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Turku, December 18th, 1998

Dr. Rachel Drysdale
FlyBase (Cambridge)
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University of Cambridge
Downing Street
Cambridge, CB2 3EH
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Dear Dr. Drysdale,

Please find enclosed a short note entitled "Heterologous disjunction of the extra Y chromosome and minichromosomes in the female *Drosophila melanogaster* meiosis is roughly but not completely dependent on the (heterochromatic) length of the minichromosomes" which is submitted to be archieved by the FlyBase as a personal communication.

Yours sincerely,

Petter Portin

Prof. Petter Portin
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Heterologous disjunction of the extra Y chromosome and minichromosomes in the female Drosophila melanogaster meiosis is roughly but not completely dependent on the (heterochromatic) length of the minichromosomes

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In the female meiosis of Drosophila melanogaster the frequency of the heterologous segregation of the extra Y chromosome and free X chromosome duplications (minichromosomes) was found to be linearly dependent on the mitotic (heterochromatic) length of the minichromosomes but the regression did not reach the level of significance. A significant regression was, however, reached if the effect of one exceptional minichromosome (# 1186) was omitted. This exceptional minichromosome caused substantially higher XX <-> Y segregation than the rest of the duplications, and disjoined from the Y chromosome with a lower frequency than expected. It is concluded that besides the heterochromatic size of the chromosomes the heterologous segregation is dependent on the stability of the chromocentre formation early in meiosis.

Table 1. Results from the crosses $\underline{In(1)w^{m4},\ y\ w^{m4}\ f\ /\ In(1)w^{m4},\ y\ w^{m4}\ f\ /\ Y\ /\ Dp(1;f)y^{+}}$ females crossed with $\underline{In(1)w^{m4},\ y\ w^{m4}\ f\ /\ B^{s}Y}$ or $\underline{In(1)w^{m4},\ y\ w^{m4}\ f\ /\ Y}$ (#1187) males

Duplication	Female progenies regulars $y^+\ w^{m4+}$	$y^+\ w^{m4}$	$y\ w^{m4+}$	$y\ w^{m4}$	exceptionals (Bar-eyed)	Male progenies
# 1187	205	206	233	295	-	821
# 1162	223	63	202	80	20	497
# 1144	44	17	66	33	3	129
# 1186	408	68	210	137	106	881
# 856	26	22	51	11	4	106

	Total progenies $y^+\ w^{m4+}$	$y^+\ w^{m4}$	$y\ w^{m4+}$	$y\ w^{m4}$
# 1187	226	557	258	719

Table 2. The main parameters of the results

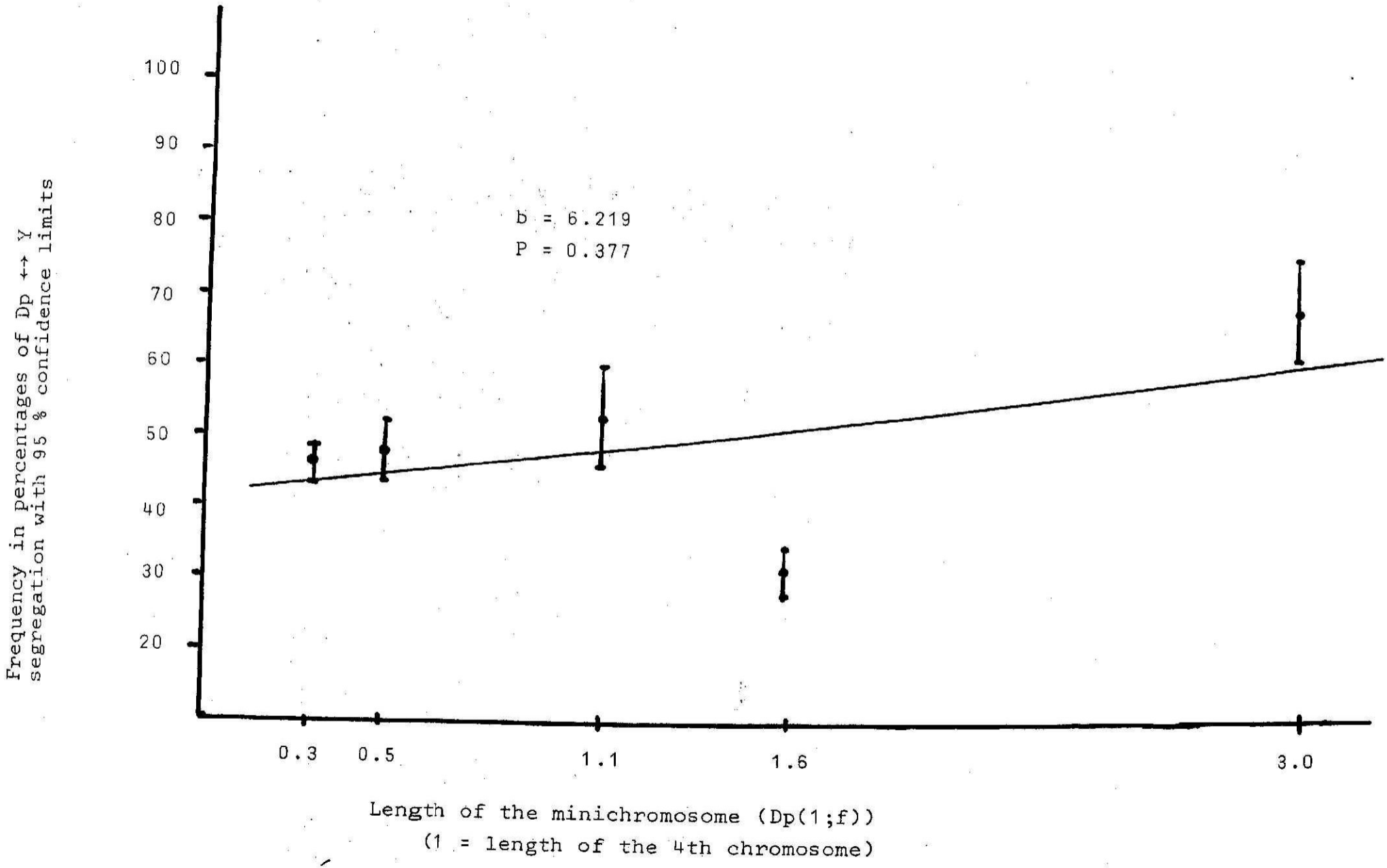
Chromosome	Length at mitotic metaphase (length of the 4th chromosome as 1.0)	Frequency (%) ±S.D. of Dp <-> Y segregation among total (female) progeny and its deviation from 50 %	Frequency (%) of exceptional (XXY) females among the progeny
Dp(1;f) 1187	0.3	46.3 ± 1.19 ** [1]	-
Dp(1;f) 1162	0.5	46.7 ± 2.09 n.s.[2]	3.5
Dp(1;f) 1144	1.1	51.9 ± 3.95 [redacted]	[redacted]
Dp(1;f) 1186	1.6	33.8 ± 1.65 ***[2]	11.4
Dp(1;f) 856	3.0	66.4 ± 4.50 ***[2]	3.5

n.s. = not significant; ** = significant at 1 % level of risk;

*** = significant at 0.1 % level of risk

[1] among total progeny

[2] among female progeny



Regression of the frequency of Dp ↔ Y segregation to the length of the duplication