

FIG. 1

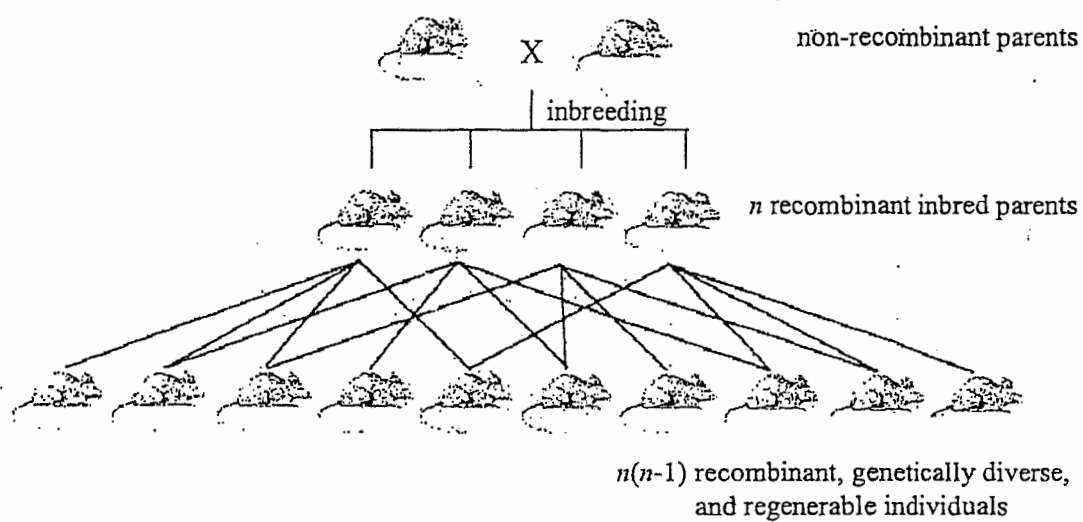


FIG. 2

$$y = a + bx + \sum b_i x_i + N(0, e)$$

y = trait value of individual
 a = mean trait value of population
 b = gene strength or allele substitution effect
 x = genotype
 bx = effect of target gene on trait value

↑ Term describing genetic noise
 (reduce by using more genetically diverse lines)

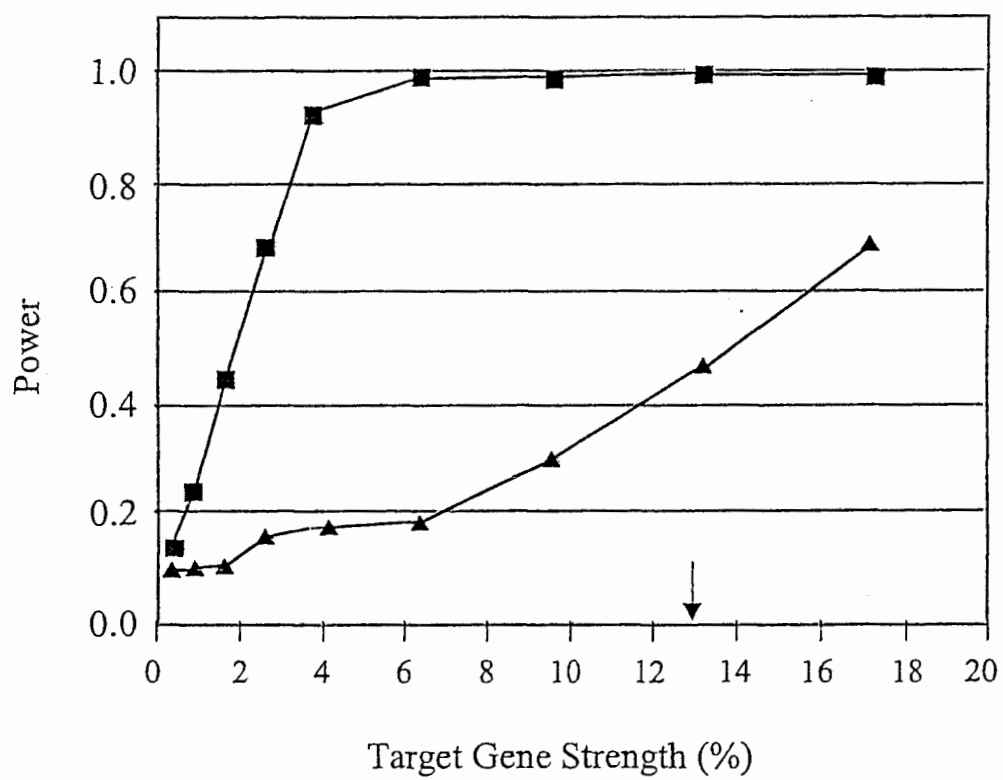
↑ Term describing environmental noise
 (reduce by using more genetically identical lines)



Mapping populations

RI (recombinant inbred)	poor	excellent
F2 (F1 intercross)	excellent	poor
RIX (RI intercrosses)	excellent	excellent

FIG. 3



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FIG. 4

Mother	Father												
	CXB1	CXB2	CXB3	CXB4	CXB5	CXB6	CXB7	CXB8	CXB9	CXB10	CXB11	CXB12	CXB13
CXB1	28	26	8	15	8	22	13	11	18	16	15	12	24
CXB2	14	40	23	20	5	17	18	12	16	14	32	7	22
CXB3			45	26	22	22	5	33	15	21	9	24	13
CXB4	50	38		36	18	25	14	15	30	34	41	16	42
CXB5	6				27	6	18	19	29	2	18	13	3
CXB6						66	17	21	16		20	25	25
CXB7				26			89	26	23	12	15	2	8
CXB8								43	28	20	11	29	21
CXB9									47	35	28	23	20
CXB10										47	35	4	18
CXB11										11	51	18	22
CXB12										11		39	16
CXB13									4				62

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FIG. 5

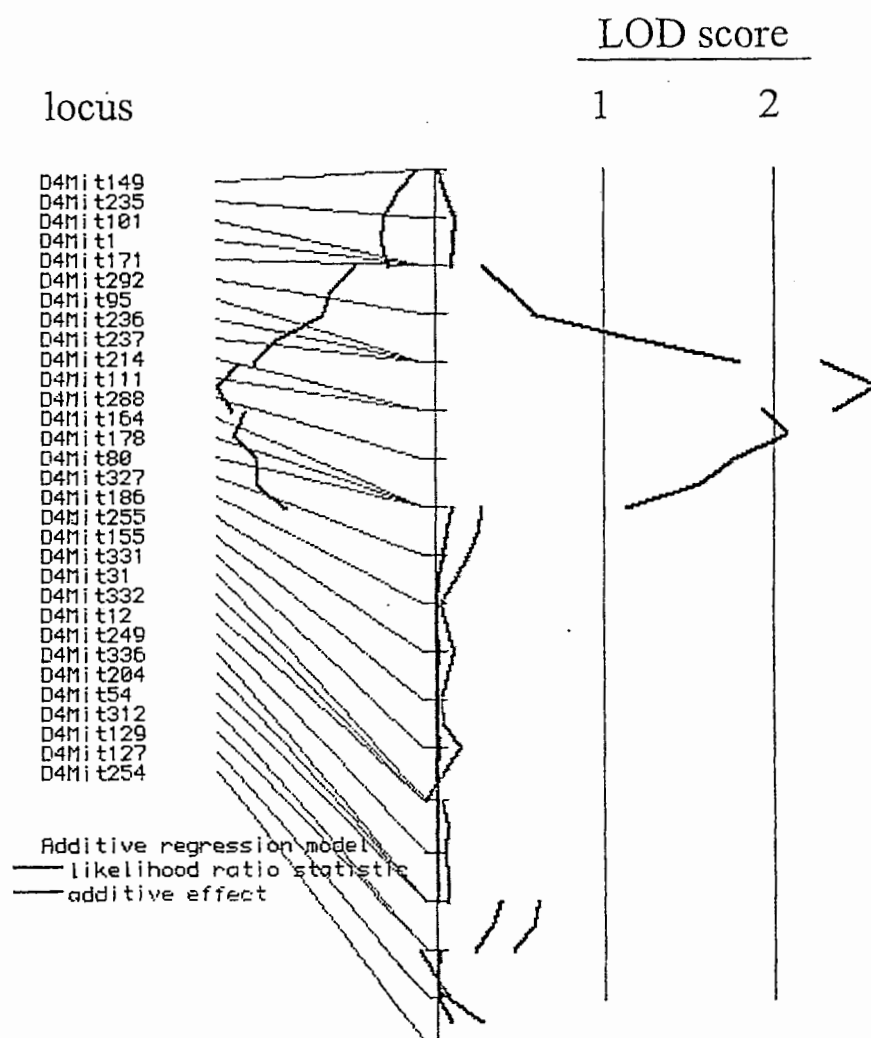


FIG. 6A

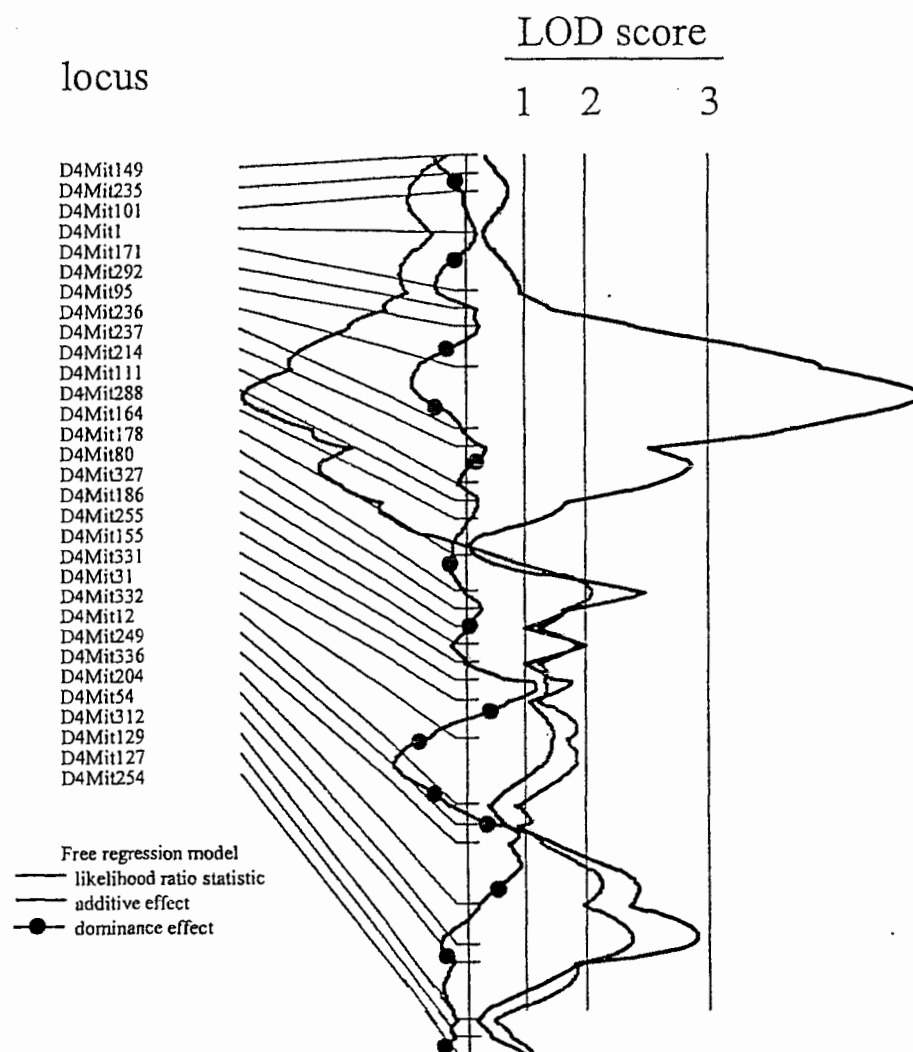


FIG. 6B

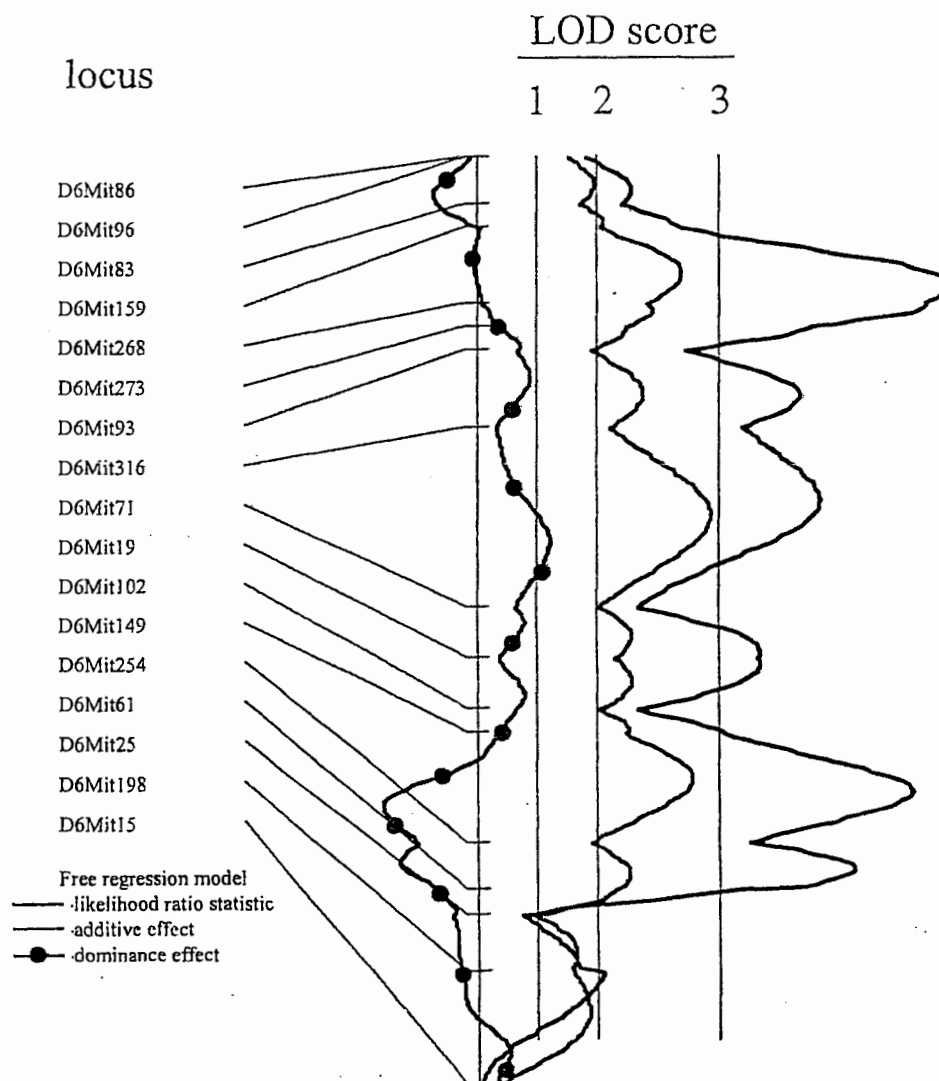


FIG. 6C

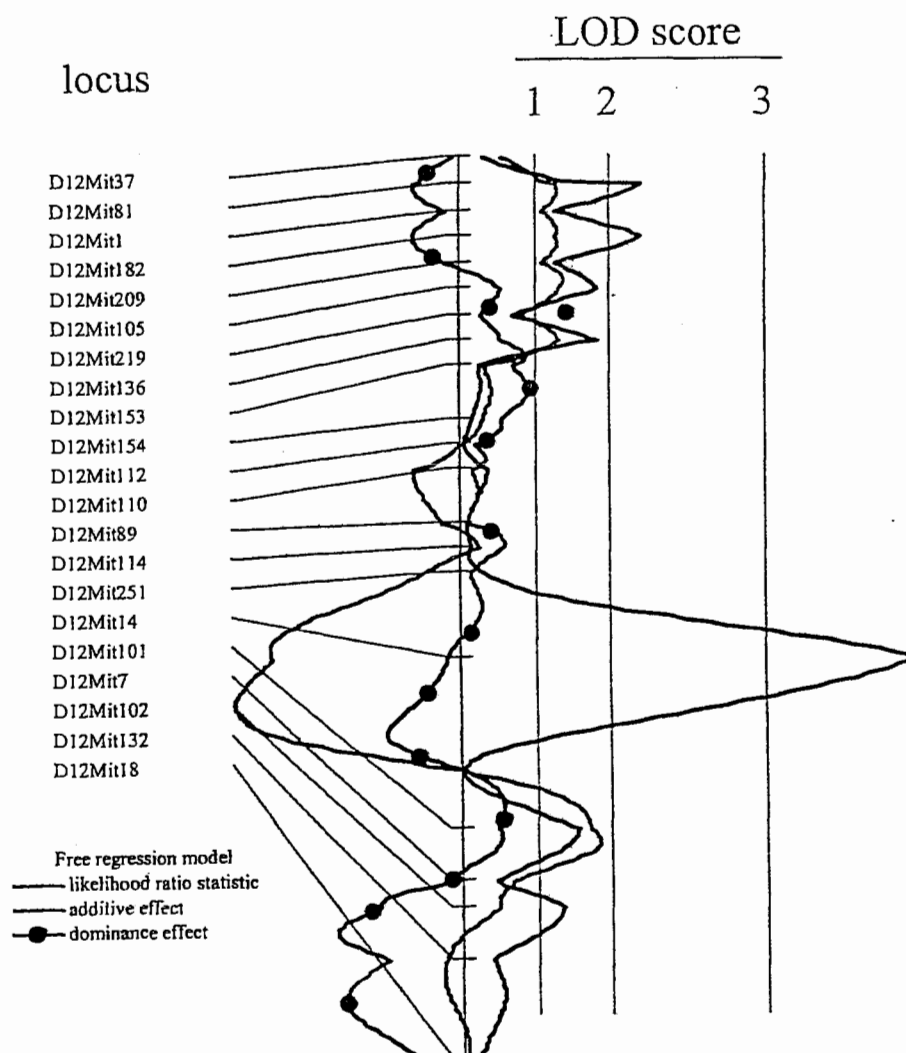


FIG. 7

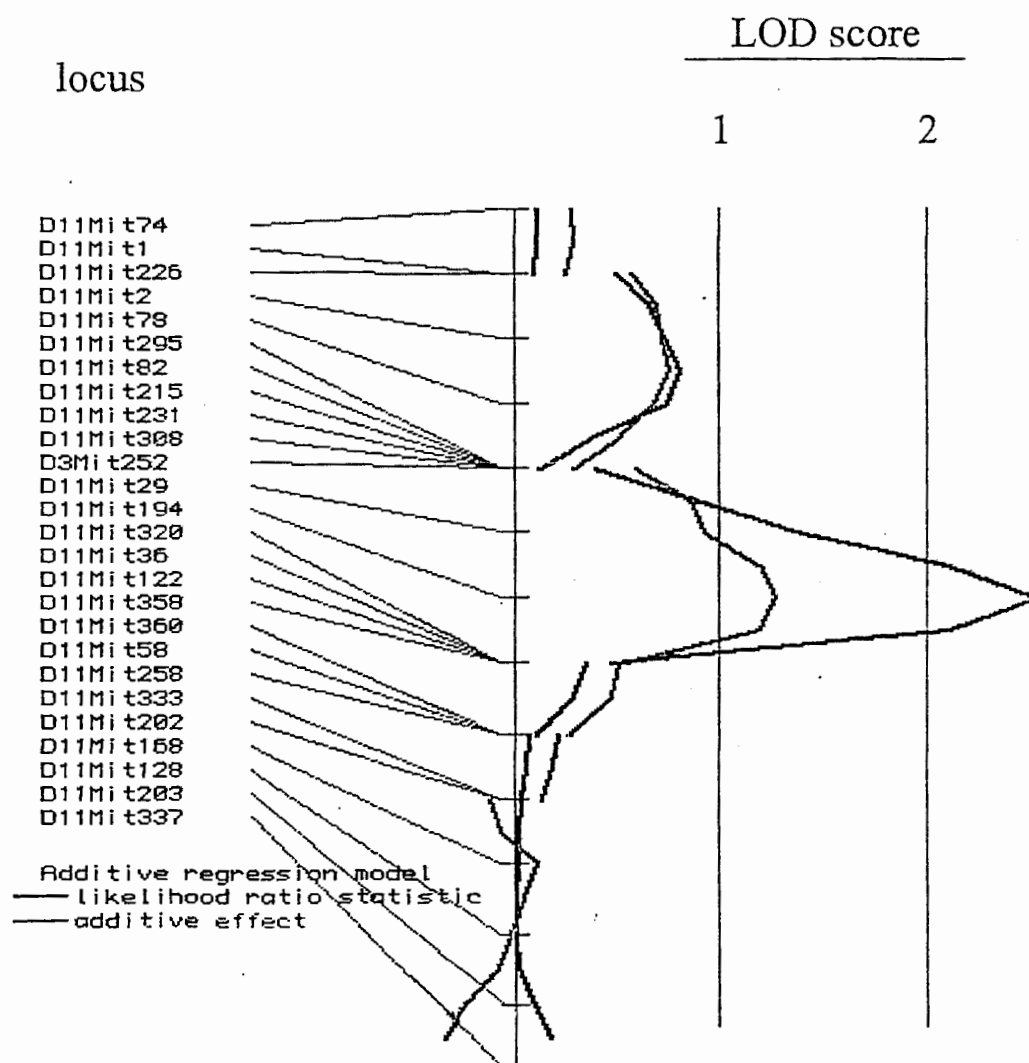


FIG. 8A

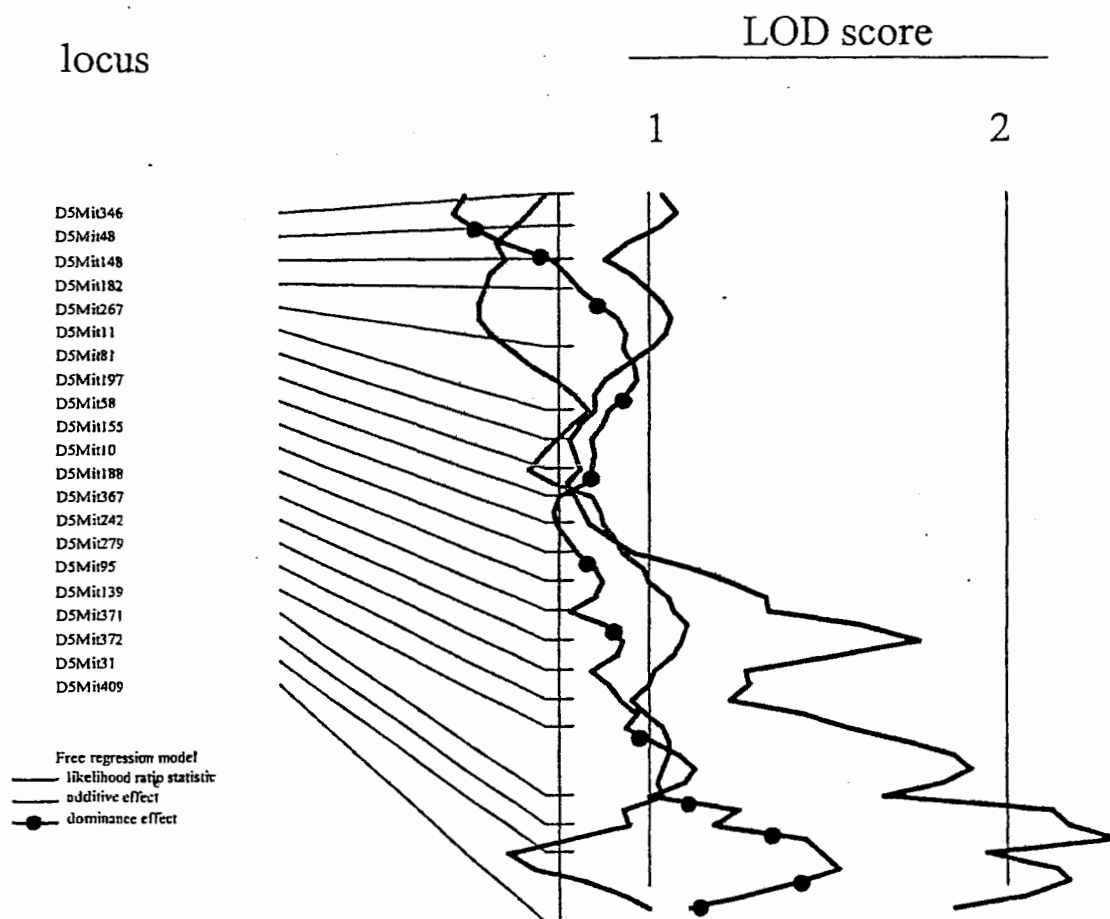


FIG. 8B

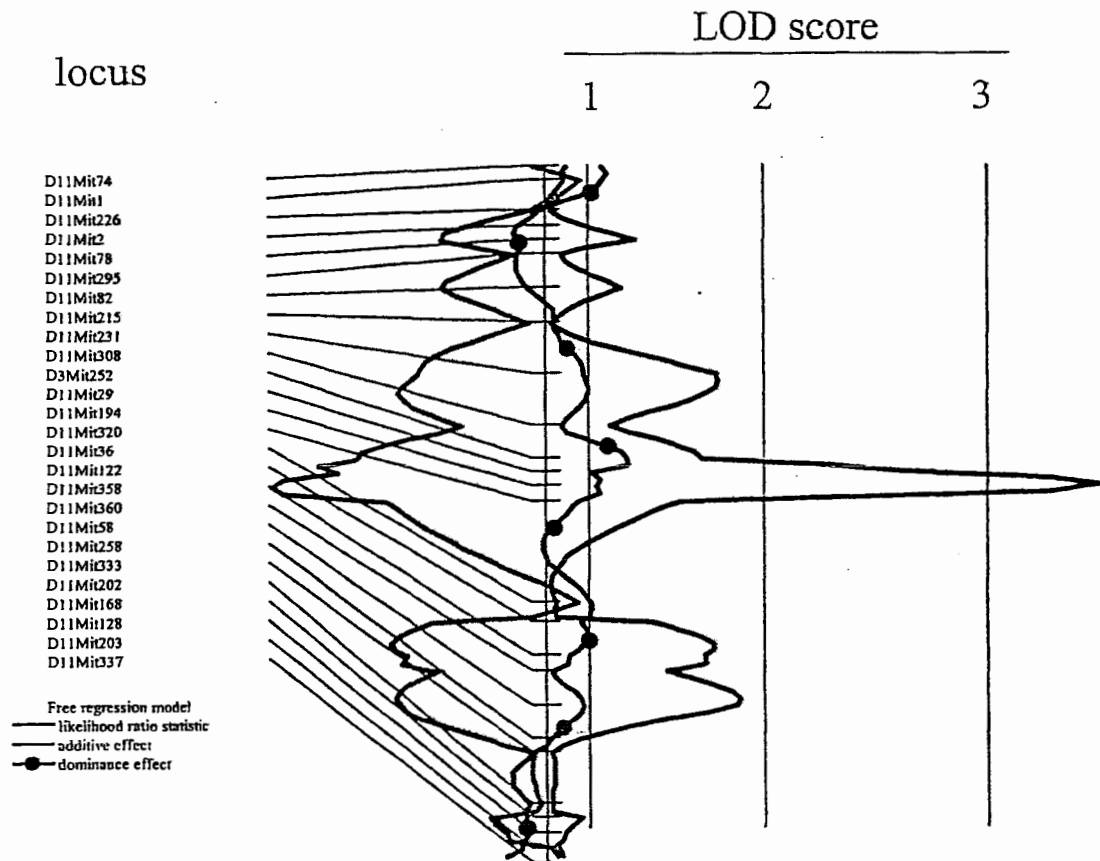


FIG. 9

Mom													
	Dad	CXB2	CXB3	CXB4	CXB5	CXB6	CXB7	CXB8	CXB9	CXB10	CXB11	CXB12	CXB13
CXB1	29.8	29.1	30.1	30.5	29.0	28.8		30.9	30.0	29.6	29.5	30.5	29.2
CXB2	27.0	27.8	27.1	27.5	28.2	27.1	26.0	28.1	27.8	28.4	29.0	28.3	26.2
CXB3			26.6	28.2	27.8	29.5		27.5	28.6	28.3	29.7	30.0	28.1
CXB4	28.8	28.9		28.5	27.8	27.7	29.8	30.1	29.5	31.0	29.3	31.6	27.7
CXB5					24.6	27.0	28.9	27.5		27.9	27.6	29.0	28.5
CXB6						27.4	27.8	27.7			28.0	27.2	26.2
CXB7				28.5			29.9	28.5	31.0	29.2		30.8	29.3
CXB8								28.0	29.2	28.3	28.5	29.5	26.7
CXB9									27.9	31.3	29.1	28.3	27.1
CXB10										27.9	28.5		28.7
CXB11										29.5	28.1	29.3	28.1
CXB12												28.9	28.3
CXB13									25.7				24.4