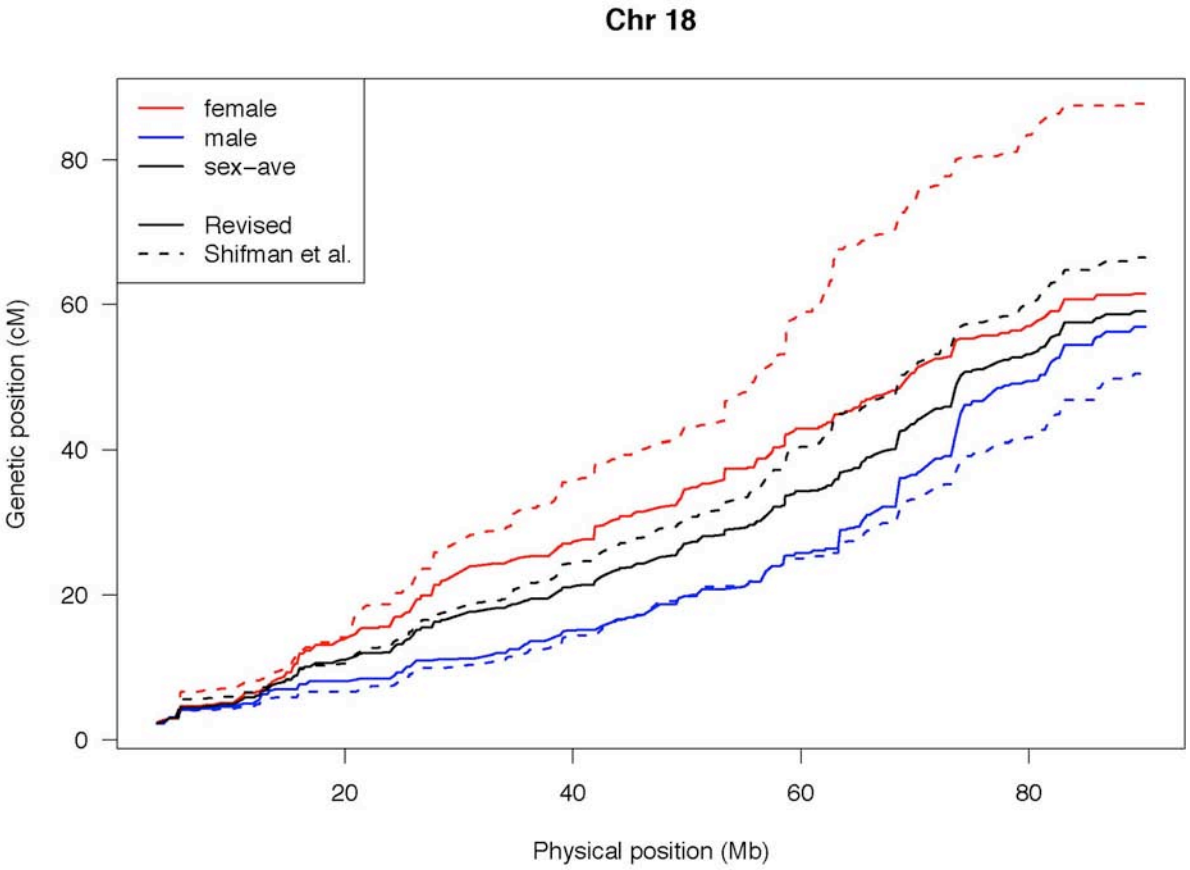
20
30
40
50
60
70
0
20
40
60
80
Physical position (Mb)


Chr 18
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male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
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20
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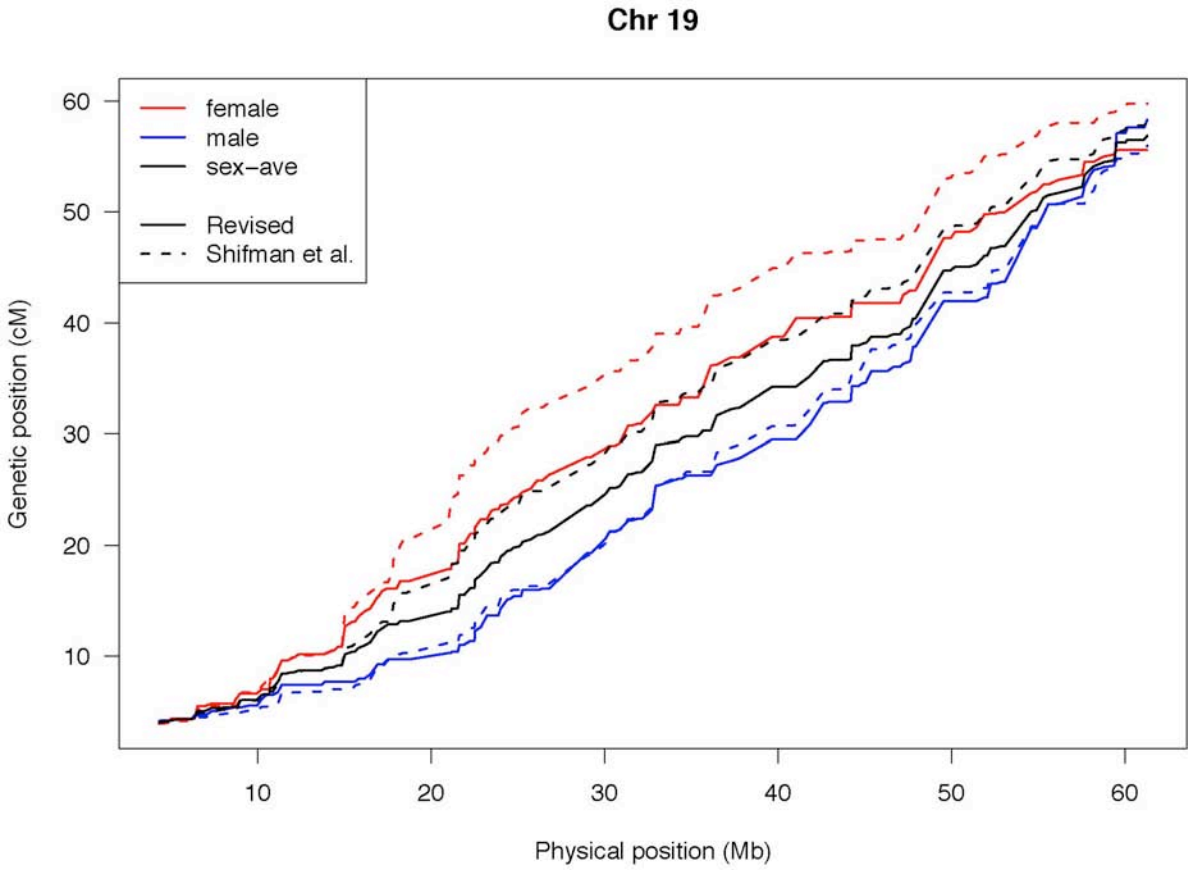
60
80
Physical position (Mb)


Chr 19
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male
sex−ave
Revised
Shifman et al.
Genetic position (cM)
Physical position (Mb)
10
20
30
40
50
60

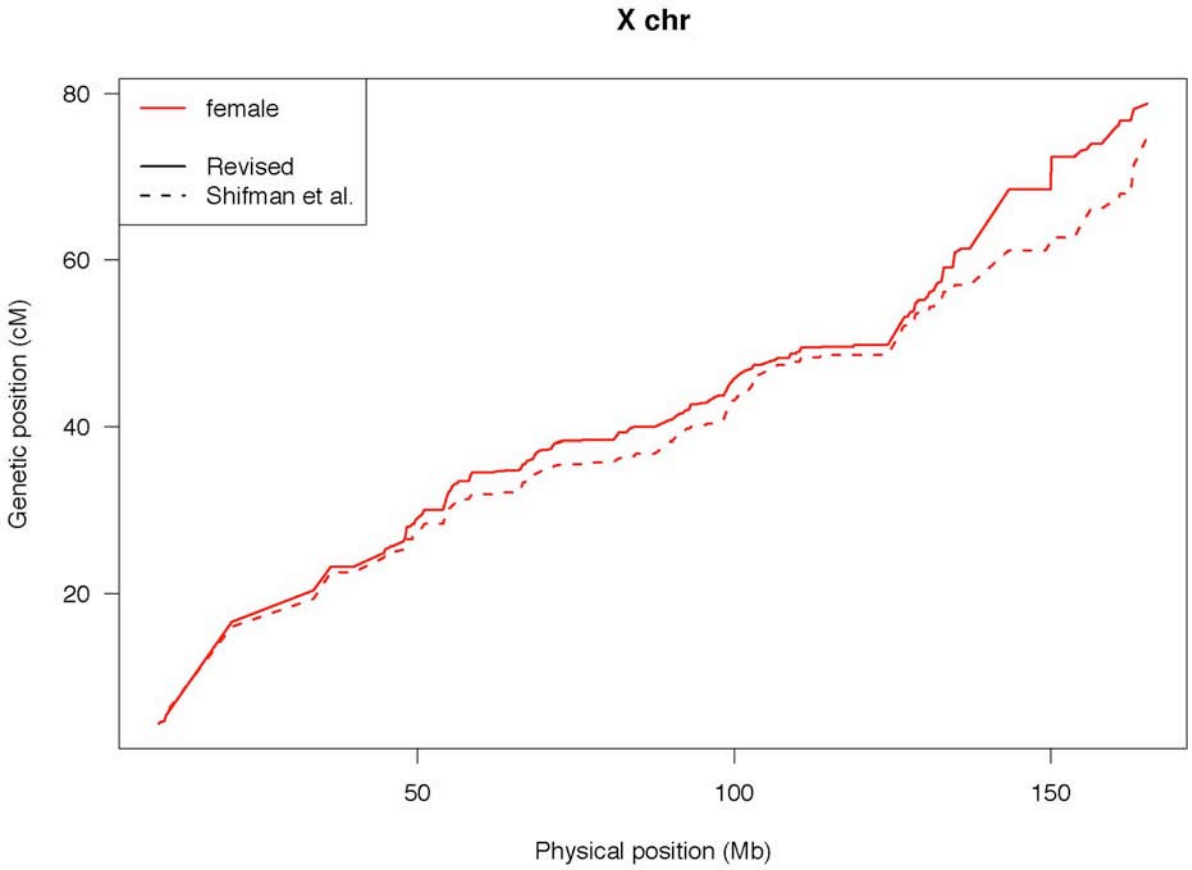

FIGURE S2.—Cumulative genetic maps. Cumulative genetic maps are shown for each chromosome.

TABLE S1

SNPs that mapped to multiple locations in mouse genome build 37

snpID	chr	Position_Build37
rs13483060	17	62204189, 62383134
rs13475989	1	95771627, 95837777, 95906063
rs13477670	4	42215061, 42803507
rs6177140	4	31468011, 31651727
rs3659566	5	128862845, 129018189
mCV24704879	7	113221222, 113467886

TABLE S2

MIT markers that mapped to multiple locations in mouse genome build 37

Table S2 is available for download as an Excel file at http://www.genetics.org/cgi/content/full/genetics.109.105486/DC1.

TABLE S3

MIT markers that could not be mapped to mouse genome build 37

Table S3 is available for download as an Excel file at http://www.genetics.org/cgi/content/full/genetics.109.105486/DC1.

TABLE S4

QTL peaks that showed significant changes when localized on both old and new genetic maps

Chr	Peak (cM)*	LOD score*	Peak Marker*	Cross	Phenotype	Type of change
1	62.5 76.0	27.50 25.52	*D1Mit14*	B6xC3H	Femoral vBMD	LOD score
2	60.2 55.0	1.75 1.53	*D2Mit46* *D2Mit15*	B6xCAST	Femoral vBMD	Peak shape
2	79.4 87.0	4.04 3.85	*D2Mit48*	B6xC3H	Femoral vBMD	Peak shape
4	63.6 53.9	2.64 2.69	*D4Mit251* *D4Mit26*	NZBxRF	Femoral vBMD	Peak shape
4	68.4 73.2	3.04 2.98	*D4MIT308* *D4MIT42*	B6x129	Whole body aBMD	Marker closest to peak
4	71.6 77.9	2.45 2.37	*D4Mit68* *D4Mit51*	B6xCAST	Femoral vBMD	Marker closest to peak
8	71.6 64.0	2.42 2.59	*D8Mit280* *D8Mit167*	B6xC3H	Ultimate load	Marker closest to peak
11	70.7 75.1	4.25 4.26	*D11Mit126* *D11Mit48*	NZBxRF	Ultimate load	Marker closest to peak
12	15.5 6.0	7.34 7.55	*D12Mit285* *D12Mit182*	NZBxRF	Ultimate load	Marker closest to peak
12	30.2 29.0	3.52 3.39	*D12Mit201*	NZBxRF	Femoral vBMD	Peak Shape
14	4.7	1.92	*D14Mit110*	B6xC3H	Cortical thickness	LOD score**
14	56.2 63.0	3.66 3.17	*D14Mit170*	B6xCAST	Femoral vBMD	Peak Shape
18	20.5 20.0	8.96 9.08	*D18Mit120* *D18Mit36*	B6xC3H	Ultimate load	Marker closest to peak
18	57.5 54.0	1.75 1.94	*D18Mit6*	B6xCAST	Femoral vBMD	Peak shape
19	29.8 27.0	2.44 2.68	*D19Mit11*	NZBxSM	Vertebral aBMD	Peak shape

* The top value is the result from the new map and the bottom from the traditional map analysis.

** LOD change resulted in a failure to detect QTL in one analysis