

# Crossover interference and the sex difference in recombination

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Cross	Sample size
$(B \times C) \times B$	1466
$(C \times B) \times B$	1528
$B \times (B \times C)$	1459
$B \times (C \times B)$	1533

B = C57BL/6J  
C = CAST/EiJ

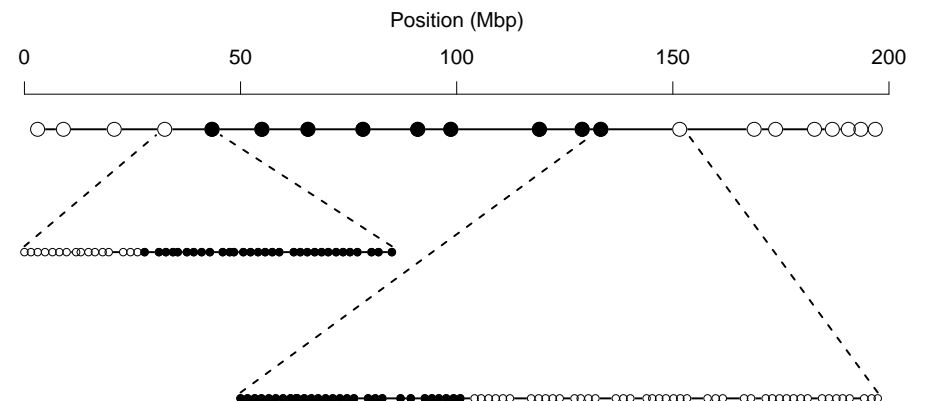
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## Learning about recombination

- MLH1 staining in spermatocytes or oocytes
- Genotype data on families / crosses
- Patterns of linkage disequilibrium

## Genotyping

Chr 1 only (for now), by brute force



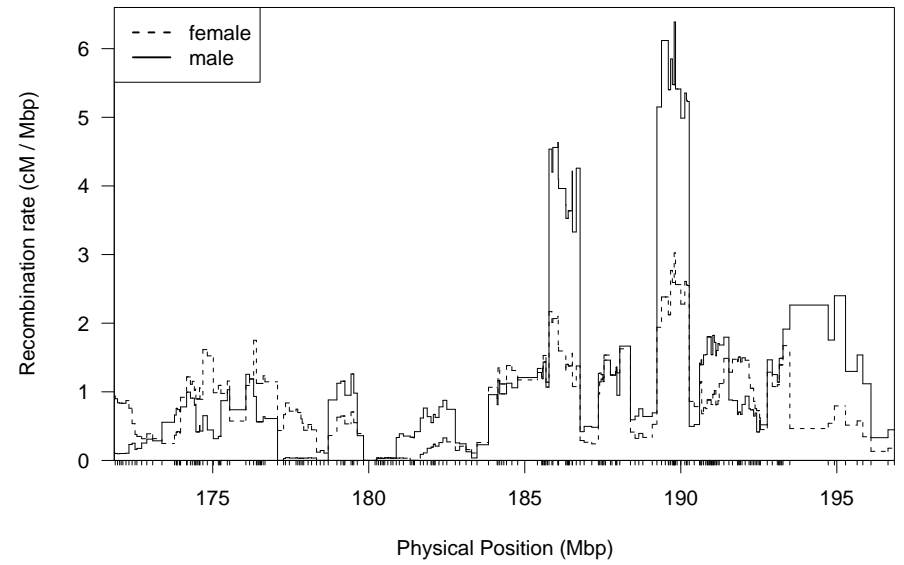
# Counts

	No. crossovers					Ave.
	0	1	2	3	4	
female	25	50	23	1.6	0.1%	1.01
male	32	51	16	0.2	0.0%	0.84

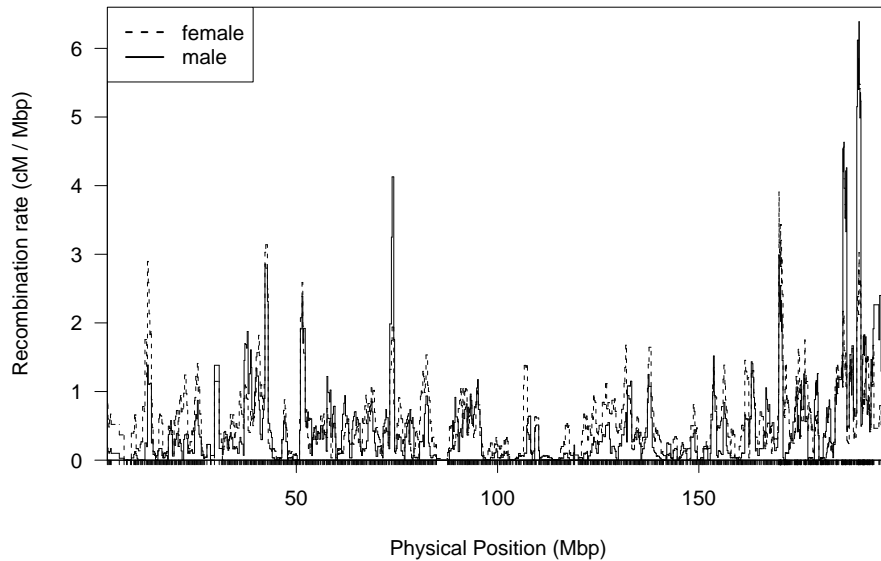
	No. chiasmata					Ave.
	0	1	2	3	4	
female	0	10	78	10	1%	2.02
male	0	33	65	1	0%	1.69

(Assuming no chromatid interference.)

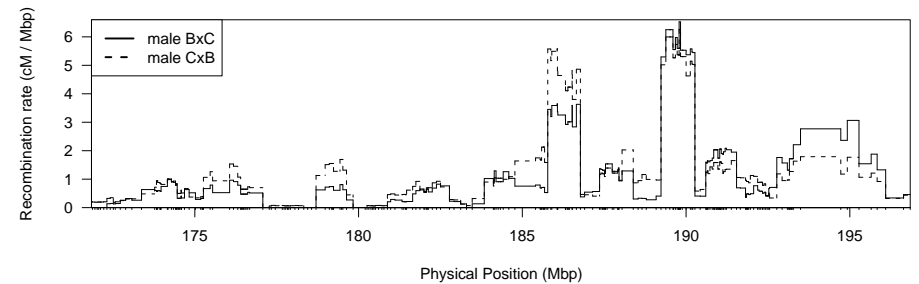
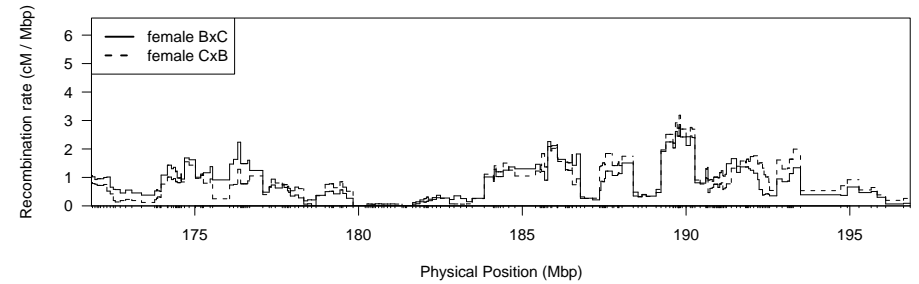
# Distal 25 Mbp



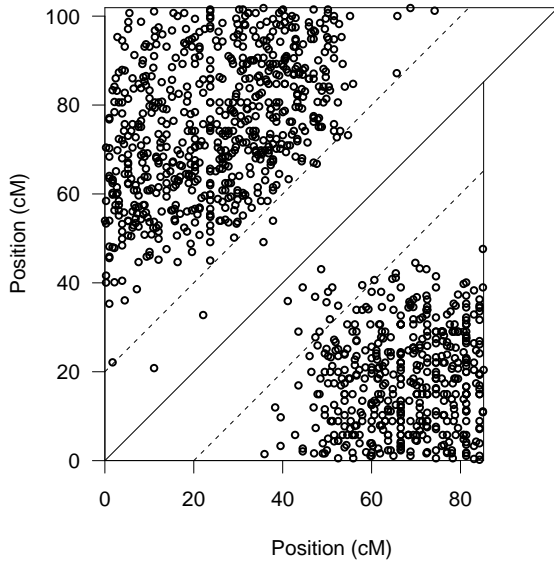
# Recombination rate



# Distal 25 Mbp

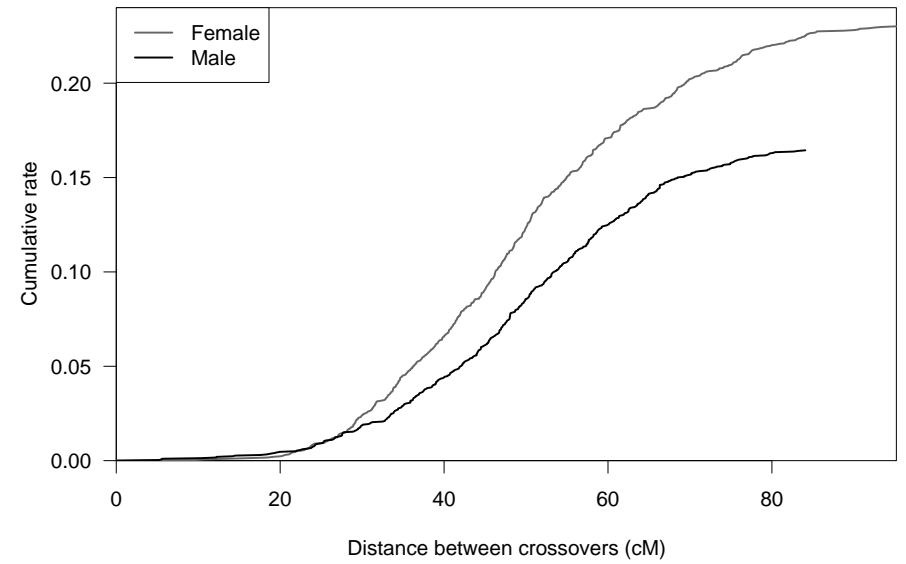


### Double-XO locations



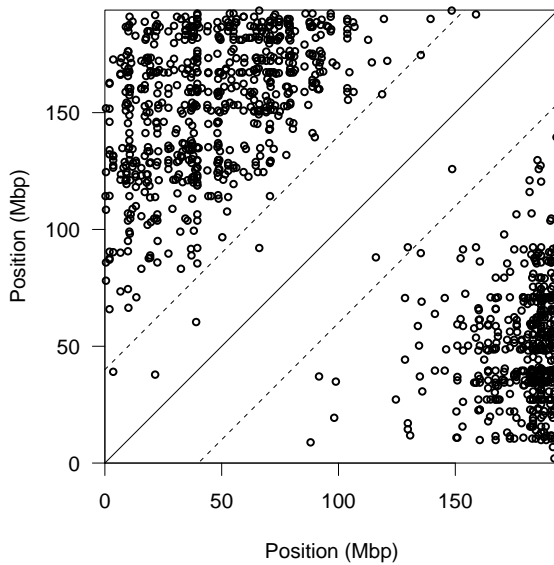
12

### Distance between XOs



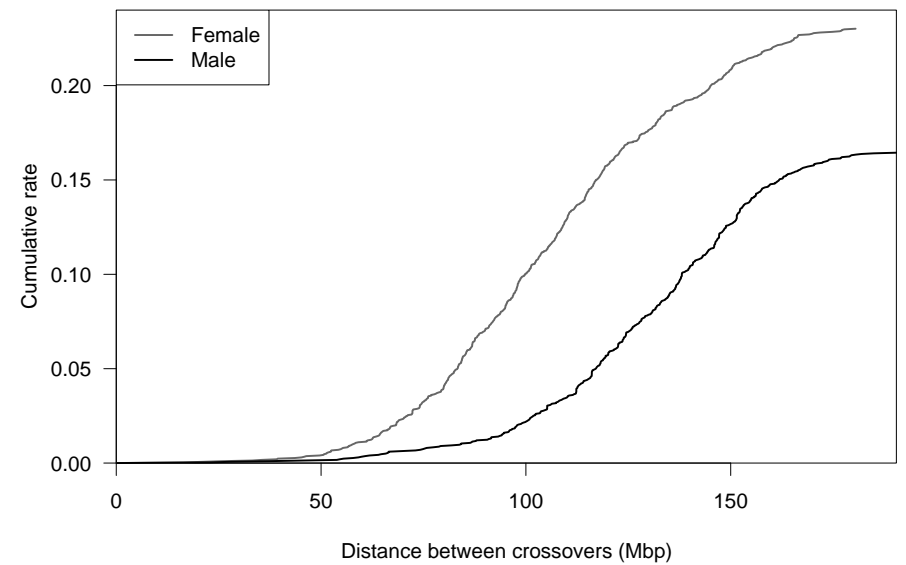
14

### Double-XO locations



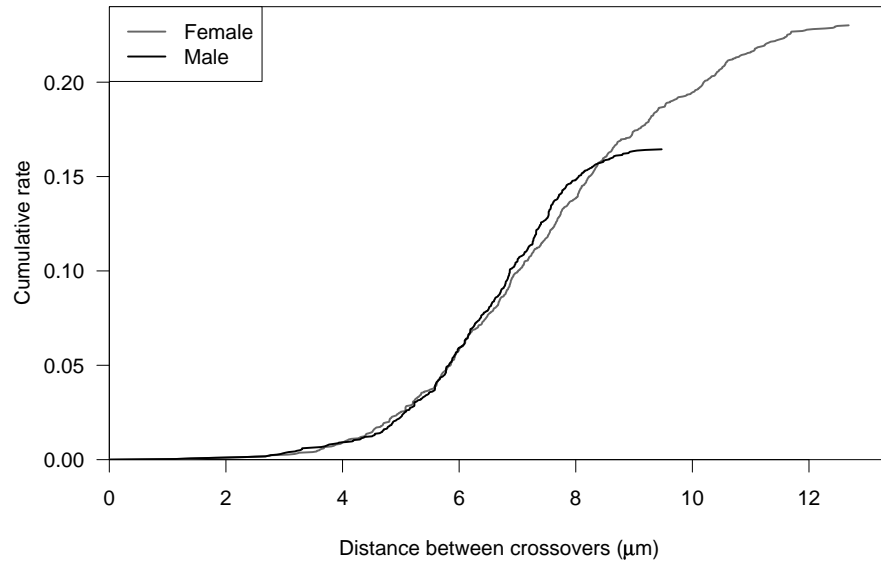
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### Distance between XOs



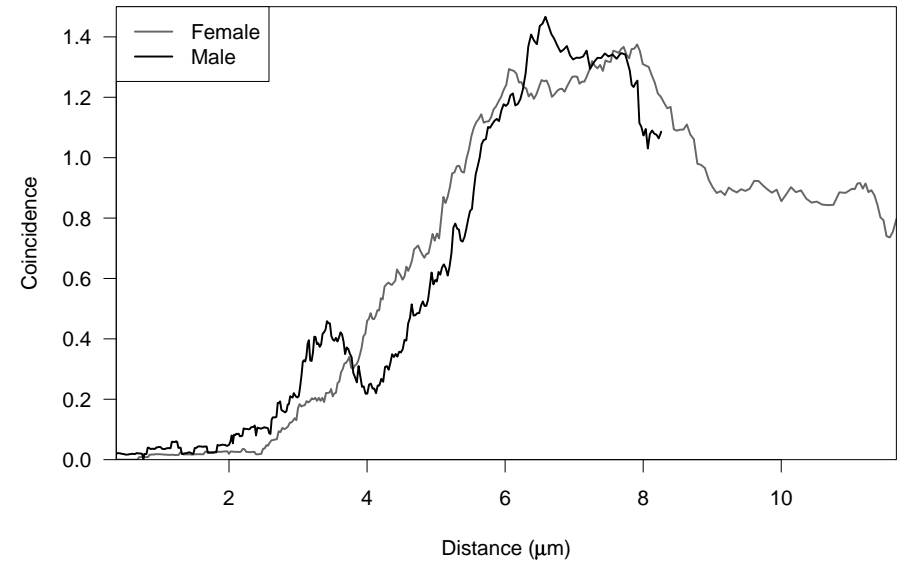
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## Distance between XOs



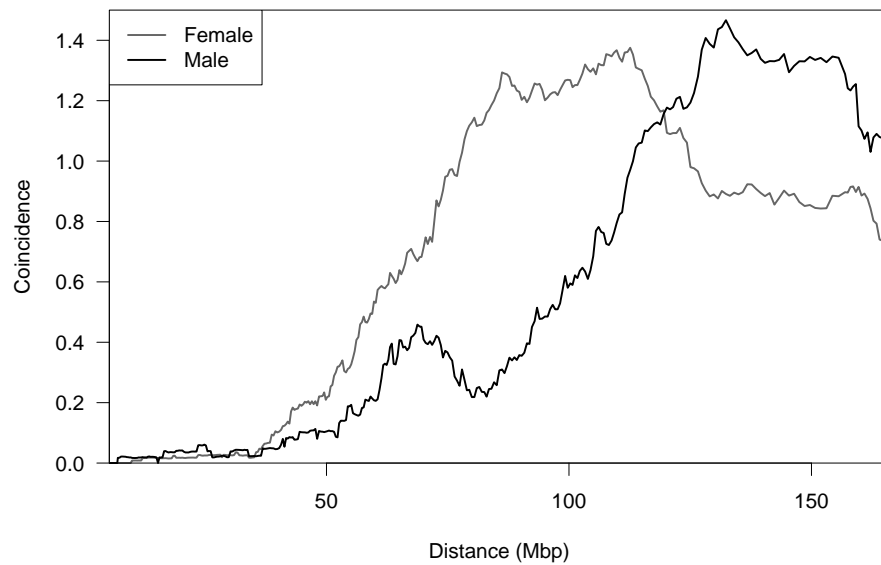
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## Coincidence



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## Coincidence



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## Summary

- Clear sex differences in overall recombination rate
- Differences in compaction + interference  
→ difference in recombination rate?
- Nature of local differences?
- Imprinting effects?
- There are a number of tricky statistical problems

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# Acknowledgments

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