Kuhn, D. T. and G. D. Hanks. University of Utah, Salt Lake City, Utah. Suppression of RD (Recovery Disrupter) effect due to a 4th chromosome carrying Minute.

Previous work has shown that the autosomes help control the rate of recovery of the X and Y chromosomes in the RD system (Hanks 1964). Now it appears that a particular 4th chromosome marked with Minute suppresses the usual RD effect. In 7 out of 7 experiments the percentage of females produced by males carrying all RD background but heterozygous for a 4th chromosome marked with Minute produced the following percentages of females: 52.2, 52.5, 50.7, 50.9, 53.2, 51.5 and 51.8. Controls gave 68.0 and 68.2% females. Table 1 gives results of 2 experiments testing individual males along with simultaneous sibling controls. The 4th chromosome marked with Minute does have a differential viability effect on the two sexes (about 6% greater effect on the female) but does not account for the reduced percentages of females. Minute males with RD background were crossed to RD females and the Minute and non-Minute flies were classified separately as to sex. Out of a total of 1,307 flies in the non-Minute class of progeny only 53.6% were females, indicating that the differential viability of the sexes carrying Minute does not account for the suppression of the RD effect. Another Minute, M(2)S7, shows no similar suppression effect.

Table 1. Representative data showing results of testing males carrying a M(IV) chromosome. (Each % female value represents at least 200 progeny)

Experimentals		Controls	
Y^{RD}♀♀(5) x Minute ♂(1)	Y^{RD}♀♀(5) x Minute ♂(1)	Y^{RD}♀♀(5) x RD ♂(1)	Y^{RD}♀♀(5) x RD ♂(1)
% ♀	% ♀	% ♀	% ♀
60.2	49.4	70.4	69.8
42.5	56.2	65.6	65.9
52.8	50.2	67.4	67.9
52.9	54.7	68.7	68.7
55.3	54.6	69.3	72.6
50.0	53.9	68.0	68.0
54.0	$\bar{X}$ = 53.2	69.6	64.3
$\bar{X}$ = 52.5	n = 6	67.4	$\bar{X}$ = 68.2
n = 7	S^2 = 6.19	66.0	n = 7
S^2 = 25.12		$\bar{X}$ = 68.0	S^2 = 7.13
		n = 9	
		S^2 = 2.62	

Reference: Hanks, G. D. 1964, Genetics 50:123-130. Details of this study may be found in: Kuhn, D. T. "Fourth Chromosome Studies of a Case of Meiotic Drive in Drosophila melanogaster." M.S. Thesis, University of Utah Library, Salt Lake City, Utah. (Supported by NSF Grant No. GB-456)

Jones, L. P. University of Sydney, Australia. Instability of an ebony polymorphism of D. melanogaster.

Jones and Barker (1966, Genetics 53:313-326) describe the breakdown of an apparently stable polymorphism between ebony (e^{11}) and its wild-type allele. The frequency of ebony homozygotes remained at 1 to 3% in each of two cages between weeks 12 and 46 after initiation. The frequency then declined so that by week 150, no ebony homozygotes were found among 2000 flies from either cage, and only 3 heterozygotes in each of 144 and 136 adults' progeny tested from the two cages. Since then, the frequency of ebony has continued to decline. At week 189, egg samples were taken from the cages and the emergences were progeny-tested. No heterozygotes were found among 197 and 187 flies respectively. This was repeated at week 210 with larger samples (669 and 659). Again, no heterozygotes were found. The ebony gene has thus declined to a negligible frequency. This indicates that the initial equilibrium was probably due to linkage disequilibrium and not overdominance.