

A Systems View of Waddington's Genetic Assimilations

Research Article

Supplementary Information

S1

(The tables A1-22 in the supplemental data (S1) do not show that the sum of numbers of cve, non-cve and dead flies equals the total pupae collected. They merely lists out the following: (i) the total number of pupae collected (over several time-points) for heat shock in a particular generation, (ii) the number of cve and non-cve males/females scored following eclosion, (iii) and the number of pupae that failed to eclose. Apart from this, in every generation there were many flies that expressed alternate phenotypes, different from cve.)

Table A.1: Upward selection line data from parent (P) generation

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
P	Total		1602	110	78	489	564	335
	I	9:15 AM	18	0	1	4	7	6
	I	10:45 AM	4	0	0	3	1	0
	I	11:30 AM	5	1	1	2	1	0
	I	01:30 PM	40	1	0	5	33	1
	I	02:30 PM	28	3	1	8	13	3
	I	03:30 PM	37	3	2	7	12	13
	I	04:30 PM	38	1	0	12	15	10
	II	5:15 AM	63	12	0	15	18	18
	II	6:00 AM	42	1	0	12	20	9
	II	7:10 AM	67	2	1	20	34	10
	II	8:30 AM	48	0	1	16	32	0
	II	9:30 AM	44	1	2	19	22	0
	II	10:30 AM	4	2	0	1	1	0
	II	9:15 AM	21	0	1	7	12	1
	III	10:00 AM	8	0	0	2	6	0
	III	10:45 AM	30	1	3	14	11	1
	III	11:30 AM	17	0	3	4	3	7
	III	12:15 PM	19	0	6	2	2	9
	III	01:00 PM	18	3	0	11	4	0
	III	01:45 PM	0	0	0	0	0	0
	III	02:30 PM	19	0	6	4	4	5
	III	03:15 PM	12	6	2	2	1	1
	III	04:00 PM	22	0	0	12	9	1
	III	04:45 PM	14	2	0	4	5	3
	III	05:30 PM	22	2	1	3	4	12
	III	06:15 PM	15	2	0	3	5	5
	III	07:00 PM	15	0	0	5	10	0
	III	07:45 PM	28	6	1	16	4	1
	IV	5:15 AM	48	6	4	14	20	4
	IV	6:30 AM	54	3	1	20	16	4
	IV	7:15 AM	32	6	3	1	2	20
	IV	8:30 AM	47	0	3	16	22	8

	IV	9:15 AM	22	5	1	5	3	8
	IV	10:00 AM	12	0	6	3	2	1
	IV	10:45 AM	12	0	1	4	4	3
	IV	11:30 AM	32	2	0	4	3	1
	IV	12:15 PM	20	4	5	4	2	5
	IV	01:00 PM	19	0	0	8	9	2
	IV	01:45 PM	10	1	1	2	4	2
	IV	02:30 PM	11	1	0	6	3	1
	IV	03:15 PM	11	0	1	6	4	0
	IV	04:00 PM	19	1	1	11	4	2
	IV	04:45 PM	8	0	1	3	4	0
	IV	05:30 PM	19	0	2	11	5	1
	IV	06:15 PM	15	0	3	8	2	2
	IV	07:00 PM	15	2	0	8	4	1
	IV	07:45 PM	28	0	2	14	2	10
	V	9:15 AM	18	0	1	6	6	5
	V	10:00 AM	10	0	1	2	4	3
	V	10:45 AM	16	2	1	4	3	6
	V	11:30 AM	17	1	1	7	4	4
	V	12:15 PM	12	3	1	2	1	5
	V	01:00 PM	25	1	2	10	9	3
	V	01:45 PM	11	1	0	3	3	4
	V	02:30 PM	11	2	0	2	4	3
	V	03:15 PM	17	1	2	4	8	2
	V	04:00 PM	10	0	0	4	4	2
	V	04:45 PM	7	1	0	1	5	0
	V	05:30 PM	8	1	0	2	1	4
	V	06:15 PM	9	0	0	6	5	0
	V	07:00 PM	7	0	0	0	0	7
	VI	9:15 AM	45	0	1	4	10	31
	VI	10:00 AM	38	1	0	10	15	12
	VI	10:45 AM	52	2	0	17	23	10
	VI	11:30 AM	14	2	0	4	5	3
	VI	12:15 PM	35	0	0	18	10	7
	VI	01:00 PM	41	2	0	8	22	9
	VI	01:45 PM	18	0	0	6	9	3
	VI	02:30 PM	11	0	1	2	1	7
	VI	03:15 PM	22	4	0	5	8	5
	VI	04:30 PM	16	6	0	1	0	9

Calculation for the percentage of crossveinless (cve) from generation, P: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $188 / (188 + 1053) = 15.14\%$

Table A.2: Upward selection line data from generation F1.

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F1	Total		638	102	70	187	197	80
	I	8:30 AM	4	0	1	0	0	3
	I	9:15 AM	5	2	0	2	1	0
	I	10:00 AM	5	2	0	0	2	1
	I	10:45 AM	9	0	0	5	4	0
	I	11:30 AM	5	0	0	1	4	0
	I	12:15 PM	2	0	1	0	0	1
	I	01:00 PM	2	1	0	0	0	1

	I	01:45 PM	5	1	2	1	1	0
	I	02:15 PM	5	1	2	1	0	1
	I	03:00 PM	4	0	1	0	3	0
	I	03:45 PM	5	1	2	0	1	1
	II	6:30 AM	15	1	0	8	6	0
	II	8:30 AM	19	0	1	5	9	4
	II	9:15 AM	20	2	0	6	12	0
	II	11:00 AM	23	1	0	6	10	6
	II	11:45 AM	26	3	0	19	3	1
	II	12:15 PM	18	8	0	3	2	3
	II	01:00 PM	33	11	1	8	10	3
	II	01:45 PM	29	4	1	13	10	1
	II	02:15 PM	20	2	2	12	2	2
	II	03:00 PM	20	1	4	3	4	8
	II	03:45 PM	26	1	0	6	18	1
	III	8:35 AM	17	1	1	8	6	1
	III	9:15 AM	13	2	3	1	3	3
	III	10:00 AM	10	6	2	0	1	1
	III	11:00 AM	11	1	2	2	4	3
	III	12:15 PM	18	4	7	1	4	2
	III	01:00 PM	5	2	0	2	1	0
	III	01:45 PM	12	1	0	1	3	7
	III	02:30 PM	10	0	1	6	2	1
	IV	8:30 AM	33	2	2	9	12	6
	IV	9:15 AM	25	1	4	10	4	6
	IV	10:00 AM	28	4	2	12	11	1
	IV	11:00 AM	31	10	7	5	8	1
	IV	12:15 PM	29	1	8	5	13	2
	IV	01:00 PM	30	12	8	3	2	5
	IV	01:45 PM	28	8	2	5	12	1
	IV	03:00 PM	38	5	3	18	9	3

Calculation for the percentage of crossveinless (cve) from generation, F1: $\%cve = \frac{n_{cve}}{(n_{cve} + n_{non-cve})}$, where n is the total number of flies (cve or non-cve) = $172 / (172 + 384) = 30.93\%$

Table A.3: Upward selection line data from generation F2

Gen.	Days	Time-points	Pupae collected	Eclosed	cve female	cve male	Non- cve female	Non- cve male	Died
F2	Total		480	90	66	105	120	99	
	I	10:15 AM	4	1	0	1	1	1	
	I	11:55 AM	3	2	1	0	0	0	
	I	04:45 PM	4	2	0	1	1	0	
	I	05:30 PM	5	0	0	1	3	1	
	I	06:15 PM	2	0	0	1	0	1	
	I	07:00 PM	2	0	0	1	1	0	
	I	08:00 PM	11	1	1	2	3	5	
	II	8:45 AM	6	0	0	0	0	6	
	II	9:30 AM	5	0	2	1	1	1	
	II	10:15 AM	10	2	0	3	4	1	
	II	11:30 AM	6	0	0	1	4	1	
	II	12:15 PM	2	2	0	0	0	0	

	II	01:00 PM	9	1	1	2	3	2
	II	01:45 PM	3	0	0	2	1	0
	II	02:30 PM	6	1	1	1	1	2
	II	04:30 PM	10	2	1	2	3	2
	II	05:30 PM	4	2	0	1	1	0
	II	06:15 PM	4	0	2	0	2	0
	II	07:00 PM	3	1	0	0	2	0
	II	07:45 PM	2	1	0	0	1	0
	III	8:30 AM	14	1	0	7	6	0
	III	9:15 AM	9	1	2	3	1	2
	III	10:00 AM	10	3	2	2	3	0
	III	10:45 AM	7	1	0	3	2	1
	III	11:30 AM	6	3	0	1	0	2
	III	12:15 PM	17	3	6	2	3	3
	III	01:00 PM	9	0	0	1	7	0
	III	01:45 PM	9	1	0	3	3	2
	III	02:30 PM	18	11	2	0	2	3
	III	04:30 PM	2	0	0	2	0	0
	III	05:15 PM	5	2	0	2	1	0
	III	06:00 PM	9	4	1	1	2	1
	IV	8:30 AM	8	1	2	3	2	0
	IV	9:15 AM	8	2	0	3	1	2
	IV	10:00 AM	6	0	1	2	3	0
	IV	10:45 AM	6	0	1	1	3	1
	IV	11:30 AM	8	1	1	0	0	6
	IV	12:15 PM	15	5	4	3	2	1
	IV	01:00 PM	11	3	0	3	4	1
	IV	01:45 PM	7	0	0	0	0	7
	IV	02:30 PM	5	1	0	1	3	0
	IV	04:30 PM	12	4	1	2	4	1
	IV	05:15 PM	9	2	0	0	0	7
	IV	06:00 PM	5	0	1	2	2	0
	V	8:30 AM	16	1	3	9	3	7
	V	10:00 AM	9	1	2	2	2	2
	V	10:45 AM	14	2	2	5	5	1
	V	12:15 PM	13	1	4	0	0	7
	V	01:00 PM	11	0	0	2	9	0
	V	01:45 PM	8	1	3	1	3	0
	V	02:30 PM	8	1	1	2	3	1
	V	03:45 PM	12	2	0	3	4	3
	V	04:30 PM	9	3	4	1	0	1
	V	05:15 PM	15	2	3	4	1	5
	VI	9:15 AM	15	1	5	4	0	5
	VI	10:00 AM	5	1	1	0	2	1
	VI	10:45 AM	7	1	1	3	2	0
	VI	12:15 PM	15	6	4	2	0	3

Calculation for the percentage of crossveinless (cve) from generation, F2: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $156 / (156 + 225) = 40.94\%$

Table A.4: Upward selection line data from generation F3. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F3	Total		462	132	97	70	80	82
	I	9:00 AM	9	0	4	0	0	5
	I	9:45 AM	1	0	0	0	0	1
	I	11:30 AM	4	0	1	1	1	1
	I	12:15 PM	2	0	0	0	0	2
	I	01:00 PM	3	0	0	0	3	0
	I	04:00 PM	5	2	0	0	2	1
	II	9:15 AM	11	2	4	2	3	0
	II	12:15 PM	4	0	1	0	0	3
	II	01:00 PM	3	1	1	1	0	0
	II	03:00 PM	3	0	2	1	0	0
	III	8:30 AM	14	4	1	3	5	1
	III	9:15 AM	2	0	1	1	0	0
	III	10:00 AM	3	0	0	1	1	1
	III	10:45 AM	12	0	0	0	0	12
	III	11:30 AM	1	1	0	0	0	0
	III	12:15 PM	11	2	1	0	0	8
	III	01:00 PM	10	3	0	5	2	0
	III	01:45 PM	9	1	3	3	2	0
	III	02:30 PM	6	1	1	1	1	2
	III	03:15 PM	4	1	0	2	1	0
	III	04:00 PM	6	3	2	0	1	0
	III	04:30 PM	9	3	4	2	0	0
	IV	9:15 AM	17	3	7	2	2	3
	IV	10:00 AM	10	4	2	2	2	0
	IV	10:45 AM	12	3	3	1	3	2
	IV	11:30 AM	13	5	0	2	4	2
	IV	12:15 PM	9	2	4	0	0	3
	IV	01:00 PM	13	2	1	5	4	1
	IV	01:45 PM	7	1	2	1	2	1
	IV	02:30 PM	13	6	3	0	1	3
	IV	03:15 PM	5	2	0	0	3	0
	IV	04:00 PM	18	10	2	0	1	5
	V	10:00 AM	12	5	2	0	1	4
	V	10:45 AM	6	0	2	2	2	0
	V	11:30 AM	3	3	0	0	0	0
	V	12:15 PM	5	0	0	4	1	0
	V	01:00 PM	6	1	3	0	2	0
	V	02:00 PM	8	2	0	4	2	0
	V	03:15 PM	11	5	2	3	1	0
	V	04:30 PM	10	5	4	0	1	0
	VI	11:30 AM	17	4	4	1	1	7
	VI	12:15 PM	15	6	4	1	3	1
	VI	01:00 PM	9	5	3	0	0	1
	VI	01:45 PM	13	4	4	3	2	0

	VI	02:30 PM	6	2	1	1	1	1
	VII	9:30 AM	7	0	1	1	4	1
	VII	11:30 AM	3	1	1	0	1	0
	VII	01:00 PM	11	4	2	4	1	0
	VII	01:45 PM	8	2	1	0	0	5
	VII	02:30 PM	11	4	2	1	4	0
	VIII	9:30 AM	11	4	2	4	1	0
	VIII	10:00 AM	10	5	1	2	2	0
	VIII	11:15 AM	5	1	0	0	3	1
	VIII	01:00 PM	8	2	2	0	2	1
	VIII	02:30 PM	18	5	6	3	1	3

Calculation for the percentage of crossveinless (cve) from generation, F3: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $229 / (229 + 150) = 60.42\%$

Table A.5: Upward selection line data from generation F4. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.	Days	Time-points	Pupae collected	Eclosed	cve female	cve male	Non- cve female	Non- cve male	Died
F4	Total		399	130	92	25	58	83	
	I	8:30 AM	5	2	3	0	0	0	
	I	9:15 AM	2	1	0	0	0	1	
	I	10:00 AM	3	1	2	0	0	0	
	I	10:45 AM	10	0	0	0	0	10	
	I	11:30 AM	2	1	0	0	1	0	
	I	12:15 PM	6	5	1	0	0	0	
	I	01:00 PM	2	0	0	1	1	0	
	I	02:30 PM	5	0	0	0	0	5	
	II	8:45 AM	10	1	3	0	0	6	
	II	10:45 AM	3	0	1	0	1	1	
	II	11:30 AM	2	0	0	0	1	1	
	II	01:00 PM	9	2	3	1	1	2	
	II	02:30 PM	7	3	2	0	0	2	
	III	8:50 AM	10	5	2	0	1	2	
	III	11:30 AM	5	3	2	0	0	0	
	III	01:00 PM	9	3	0	0	0	1	
	IV	9:10 AM	14	3	2	2	6	1	
	IV	10:00 AM	11	3	3	1	1	3	
	IV	10:45 AM	8	3	1	1	3	0	
	IV	11:30 AM	7	1	2	0	2	2	
	IV	12:15 PM	4	1	0	3	0	0	
	IV	01:00 PM	10	8	1	0	0	1	
	IV	01:45 PM	7	5	1	0	1	0	
	IV	02:30 PM	4	0	2	0	0	2	
	IV	03:15 PM	8	1	4	0	0	3	
	IV	04:00 PM	9	3	3	0	0	3	
	V	8:00 AM	10	2	1	2	5	0	
	V	9:45 AM	33	14	2	0	0	11	
	V	10:45 AM	18	3	6	3	5	1	
	V	11:30 AM	17	9	2	2	3	1	

	V	12:15 PM	14	6	5	1	2	0
	V	01:00 PM	16	4	2	3	7	0
	V	01:45 PM	9	5	3	0	1	0
	V	02:30 PM	17	8	6	0	0	3
	VI	8:30 AM	16	3	7	0	4	2
	VI	9:15 AM	8	2	0	0	0	6
	VI	10:45 AM	7	1	3	2	1	0
	VI	11:30 AM	18	5	2	2	6	3
	VI	12:15 PM	15	5	5	0	2	3
	VI	01:00 PM	9	2	7	0	0	0
	VI	01:45 PM	7	2	1	0	1	3
	VII	01:00 PM	13	4	2	1	2	4

Calculation for the percentage of crossveinless (cve) from generation, F4: $\%cve = \frac{n_{cve}}{(n_{cve} + n_{non-cve})}$, where n is the total number of flies (cve or non-cve) = $222 / (222 + 83) = 72.78\%$

Table A.6: Upward selection line data from generation F5. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.	Days	Time-points	Pupae collected	Eclosed				Died
				cve female	cve male	Non- cve female	Non- cve male	
F5	Total		474	158	111	75	82	50
	I	11:30 AM	3	2	1	0	0	0
	II	8:30 AM	17	11	5	0	1	0
	II	9:15 AM	7	3	4	0	0	0
	II	10:45 AM	16	4	2	5	4	1
	II	11:30 AM	9	2	0	3	3	1
	II	12:15 PM	16	5	9	0	0	2
	II	01:00 PM	9	3	0	0	0	6
	II	02:30 PM	22	8	5	5	4	0
	III	9:45 AM	5	0	2	1	2	0
	III	10:45 AM	4	1	3	0	0	0
	III	12:15 PM	6	3	3	0	0	0
	IV	9:15 AM	5	2	3	0	0	0
	IV	10:00 AM	10	3	3	2	2	0
	IV	10:45 AM	6	2	0	2	2	0
	IV	11:30 AM	8	2	5	0	0	1
	IV	12:15 PM	4	0	0	1	3	0
	IV	01:00 PM	12	6	3	0	2	1
	IV	01:45 PM	6	1	1	2	1	1
	V	8:30 AM	21	8	5	4	2	2
	V	9:15 AM	15	4	6	2	3	0
	V	10:00 AM	22	5	4	8	4	1
	V	10:45 AM	14	4	0	7	3	0
	V	11:30 AM	20	10	1	3	6	0
	V	12:15 PM	16	4	7	1	2	2
	V	01:00 PM	14	2	2	2	8	0
	V	01:45 PM	16	5	3	2	4	2
	VI	8:30 AM	22	3	0	5	8	6
	VI	9:15 AM	13	3	0	5	4	1

	VI	10:00 AM	12	1	5	1	1	4
	VI	10:45 AM	29	11	10	3	0	5
	VI	11:30 AM	17	5	5	3	1	3
	VI	12:15 PM	16	6	5	3	2	3
	VI	01:00 PM	12	6	2	1	2	1
	VI	01:45 PM	23	9	6	3	2	3
	VII	11:30 AM	10	7	0	0	3	0
	VII	01:30 PM	17	7	1	1	3	4

Calculation for the percentage of crossveinless (cve) from generation, F5: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $269 / (269 + 157) = 63.14\%$

Table A.7: Upward selection line data from generation F6. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F6	Total		359	131	105	27	46	46
	I	8:30 AM	8	4	2	0	0	2
	I	10:45 AM	5	2	2	1	0	0
	I	12:15 PM	5	0	2	0	0	3
	I	01:00 PM	2	0	0	2	0	0
	I	02:45 PM	2	0	1	0	0	1
	II	8:30 AM	10	3	3	1	3	0
	II	10:00 AM	7	0	2	1	4	0
	II	10:45 AM	13	3	5	1	0	4
	II	12:15 PM	8	0	1	0	0	7
	II	01:00 PM	6	1	0	2	3	0
	II	01:45 PM	7	3	1	1	2	0
	III	02:30 PM	13	5	3	1	2	2
	III	03:15 PM	12	0	3	2	6	1
	III	04:00 PM	10	4	2	0	0	4
	IV	9:30 AM	25	5	10	2	5	3
	IV	11:30 AM	18	6	7	1	2	1
	IV	12:15 PM	9	5	2	0	0	2
	IV	01:00 PM	8	2	0	2	4	0
	IV	01:45 PM	6	4	1	1	0	0
	IV	02:15 PM	18	11	6	0	0	1
	IV	03:00 PM	16	9	4	0	1	2
	V	9:15 AM	12	6	4	0	2	0
	V	11:30 AM	2	2	0	0	0	0
	V	01:45 PM	16	9	5	1	0	1
	V	02:30 PM	10	5	2	2	1	0
	V	03:15 PM	18	7	4	3	2	2
	VI	9:15 AM	16	6	9	0	0	1
	VI	10:45 AM	13	5	6	0	1	1
	VI	11:30 AM	13	6	2	2	3	0
	VI	12:15 PM	12	3	3	0	0	6
	VI	01:45 PM	23	8	8	0	3	1
	VI	02:30 PM	16	7	5	1	2	1

Calculation for the percentage of crossveinless (cve) from generation, F6: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $236 / (236 + 73) = 76.37\%$

Table A.8: Upward selection line data from generation F7. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F7	Total		182	87	52	9	7	25
	I	8:30 AM	9	7	2	0	0	0
	I	9:15 AM	9	7	2	0	0	0
	I	11:30 AM	18	11	4	0	0	2
	I	12:15 PM	10	2	2	0	0	6
	I	01:00 PM	4	1	3	0	0	0
	I	01:45 PM	8	4	2	0	0	2
	I	02:30 PM	17	9	5	0	0	3
	II	8:30 AM	12	7	3	0	1	1
	II	9:15 AM	3	1	2	0	0	0
	II	10:00 AM	19	9	5	2	2	1
	II	10:45 AM	16	8	4	2	1	1
	II	11:30 AM	18	3	7	4	3	1
	II	01:00 PM	15	6	5	0	0	3
	II	01:45 PM	8	1	4	0	0	3
	III	11:30 AM	8	7	1	0	0	0
	III	01:45 PM	8	4	1	1	0	2

Calculation for the percentage of crossveinless (cve) from generation, F7: $\%cve = \frac{n_{cve}}{(n_{cve} + n_{non-cve})}$, where n is the total number of flies (cve or non-cve) = $139/(139+16) = 89.67\%$

Table A.9: Upward selection line data from generation F8. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F8	Total		184	68	46	2	5	53
	I	9:15 AM	6	1	1	0	1	3
	I	10:00 AM	5	1	1	0	0	0
	II	10:00 AM	6	1	0	0	0	0
	II	10:45 AM	11	0	0	0	0	11
	II	11:15 AM	7	0	0	0	0	7
	II	12:45 PM	4	3	0	0	0	0
	II	01:30 PM	12	5	4	0	1	2
	II	02:30 PM	8	4	4	0	0	0
	III	9:15 AM	9	1	2	0	0	6
	III	10:00 AM	3	2	0	0	0	1
	III	10:45 AM	8	0	4	0	0	4
	III	11:30 AM	12	7	1	0	0	4
	III	01:00 PM	7	2	2	0	0	3
	IV	9:15 AM	3	0	2	0	0	1
	IV	10:45 AM	9	3	6	0	0	0
	IV	11:30 AM	4	1	1	1	1	0
	IV	01:00 PM	4	4	0	0	0	0

V	9:00 AM	6	2	1	0	0	3
V	10:45 AM	10	5	1	0	1	3
V	11:30 AM	13	5	4	1	0	3
V	01:00 PM	17	9	7	0	1	0
V	01:45 PM	9	6	2	0	0	1
V	02:30 PM	10	6	3	0	0	1

Calculation for the percentage of crossveinless (cve) from generation, F8: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $114 / (114 + 7) = 94.21\%$

Table A.10: Upward selection line data from generation F9. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.	Days	Time-points	Pupa-collected	Eclosed	cve female	cve male	Non-cve female	Non-cve male	Died
F9	Total		187	73	38	1	4	71	
	I	8:30 AM	9	6	3	0	0	0	
	I	9:15 AM	12	3	1	0	0	0	
	I	10:00 AM	8	5	2	0	0	1	
	I	10:45 AM	17	6	3	0	0	8	
	I	11:30 AM	5	1	1	0	0	3	
	I	12:15 PM	13	9	3	0	1	0	
	I	01:00 PM	4	2	2	0	0	0	
	II	8:30 AM	6	3	1	1	0	1	
	II	9:15 AM	8	2	4	0	0	2	
	II	11:30 AM	11	4	2	0	0	5	
	II	01:45 PM	7	3	3	0	0	1	
	II	03:15 PM	15	4	1	0	1	9	
	III	8:30 AM	10	2	2	0	1	5	
	III	10:00 AM	6	4	1	0	0	1	
	III	11:30 AM	4	1	2	0	0	1	
	III	01:00 PM	8	4	0	0	0	4	
	III	01:45 PM	11	4	5	0	1	1	
	III	02:30 PM	3	1	0	0	0	2	
	IV	9:00 AM	11	5	1	0	0	5	
	IV	10:45 AM	9	2	0	0	0	7	
	IV	11:30 AM	7	0	0	0	0	7	
	IV	01:00 PM	3	2	1	0	0	0	

Calculation for the percentage of crossveinless (cve) from generation, F9: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $111 / (111 + 5) = 95.68\%$

Table A.11: Upward selection line data from generation F10. Cve females collected 5 days a.p and males 6-7 days a.p

Gen.	Days	Time-points	Pupae collected	Eclosed	cve female	cve male	Non-cve female	Non-cve male	Died
F10	Total		184	72	45	2	5	45	
	I	8:30 AM	8	4	2	0	0	2	
	I	10:45 AM	5	2	2	0	0	1	
	I	12:15 PM	10	3	3	0	0	4	
	I	01:00 PM	2	0	0	0	1	1	
	I	02:45 PM	3	2	1	0	0	1	
								0	

	II	8:30 AM	5	0	2	0	0	3
	II	10:00 AM	13	5	1	0	2	5
	II	10:45 AM	13	3	0	0	0	0
	II	12:15 PM	8	0	0	0	0	8
	II	01:00 PM	6	1	0	0	0	0
	II	01:45 PM	7	3	1	0	0	3
	III	02:30 PM	7	2	0	0	0	5
	III	03:15 PM	12	0	3	1	2	6
	III	04:00 PM	10	5	2	0	0	3
	IV	9:30 AM	5	1	4	0	0	0
	IV	11:30 AM	16	8	7	1	0	0
	IV	12:15 PM	9	5	2	0	0	2
	IV	01:00 PM	4	3	1	0	0	0
	IV	01:45 PM	6	5	1	0	0	0
	IV	02:15 PM	18	11	7	0	0	0
	IV	03:00 PM	16	9	6	0	0	1

Calculation for the percentage of crossveinless (cve) from generation, F10: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $117 / (117 + 7) = 94.35\%$

Table A.12: Downward selection line data from generation F3

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F4	Total		300	51	37	65	95	52
	I	8:30 AM	5	0	0	2	3	0
	I	9:15 AM	2	1	0	0	0	1
	I	10:00 AM	3	0	0	1	2	0
	I	10:45 AM	5	3	1	0	1	0
	I	11:30 AM	2	0	0	0	0	2
	I	12:15 PM	6	0	0	1	5	0
	I	01:00 PM	2	0	0	1	1	0
	I	02:30 PM	5	0	0	2	2	1
	II	8:45 AM	13	6	1	3	3	0
	II	10:45 AM	3	0	1	0	1	1
	II	11:30 AM	6	4	1	0	0	1
	II	01:00 PM	9	0	0	2	6	1
	II	02:30 PM	17	8	2	2	3	2
	III	8:50 AM	10	1	0	2	5	2
	III	11:30 AM	5	3	2	0	0	0
	III	01:00 PM	9	3	0	4	1	1
	IV	9:10 AM	6	0	0	1	4	1
	IV	10:00 AM	6	0	0	0	1	5
	IV	10:45 AM	8	0	1	4	3	0
	IV	11:30 AM	7	0	0	3	2	2
	IV	12:15 PM	4	0	0	3	1	0
	IV	01:00 PM	10	3	1	1	4	1
	IV	01:45 PM	7	0	0	5	2	0
	IV	02:30 PM	4	0	0	2	0	2
	IV	03:15 PM	8	0	0	5	0	3
	IV	04:00 PM	9	0	0	1	5	3

	V	8:00 AM	10	2	0	2	5	1
	V	9:45 AM	9	1	2	1	2	3
	V	10:45 AM	7	0	0	1	5	1
	V	11:30 AM	11	0	2	4	5	0
	V	12:15 PM	3	0	0	1	2	0
	V	01:00 PM	8	0	4	1	3	0
	V	01:45 PM	4	0	3	0	1	0
	V	02:30 PM	12	2	4	3	0	3
	VI	8:30 AM	16	6	3	0	4	3
	VI	9:15 AM	13	0	0	1	9	3
	VI	10:45 AM	7	3	1	2	1	0
	VI	11:30 AM	8	0	0	4	1	3
	VI	12:15 PM	5	0	0	0	2	3
	VI	01:00 PM	9	2	7	0	0	0
	VI	01:45 PM	7	3	1	0	0	3

Calculation for the percentage of crossveinless (cve) from generation, F3: $\%cve = \frac{n_{cve}}{(n_{cve} + n_{non-cve})}$, where n is the total number of flies (cve or non-cve) = $116 / (116 + 171) = 40.41\%$

Table A.13: Downward selection line data from generation F4

Gen.	Days	Time-points	Pupae collected	Eclosed				Died
				cve female	cve male	Non- cve female	Non- cve male	
F4	Total		300	51	37	65	95	52
	I	8:30 AM	5	0	0	2	3	0
	I	9:15 AM	2	1	0	0	0	1
	I	10:00 AM	3	0	0	1	2	0
	I	10:45 AM	5	3	1	0	1	0
	I	11:30 AM	2	0	0	0	0	2
	I	12:15 PM	6	0	0	1	5	0
	I	01:00 PM	2	0	0	1	1	0
	I	02:30 PM	5	0	0	2	2	1
	II	8:45 AM	13	6	1	3	3	0
	II	10:45 AM	3	0	1	0	1	1
	II	11:30 AM	6	4	1	0	0	1
	II	01:00 PM	9	0	0	2	6	1
	II	02:30 PM	17	8	2	2	3	2
	III	8:50 AM	10	1	0	2	5	2
	III	11:30 AM	5	3	2	0	0	0
	III	01:00 PM	9	3	0	4	1	1
	IV	9:10 AM	6	0	0	1	4	1
	IV	10:00 AM	6	0	0	0	1	5
	IV	10:45 AM	8	0	1	4	3	0
	IV	11:30 AM	7	0	0	3	2	2
	IV	12:15 PM	4	0	0	3	1	0
	IV	01:00 PM	10	3	1	1	4	1
	IV	01:45 PM	7	0	0	5	2	0
	IV	02:30 PM	4	0	0	2	0	2
	IV	03:15 PM	8	0	0	5	0	3
	IV	04:00 PM	9	0	0	1	5	3
	V	8:00 AM	10	2	0	2	5	1
	V	9:45 AM	9	1	2	1	2	3

	V	10:45 AM	7	0	0	1	5	1
	V	11:30 AM	11	0	2	4	5	0
	V	12:15 PM	3	0	0	1	2	0
	V	01:00 PM	8	0	4	1	3	0
	V	01:45 PM	4	0	3	0	1	0
	V	02:30 PM	12	2	4	3	0	3
	VI	8:30 AM	16	6	3	0	4	3
	VI	9:15 AM	13	0	0	1	9	3
	VI	10:45 AM	7	3	1	2	1	0
	VI	11:30 AM	8	0	0	4	1	3
	VI	12:15 PM	5	0	0	0	2	3
	VI	01:00 PM	9	2	7	0	0	0
	VI	01:45 PM	7	3	1	0	0	3

Calculation for the percentage of crossveinless (cve) from generation, F3: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $88 / (88 + 160) = 35.48\%$

Table A.14: Downward selection line data from generation F5

Gen.	Days	Time-points	Pupae collected	Eclosed	cve female	cve male	Non- cve female	Non- cve male	Died
F5	Total		447	97	63	112	136	39	
	I	11:30 AM	11	2	1	3	5	0	
	II	8:30 AM	18	9	1	4	0	4	
	II	9:15 AM	5	1	2	1	1	0	
	II	10:45 AM	16	3	3	5	4	1	
	II	11:30 AM	6	0	0	3	3	0	
	II	12:15 PM	16	0	0	5	9	2	
	II	01:00 PM	9	0	0	0	3	6	
	II	02:30 PM	22	5	4	6	5	2	
	III	9:45 AM	8	0	2	1	5	0	
	III	10:45 AM	6	1	3	0	2	0	
	III	12:15 PM	7	0	0	3	4	0	
	IV	9:15 AM	5	0	0	1	4	0	
	IV	10:00 AM	11	5	3	3	0	0	
	IV	10:45 AM	6	2	0	2	2	0	
	IV	11:30 AM	8	2	5	0	0	1	
	IV	12:15 PM	6	0	0	3	3	0	
	IV	01:00 PM	12	2	0	5	4	1	
	IV	01:45 PM	7	1	0	2	2	2	
	V	8:30 AM	22	8	2	4	6	2	
	V	9:15 AM	15	3	2	5	5	0	
	V	10:00 AM	21	12	4	2	3	0	
	V	10:45 AM	14	2	2	8	2	0	
	V	11:30 AM	19	10	1	3	5	0	
	V	12:15 PM	16	4	7	1	2	2	
	V	01:00 PM	14	1	2	3	8	0	
	V	01:45 PM	17	5	4	3	3	2	
	VI	8:30 AM	22	1	2	8	5	6	
	VI	9:15 AM	13	3	1	6	2	1	

	VI	10:00 AM	12	1	5	1	1	4
	VI	10:45 AM	24	9	0	5	10	0
	VI	11:30 AM	17	2	2	7	6	0
	VI	12:15 PM	16	1	3	5	7	0
	VI	01:00 PM	12	2	2	1	6	1
	VI	01:45 PM	14	0	0	3	9	2

Calculation for the percentage of crossveinless (cve) from generation, F5: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $160 / (160 + 248) = 39.21\%$

Table A.15: Downward selection line data from generation F6

Gen.	Days	Time-points	Pupae collected	Eclosed cve female	cve male	Non- cve female	Non- cve male	Died
F6	Total		376	49	43	114	144	26
	I	8:30 AM	7	0	0	3	4	0
	I	10:45 AM	5	2	2	1	0	0
	I	12:15 PM	3	0	2	0	0	1
	I	01:00 PM	6	0	0	2	4	0
	I	02:45 PM	8	0	1	7	0	0
	II	8:30 AM	3	0	0	1	2	0
	II	10:00 AM	5	0	0	1	4	0
	II	10:45 AM	13	2	1	1	9	0
	II	12:15 PM	8	1	1	1	2	3
	II	01:00 PM	6	0	0	3	3	0
	II	01:45 PM	17	3	1	5	8	0
	III	02:30 PM	22	1	2	6	9	4
	III	03:15 PM	12	0	1	3	7	1
	III	04:00 PM	10	0	0	2	4	4
	IV	9:30 AM	25	1	4	6	11	3
	IV	11:30 AM	18	1	1	7	8	1
	IV	12:15 PM	9	0	0	4	3	2
	IV	01:00 PM	6	1	0	2	3	0
	IV	01:45 PM	6	0	0	1	5	0
	IV	02:15 PM	18	3	1	0	13	1
	IV	03:00 PM	16	9	4	0	1	2
	V	9:15 AM	14	4	2	4	4	0
	V	11:30 AM	21	2	0	8	11	0
	V	01:45 PM	16	3	5	4	3	1
	V	02:30 PM	11	1	2	5	3	0
	V	03:15 PM	18	5	4	7	2	0
	VI	9:15 AM	5	1	1	0	2	1
	VI	10:45 AM	7	0	0	5	1	1
	VI	11:30 AM	5	0	2	0	3	0
	VI	12:15 PM	12	2	1	6	3	0
	VI	01:45 PM	19	0	0	11	7	1
	VI	02:30 PM	25	7	5	8	5	0

Calculation for the percentage of crossveinless (cve) from generation, F6: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $92 / (92 + 258) = 26.28\%$

Table A.16: Downward selection line data from generation F7

Gen.			Pupae collected	Eclosed				Died
	Days	Time Points		cve female	cve male	non-cve female	non-cve male	
F7	Total		238	13	6	47	43	129
	I	04:00 PM	2	0	0	1	1	0
	I	04:45 PM	3	0	0	2	1	0
	II	9:15 AM	9	1	1	2	5	0
	II	10:00 AM	6	0	0	5	1	0
	II	10:45 AM	10	2	0	2	6	0
	II	11:30 AM	9	1	0	3	3	2
	II	12:15 PM	4	0	0	2	2	0
	II	01:00 PM	11	1	0	3	7	0
	II	01:45 PM	4	1	2	0	0	1
	II	02:30 PM	8	0	0	6	2	0
	II	03:15 PM	6	1	0	4	1	0
	II	04:00 PM	3	0	0	1	2	0
	II	04:45 PM	4	1	0	0	1	2
	II	05:30 PM	5	0	0	4	1	0
	II	06:15 PM	6	1	0	2	3	0
	II	07:00 PM	5	0	0	1	3	1
	III	9:15 AM	4	0	0	2	2	0
	III	10:00 AM	6	0	0	0	0	6
	III	10:45 AM	6	0	0	0	0	6
	III	11:30 AM	8	0	0	0	0	8
	III	12:15 PM	4	1	0	0	0	3
	III	01:00 PM	5	0	0	0	0	5
	III	01:45 PM	6	0	0	0	0	6
	III	02:30 PM	10	0	0	0	0	10
	III	03:15 PM	3	0	0	0	0	3
	III	04:00 PM	3	0	0	0	0	3
	III	04:45 PM	5	0	0	0	0	5
	III	05:30 PM	4	0	0	0	0	4
	III	06:15 PM	7	0	0	0	0	7
	IV	9:15 AM	9	2	2	3	2	0
	IV	10:00 AM	6	0	0	0	0	6
	IV	10:45 AM	5	0	0	0	0	5
	IV	11:30 AM	8	0	0	0	0	8
	IV	12:15 AM	5	0	0	0	0	5
	IV	01:00 PM	6	0	0	0	0	6
	IV	01:45 PM	11	0	1	0	0	10
	IV	02:30 PM	5	0	0	0	0	5
	IV	03:15 PM	3	0	0	0	0	3
	IV	04:00 PM	3	1	0	2	0	0
	IV	04:45 PM	5	0	0	0	0	5
	IV	05:30 PM	3	0	0	1	0	2
	IV	06:15 PM	3	0	0	1	0	2

Calculation for the percentage of crossveinless (cve) from generation, F7: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $19 / (19+90) = 17.43\%$

Table A.17: Downward selection line data from generation F8

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F9	Total		178	8	6	46	87	31
	I	8:30 AM	2	0	0	0	0	2
	I	9:15 AM	9	0	0	0	8	1
	I	10:00 AM	8	0	0	1	6	1
	I	10:45 AM	18	1	1	5	11	0
	I	11:30 AM	5	1	1	0	0	3
	I	12:15 PM	13	0	0	9	4	0
	I	01:00 PM	4	1	2	0	1	0
	II	8:30 AM	8	1	0	1	6	0
	II	9:15 AM	8	0	0	4	2	2
	II	11:30 AM	10	1	0	1	8	0
	II	01:45 PM	7	0	0	3	2	2
	II	03:15 PM	12	0	0	4	8	0
	III	8:30 AM	8	0	0	2	5	1
	III	10:00 AM	6	0	0	2	3	1
	III	11:30 AM	4	1	0	1	1	1
	III	01:00 PM	8	0	0	4	4	0
	III	01:45 PM	11	0	1	4	5	1
	III	02:30 PM	3	0	0	1	2	0
	IV	9:00 AM	13	2	1	3	5	2
	IV	10:45 AM	9	0	0	0	2	7
	IV	11:30 AM	7	0	0	0	0	7
	IV	01:00 PM	5	0	0	1	4	0

Calculation for the percentage of crossveinless (cve) from generation, F8: $\%cve = \frac{n_{cve}}{(n_{cve} + n_{non-cve})}$, where n is the total number of flies (cve or non-cve) = $12/(12+109) = 9.91\%$

Table A.18: Downward selection line data from generation F9

Gen.			Pupae collected	Eclosed				Died
	Days	Time-points		cve female	cve male	Non- cve female	Non- cve male	
F9	Total		178	8	6	46	87	31
	I	8:30 AM	2	0	0	0	0	2
	I	9:15 AM	9	0	0	0	8	1
	I	10:00 AM	8	0	0	1	6	1
	I	10:45 AM	18	1	1	5	11	0
	I	11:30 AM	5	1	1	0	0	3
	I	12:15 PM	13	0	0	9	4	0
	I	01:00 PM	4	1	2	0	1	0
	II	8:30 AM	8	1	0	1	6	0
	II	9:15 AM	8	0	0	4	2	2
	II	11:30 AM	10	1	0	1	8	0
	II	01:45 PM	7	0	0	3	2	2
	II	03:15 PM	12	0	0	4	8	0

	III	8:30 AM	8	0	0	2	5	1
	III	10:00 AM	6	0	0	2	3	1
	III	11:30 AM	4	1	0	1	1	1
	III	01:00 PM	8	0	0	4	4	0
	III	01:45 PM	11	0	1	4	5	1
	III	02:30 PM	3	0	0	1	2	0
	IV	9:00 AM	13	2	1	3	5	2
	IV	10:45 AM	9	0	0	0	2	7
	IV	11:30 AM	7	0	0	0	0	7
	IV	01:00 PM	5	0	0	1	4	0

Calculation for the percentage of crossveinless (cve) from generation, F9: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $14 / (14 + 133) = 9.52\%$

Table A.19: Downward selection line data from generation F10

Gen.	Days	Time-points	Pupae collected	Eclosed	cve female	cve male	Non- cve female	Non- cve male	Died
F10	Total		204	14	9	65	90	26	
	I	8:30 AM	11	1	1	3	5	1	
	I	10:45 AM	3	0	0	0	2	1	
	I	12:15 PM	13	0	0	4	5	4	
	I	01:00 PM	3	0	0	2	1	0	
	I	02:45 PM	7	0	0	3	3	1	
	II	8:30 AM	4	2	0	1	1	0	
	II	10:00 AM	17	0	1	5	10	1	
	II	10:45 AM	10	0	0	0	2	8	
	II	12:15 PM	9	6	0	1	0	2	
	II	01:00 PM	6	1	0	0	5	0	
	II	01:45 PM	3	0	0	1	2	0	
	III	02:30 PM	9	0	0	2	5	2	
	III	03:15 PM	15	2	1	5	6	1	
	III	04:00 PM	8	0	0	3	5	0	
	IV	9:30 AM	7	0	0	3	4	0	
	IV	11:30 AM	18	1	1	9	7	0	
	IV	12:15 PM	8	1	2	3	0	2	
	IV	01:00 PM	12	0	2	2	8	0	
	IV	01:45 PM	8	0	0	1	5	2	
	IV	02:15 PM	14	0	0	8	6	0	
	IV	03:00 PM	19	0	1	9	8	1	

Calculation for the percentage of crossveinless (cve) from generation, F10: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $23 / (23 + 155) = 12.92\%$

S2

Table A.20: table showing collection and scoring of cve flies from pupae heat-shocked (at 40°C for 45min) 23 hours a.p

		Pupae collected	Eclosed				Died
Days			cve female	cve male	Non-cve female	Non-cve male	
Total	Time points.	209	14	6	85	66	38
I	10:00 AM	0	0	0	0	0	0
I	10:45 AM	7	4	2	0	0	1
I	11:30 AM	8	0	0	0	0	8
I	12:15 PM	9	1	0	2	6	0
I	01:00 PM	13	0	0	6	7	0
I	01:45 PM	9	2	0	2	1	4
I	02:30 PM	14	0	0	8	4	2
I	03:15 PM	15	1	0	9	4	1
I	04:00 PM	11	0	0	5	3	3
II	10:00 AM	5	4	1	0	0	0
II	10:45 AM	0	0	0	0	0	0
II	11:30 AM	0	0	0	0	0	0
II	12:15 PM	13	0	0	7	6	0
II	01:00 PM	12	0	1	3	2	6
II	01:45 PM	8	0	0	3	5	0
II	02:30 PM	15	1	0	6	5	3
II	03:15 PM	30	0	1	16	8	5
II	04:00 PM	13	1	0	8	3	1
II	04:45 PM	27	0	1	10	12	4

Calculation for the percentage of crossveinless (cve) from generation, F10: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $20 / (20 + 151) = 11.69\%$

Table A.21: table showing collection and scoring of cve flies from pupae heat-shocked (at 40°C for 45min) 24 hours a.p

		Pupae collected	Eclosed				Died
Days			cve female	cve male	Non-cve female	Non-cve male	
Total	Time points	209	28	17	50	60	55
I	10:00 AM	7	3	2	0	0	2
I	10:45 AM	11	0	0	4	6	1
I	11:30 AM	6	0	0	5	1	0
I	12:15 PM	4	0	2	0	0	2
I	01:00 PM	11	4	2	1	3	1
I	01:45 PM	9	2	1	0	0	6
I	02:30 PM	8	7	1	0	0	0
I	03:15 PM	5	0	0	1	3	1
I	04:00 PM	15	3	1	5	3	3
II	10:00 AM	7	3	2	0	0	2
II	10:45 AM	12	0	0	0	0	12
II	11:30 AM	17	1	3	0	7	6
II	12:15 PM	13	0	0	7	6	0
II	01:00 PM	12	4	1	3	2	2
II	01:45 PM	18	0	0	3	5	10
II	02:30 PM	16	1	0	6	6	3

II	03:15 PM	12	0	1	3	8	0
II	04:00 PM	12	0	0	8	3	1
II	04:45 PM	14	0	1	4	7	3

Calculation for the percentage of crossveinless (cve) from generation, F10: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$, where n is the total number of flies (cve or non-cve) = $45 / (45 + 110) = 29.03\%$

Table A.22: table showing collection and scoring of cve flies from pupae heatshocked (at 40°C for 45min) 25 hours a.p

Days	Time points	Pupae collected	Eclosed		Non- cve female	Non- cve male	Died
			cve female	cve male			
Total	Time points	209	20	8	47	57	82
I	10:00 AM	10	2	0	0	4	4
I	10:45 AM	13	4	1	5	2	1
I	11:30 AM	8	0	0	0	0	8
I	12:15 PM	6	1	0	2	3	0
I	01:00 PM	16	0	0	6	7	3
I	01:45 PM	3	2	1	0	0	0
I	02:30 PM	11	1	1	3	4	2
I	03:15 PM	10	0	0	0	4	5
I	04:00 PM	7	0	0	5	2	0
II	10:00 AM	10	0	0	0	1	9
II	10:45 AM	19	5	2	2	0	10
II	11:30 AM	12	4	0	0	0	8
II	12:15 PM	11	0	0	7	0	4
II	01:00 PM	7	0	1	3	2	1
II	01:45 PM	4	0	0	3	0	1
II	02:30 PM	22	1	0	2	6	13
II	03:15 PM	14	0	1	3	11	0
II	04:00 PM	16	0	0	4	3	9
II	04:45 PM	10	0	1	2	8	4

Calculation for the percentage of crossveinless (cve) from generation, F10: %cve = $n_{cve} / (n_{cve} + n_{non-cve})$

Table A.23: Table showing various alternate phenotypes that were observed in some of the heat-shocked individuals, during the Waddington experiment in the upward selection line. Phenotypes such as Abnormal Abdomen (A)-like, Gull (G) like, Giant (gt) like, Beadex-Recessive 49K (Bxr49k) like, White- Apricot (wa) like and Crimp (Cm) like.

Generation	pupae collected	A	DW	G	Gt	Bxr49k	wa	cm
P	1602	5	9	7	0	0	5	0
F1	638	0	0	1	1	0	0	0
F2	480	0	0	0	0	0	0	0
F3	462	1	0	0	0	0	0	0
F4	399	0	2	8	0	1	0	0
F5	474	0	0	0	2	0	0	0
F6	359	3	0	1	0	0	0	0
F7	182	0	1	0	0	0	0	1
F8	184	4	0	0	5	1	0	0
F9	187	0	0	8	0	0	0	0
F10	184	3	6	4	0	0	0	2

Table A.24:. Effect of Geldanamycin on fly stock. Table summarizing the results from treating, both wild-type (wt) and white-eyed (w) flies with Geldanamycin (GA). DMSO was used as a control.

Stock	Flies Scored	cve wings		Curved wing-like		Normal flies	Died
		cve female	cve male	female	male		
Total	270	0	0	54	58	110	49
GA + W	80	0	0	12	18	40	10
GA + Wt	60	0	0	12	13	25	10
DMSO + W	48	0	0	1	1	20	26
DMSO + Wt	30	0	0	2	1	25	3

***Corresponding Author:**

Ajay Nair
 Arthritis & Clinical Immunology Research Program, Oklahoma Medical Research Foundation,
 Oklahoma City 73104, Oklahoma, USA.
 Tel: 1 (405)985-6960
 Email:ajay-nair@omrf.org

Received: January 11, 2016

Accepted: March 30, 2016

Published: April 13, 2016

Citation: Nair A, Dearden PK (2016) A Systems View of Waddington's Genetic Assimilation. *Int J Bioinform Biol Syst.* 1(1), 10-17.

Copyright: Nair A[©] 2016. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.