

Table S12 Transpose of the recursion matrix for calculating probabilities of two-locus autosomal diplotypes of the form $AA|AB$, in the generation of four-way RIL by sibling mating

State at $k + 1$	State at k						
1	2: $(1 - r)^2$	3: $r(1 - r)$	4: $r(1 - r)$	5: r^2			
2	1: $\frac{r^2 + (1-r)^2}{4}$	2: $\frac{(1-r)^2}{2}$	3: $\frac{r(1-r)}{2}$	4: $\frac{r(1-r)}{2}$	5: $\frac{r^2}{2}$	6: $\frac{r(1-r)}{4}$	17: $\frac{r(1-r)}{4}$
3	7: $\frac{1}{4}$	8: $\frac{1-r}{4}$	9: $\frac{1-r}{4}$	10: $\frac{r}{4}$	16: $\frac{r}{4}$		
4	9: $\frac{r}{4}$	10: $\frac{1-r}{4}$	11: $\frac{1}{4}$	12: $\frac{1-r}{4}$	13: $\frac{r}{4}$		
5	2: $\frac{1}{8}$	3: $\frac{1}{8}$	4: $\frac{1}{8}$	5: $\frac{1}{8}$	14: $\frac{1}{8}$	15: $\frac{1}{8}$	
6	8: $(1 - r)$	16: r					
7	2: $\frac{1-r}{4}$	3: $\frac{1-r}{4}$	4: $\frac{r}{4}$	5: $\frac{r}{4}$	9: $\frac{1-r}{4}$	10: $\frac{r}{4}$	
8	6: $\frac{1-r}{4}$	8: $\frac{1-r}{2}$	16: $\frac{r}{2}$	17: $\frac{r}{4}$			
9	2: $\frac{1-r}{4}$	3: $\frac{1-r}{4}$	4: $\frac{r}{4}$	5: $\frac{r}{4}$	7: $\frac{1}{4}$	8: $\frac{1-r}{4}$	16: $\frac{r}{4}$
10	2: $\frac{1-r}{4}$	3: $\frac{r}{4}$	4: $\frac{1-r}{4}$	5: $\frac{r}{4}$	11: $\frac{1}{4}$	12: $\frac{1-r}{4}$	13: $\frac{r}{4}$
11	2: $\frac{1-r}{4}$	3: $\frac{r}{4}$	4: $\frac{1-r}{4}$	5: $\frac{r}{4}$	9: $\frac{r}{4}$	10: $\frac{1-r}{4}$	
12	6: $\frac{r}{4}$	12: $\frac{1-r}{2}$	13: $\frac{r}{2}$	17: $\frac{1-r}{4}$			
13	8: $\frac{1}{4}$	15: $\frac{1}{4}$	16: $\frac{1}{4}$				
14	2: $\frac{1}{4}$	3: $\frac{1}{4}$	4: $\frac{1}{4}$	5: $\frac{1}{4}$			
15	8: $\frac{1}{4}$	12: $\frac{1}{4}$	13: $\frac{1}{4}$	16: $\frac{1}{4}$			
16	12: $\frac{1}{4}$	13: $\frac{1}{4}$	15: $\frac{1}{4}$				
17	12: $(1 - r)$	13: r					