Supplemental Materials

Molecular Biology of the Cell

Spencer et al.

Supplemental Figure Legends

Figure S1. Denticle organization in wild-type and mutant embryos. (A) Denticle and cell edge markers in stage 15-16 *Drosophila* embryos are delineated by the user and several features of the denticle distribution are calculated automatically. (B-D) Cell length along the dorsal-ventral axis (B), number of denticles/cell (C), and denticle spacing (D) plotted by denticle column in wild-type (WT) embryos. Boxes, 25^{th}-75^{th} percentile; whiskers, 1.5 inter-quartile range (IQR); horizontal line, median; +, mean. (B) $p < 0.01$ for all comparisons except column 1 vs. column 2, (C) $p < 0.0001$ for all comparisons except column 2 vs. column 4, (D) $p < 0.001$ for all comparisons except columns 3 vs. 4, 3 vs. 5, and 4 vs. 5, Kruskal-Wallis test with Dunn's multiple comparison test. (E) Distribution of cells with 1 to 5 denticles in WT embryos. (F) Denticle spacing for WT cells with 2 to 6 denticles. $p < 0.01$ for all comparisons except cells with 4 vs. 5 denticles and 5 vs. 6 denticles. (G) Denticle spacing in longer cells (4.2 ± 1.0 μm mean±SD, red) was larger than denticle spacing in shorter cells (3.1 ± 0.7 μm, black) ($p < 0.0001$, Student's t-test). Data for cells with 2 denticles. (H) Cell length vs. denticle spacing and best-fit linear regression lines for cells with 2 denticles in WT embryos (gray) and Monte Carlo simulations (orange). (I,J) The placement of the outermost denticles relative to the dorsal and ventral boundaries of the cell in WT embryos. (I) Absolute distance of the dorsal-most denticle from the dorsal cell edge (x-axis), absolute distance of the ventral-most denticle from the ventral cell edge (y-axis). (J) Data as in I, but normalized to cell length. n = 153 cells with 1 denticle (red), 94 cells with 2 denticles (orange), and 20 cells with 3 denticles (green). (K,L) Cell length vs. denticle number in WT embryos (K) and larvae (L) (mean±SD). Panel L shows the same data as in Figure 4C, but as mean±SD and with the axes reversed for easier comparison with panel K. (M,N) The error relative to cell length (M) or relative to the spacing distance predicted by the statistical model (N). In both cases, the relative error was decreased for cells with 2, 3, or 4 denticles in larvae compared to embryos ($p < 0.0001$, Kruskal-Wallis test with Dunn's multiple comparison test).

Figure S2. Analysis of denticle spacing in multiple genetic backgrounds. (A) Denticle spacing vs. cell length for cells with 2 to 14 denticles in wild-type (WT) embryos (gray dots) and first instar larvae (colored dots). Solid lines, best-fit linear regressions.

(B,C) Denticle spacing vs. cell length for cells with 2 or 3 denticles in WT (gray dots) and *ms(3)k81* (colored dots in B) or CycE-OE embryos (colored dots in C). Solid lines, best-fit linear regressions. (D,E) Denticle spacing vs. cell length for cells with 2 to 5 denticles in column 1 cells of WT (gray dots) and Spastin-OE (colored dots in D) or Patronin-KD (colored dots in E). Solid lines, best-fit linear regressions. (F,G) Residuals for the best-fit linear regressions for WT embryos (F) and larvae (G). Colors as in A. (H) Residuals for the best-fit linear regressions for WT embryos (gray) and Monte Carlo simulations (orange) for cells with 2 denticles.

Figure S3. Comparison of denticle spacing simulations with *in vivo* measurements. (A-G) Percentage of simulations that are consistent with ($p \geq 0.05$, yellow) or significantly different from ($p < 0.05$, blue) the *in* vivo distributions for each α, σ pair tested. Arrowhead, best model tested for each genotype. o, model passes criteria, $p \geq 0.05$ in more than 94% of simulations. See Supplemental Table S5 for a summary of the statistical modeling outcomes.

Figure S4. p value distributions for denticle spacing simulations compared to *in vivo* measurements. (A-G) P value distributions for the indicated models varying α at σ = D/5, D/6, D/7, D/8, and D/9 for embryo and larval data. See Supplemental Table S5 for a summary of the statistical modeling outcomes.

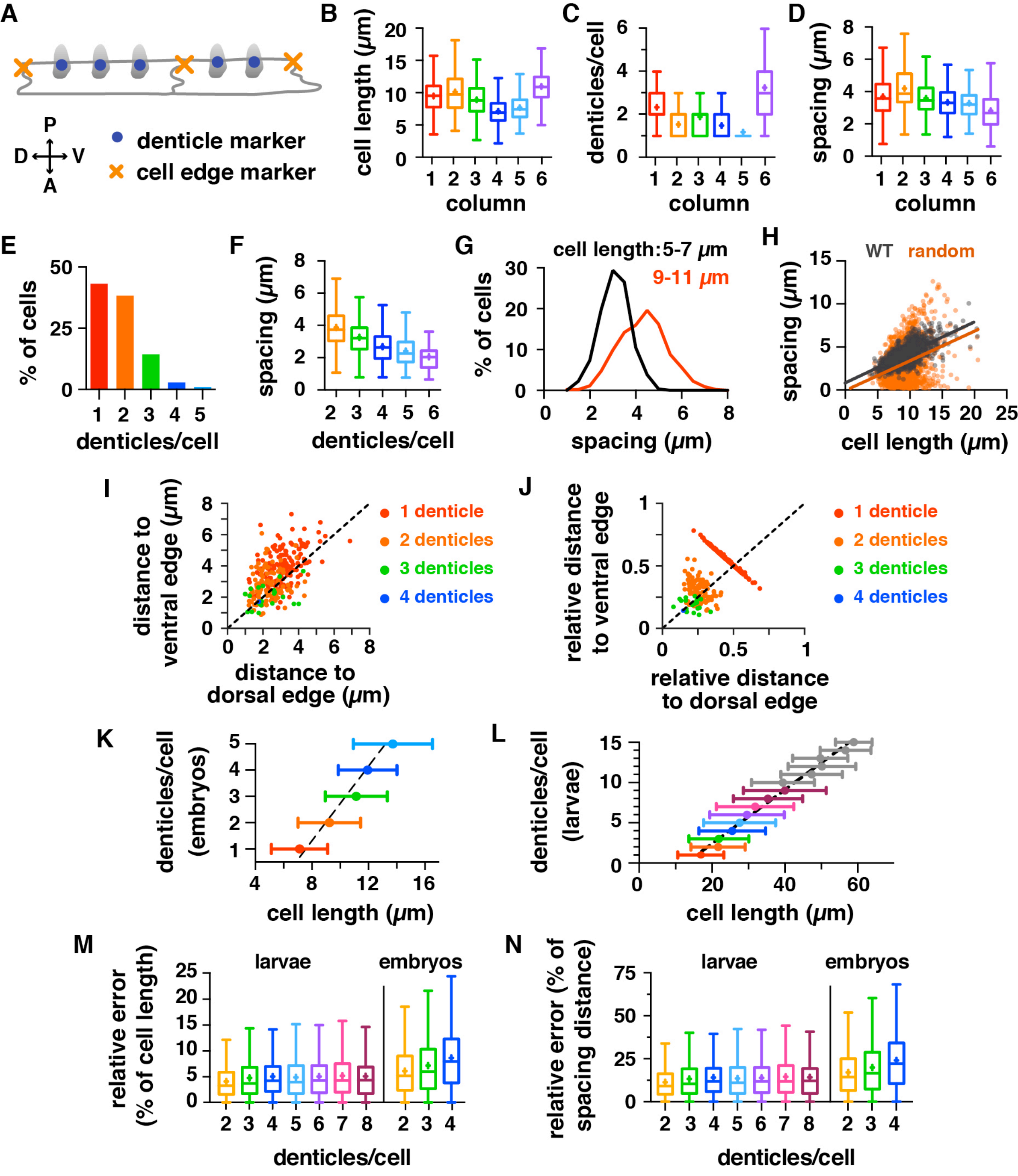
Figure S5. Effective Patronin knockdown by a transgenic Patronin shRNA construct. (A,B) Expression of Patronin shRNA transgene in stripes of cells under the control of the *engrailed*-Gal4 driver strongly decreases the level of Patronin-GFP in these cells. Examples from two different embryos are shown. Green (ubi-Patronin-GFP), red (*en-Gal4* > mCherry-Moesin). Bars, 10 *μ*m.

Figure S6. Refinement of denticle position during actin coalescence and denticle formation.

(A-H) Traces of F-actin foci during denticle formation (mid-to-late stage 14), relative to the total length of the cell for individual cells with 2, 3, or 4 denticles, showing 8 representative examples out of 32 cells analyzed from 6 embryos. Each color represents a unique F-actin aggregate that was manually tracked over time. See also Figure 6 and Supplemental Videos S1-S3.

Figure S7. Denticle organization in embryos with microtubule defects.
(A) Distribution of cells with 1-5 denticles in column 1 cells of wild-type (WT), Spastin-OE, and Patronin-KD embryos. (B-D) Number of denticles/cell (B), cell length (C), and denticle spacing (D) in column 1 cells of WT, Spastin-OE, and Patronin-KD embryos. *, $p < 0.01$ compared to WT, Kruskal-Wallis test with Dunn's multiple comparison test. Data shown for all cells in A-C, for cells with 3 denticles only in D. (E,F) The error relative to cell length (E) or relative to the spacing distance predicted by the statistical model (F) for cells with 2 denticles (left bars) or 3 denticles (right bars) in WT, Spastin-OE, and Patronin-KD embryos. *, $p < 0.05$ compared to WT, Kruskal-Wallis test with Dunn's multiple comparison test. See Supplemental Tables for mean ± standard deviation (SD) values (Supplemental Table S1), n values (Supplemental Table S2), and best-fit linear regression equations and R^2 values (Supplemental Table S3). (G) Cell length vs. denticle number for column 1 cells in WT, Spastin-OE, and Patronin-KD embryos (mean±SD). Cells with 1 or 3 denticles were significantly different in length in Patronin-KD compared to WT ($p < 0.05$), Kruskal-Wallis test with Dunn's multiple comparison test.

Figure S1



A
P
D
V
A
denticle marker
cell edge marker
B
cell length (μm)
column
C
denticles/cell
column
D
spacing (μm)
column
E
% of cells
denticles/cell
F
spacing (μm)
denticles/cell
G
cell length: 5-7 μm
9-11 μm
% of cells
spacing (μm)
H
WT
random
spacing (μm)
cell length (μm)
I
distance to ventral edge (μm)
distance to dorsal edge (μm)
1 denticle
2 denticles
3 denticles
4 denticles
J
relative distance to ventral edge
relative distance to dorsal edge
1 denticle
2 denticles
3 denticles
4 denticles
K
denticles/cell (embryos)
cell length (μm)
L
denticles/cell (larvae)
cell length (μm)
M
relative error (% of cell length)
larvae
embryos
denticles/cell
N
relative error (% of spacing distance)
larvae
embryos
denticles/cell

Figure S2

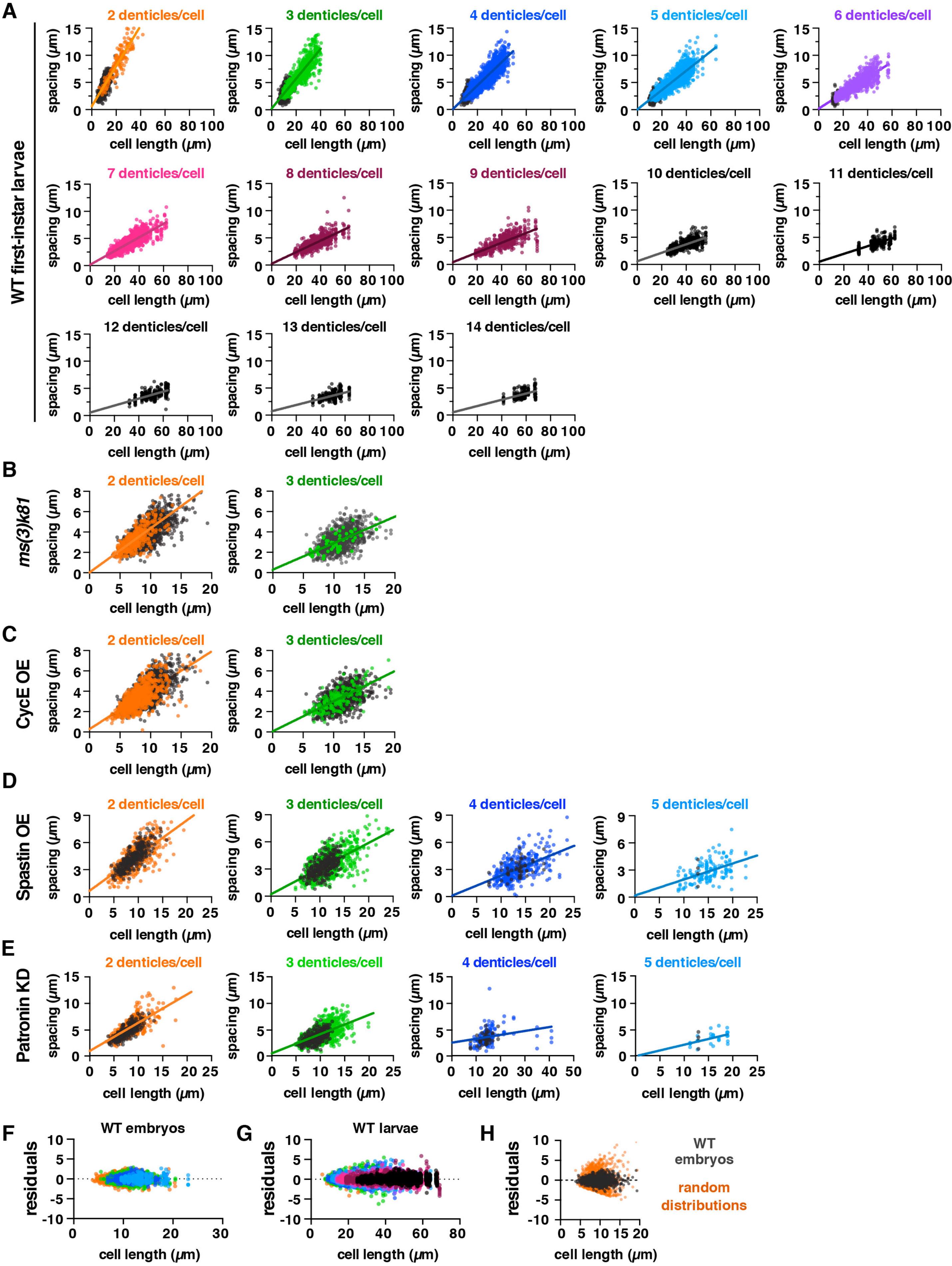
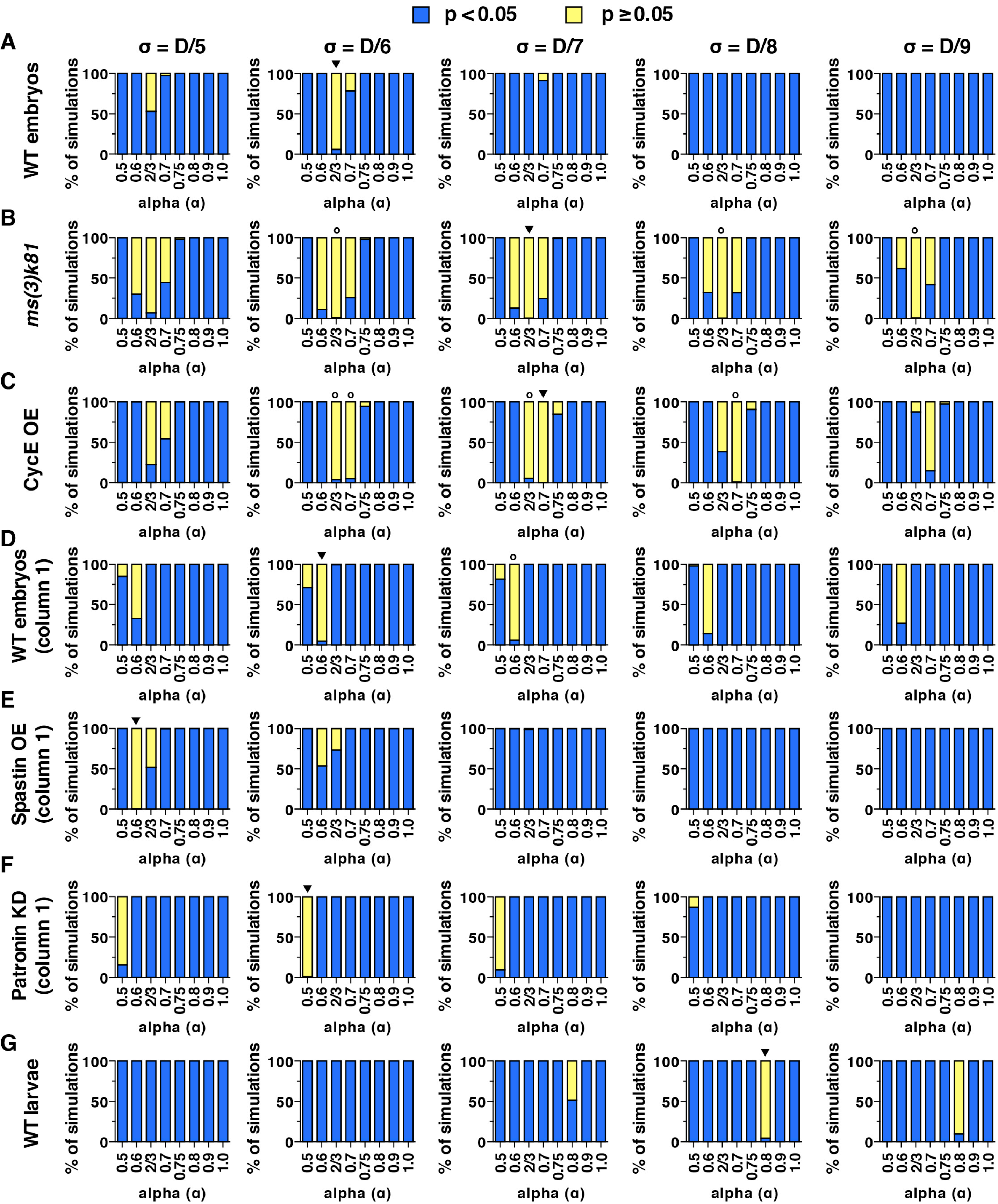

A
WT first-instar larvae
2 denticles/cell
3 denticles/cell
4 denticles/cell
5 denticles/cell
6 denticles/cell
7 denticles/cell
8 denticles/cell
9 denticles/cell
10 denticles/cell
11 denticles/cell
12 denticles/cell
13 denticles/cell
14 denticles/cell
spacing (μm)
cell length (μm)
B
ms(3)k81
2 denticles/cell
3 denticles/cell
C
CycE OE
2 denticles/cell
3 denticles/cell
D
Spastin OE
2 denticles/cell
3 denticles/cell
4 denticles/cell
5 denticles/cell
E
Patronin KD
2 denticles/cell
3 denticles/cell
4 denticles/cell
5 denticles/cell
F
WT embryos
G
WT larvae
H
residuals
WT embryos
random distributions

Figure S3



p < 0.05
p ≥ 0.05
A
B
C
D
E
F
G
σ = D/5
σ = D/6
σ = D/7
σ = D/8
σ = D/9
WT embryos
ms(3)k81
CycE OE
WT embryos (column 1)
Spastin OE (column 1)
Patronin KD (column 1)
WT larvae
% of simulations
0
50
100
0.5
0.6
2/3
0.7
0.75
0.8
0.9
1.0
alpha (α)

Figure S4

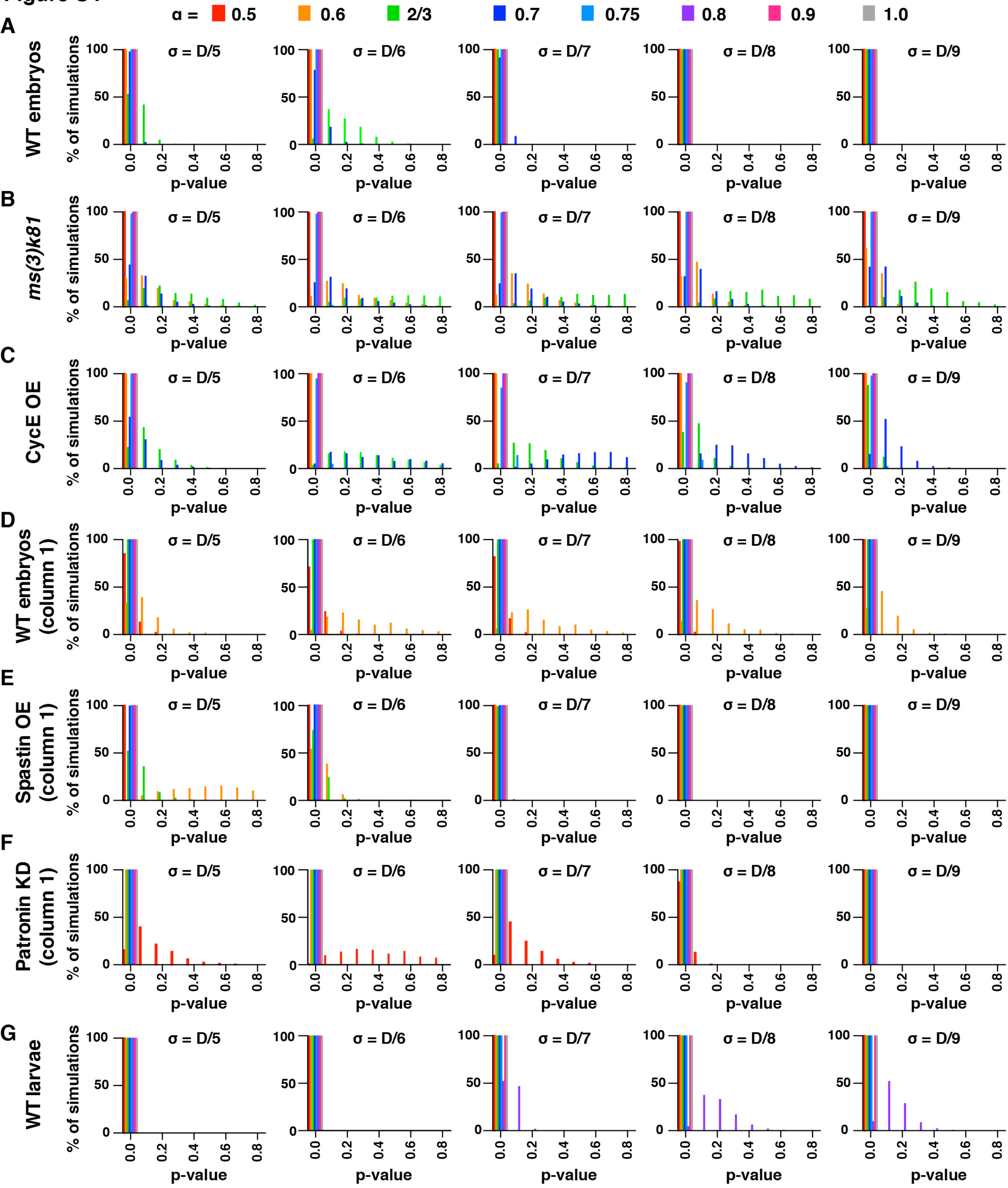

α =
0.5
0.6
2/3
0.7
0.75
0.8
0.9
1.0
A
WT embryos
B
ms(3)k81
C
CycE OE
D
WT embryos (column 1)
E
Spastin OE (column 1)
F
Patronin KD (column 1)
G
WT larvae
σ = D/5
σ = D/6
σ = D/7
σ = D/8
σ = D/9
% of simulations
p-value
0
50
100
0.0
0.2
0.4
0.6
0.8

Figure S5

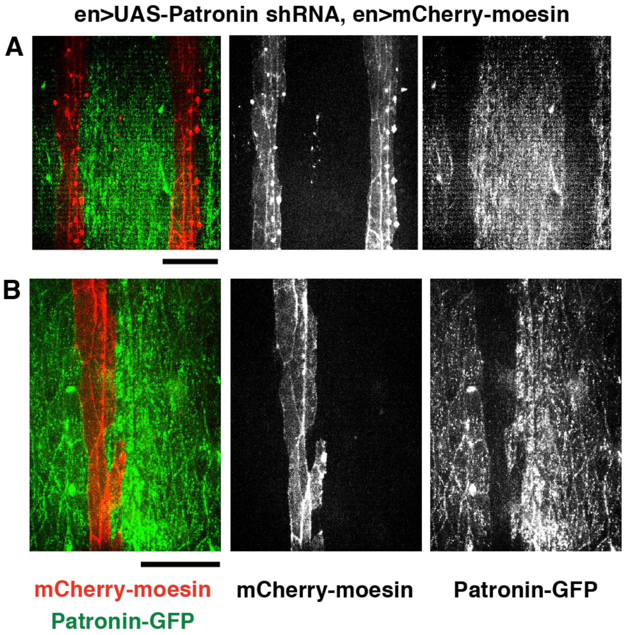

en>UAS-Patronin shRNA, en>mCherry-moesin
A
B
mCherry-moesin
Patronin-GFP
mCherry-moesin
Patronin-GFP

Figure S6

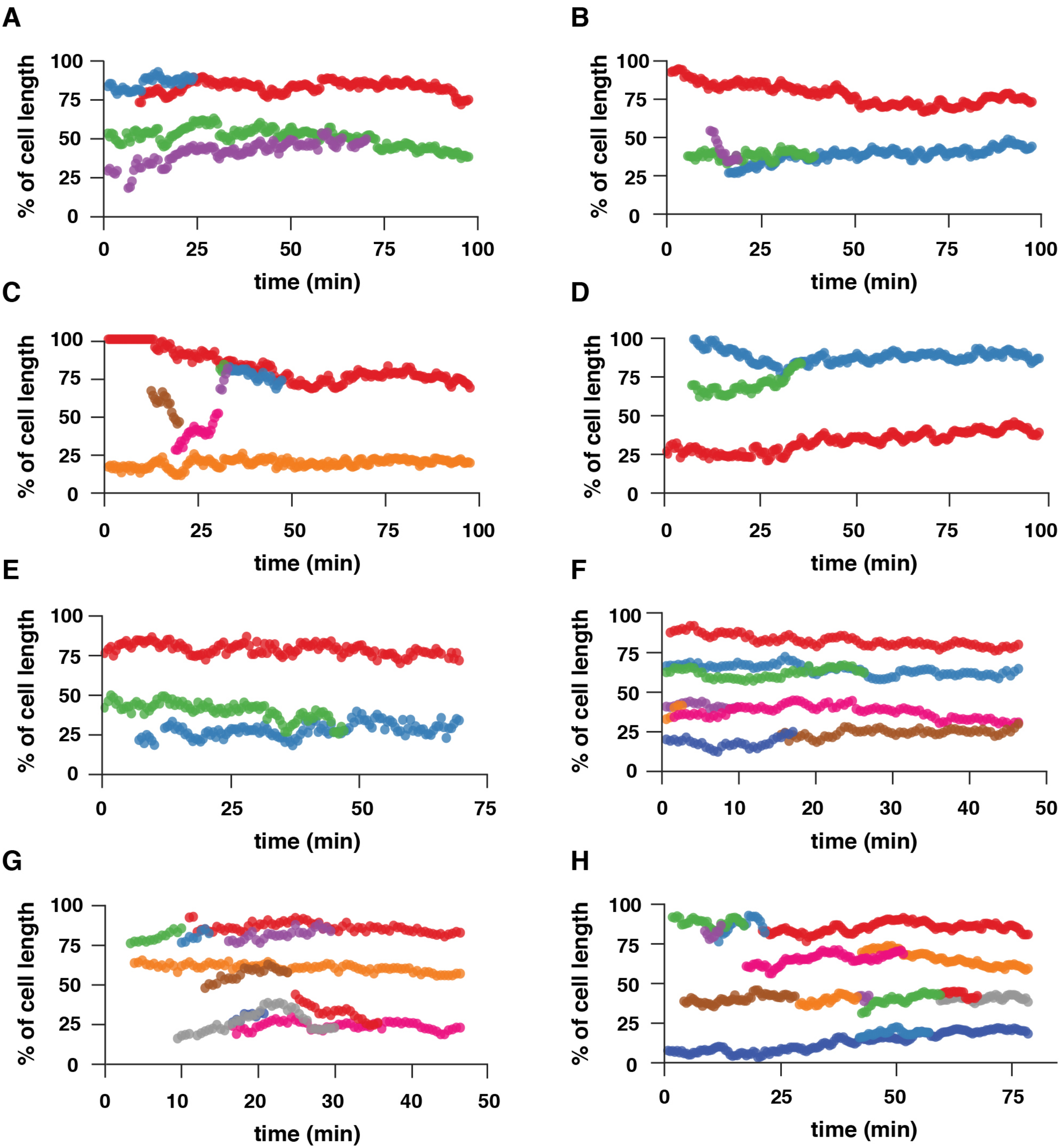


Figure S7

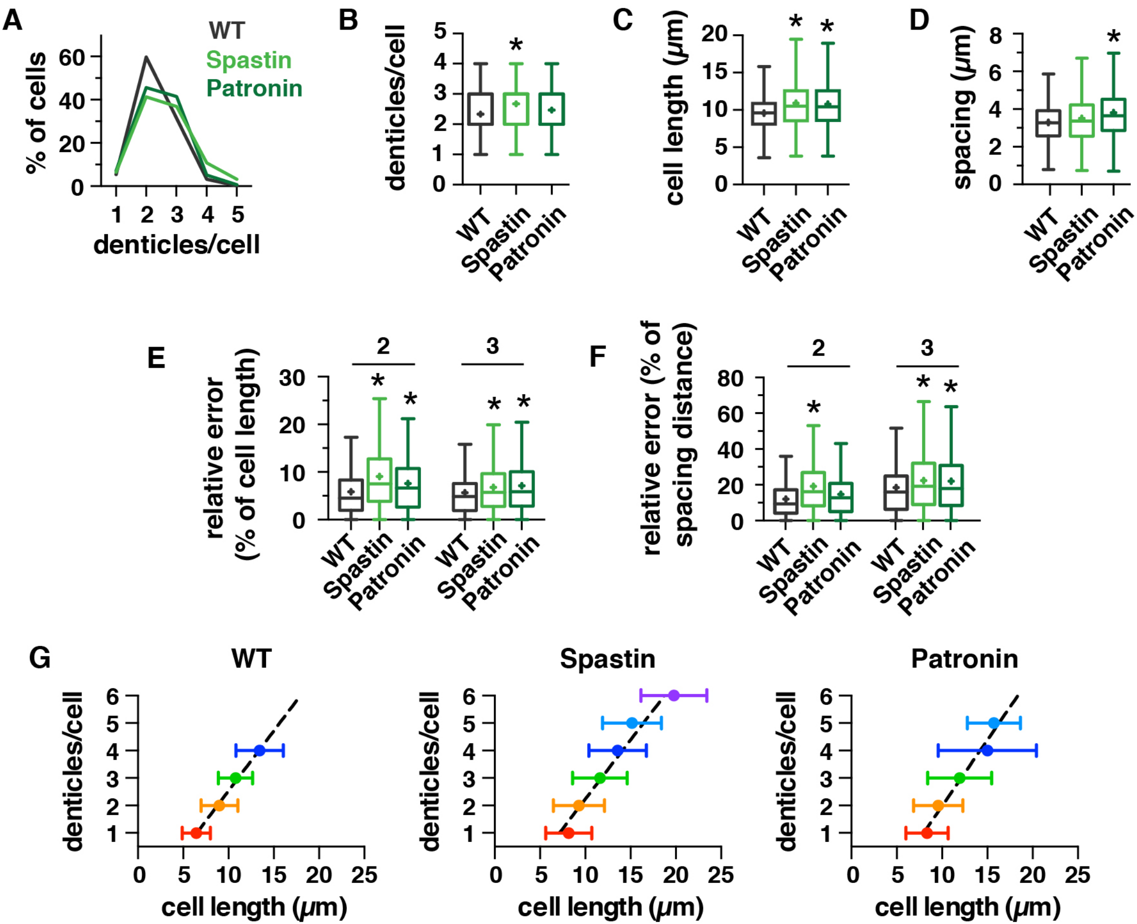

A
% of cells
denticles/cell
WT
Spastin
Patronin
B
denticles/cell
C
cell length (μm)
D
spacing (μm)
E
relative error (% of cell length)
F
relative error (% of spacing distance)
G
WT
Spastin
Patronin
denticles/cell
cell length (μm)

Table S1. Cell size, denticle number, and denticle spacing measurements (mean ± SD).

		Genotype						
		WT embryos	*ms(3)k81*	CycE OE	WT embryos column 1	Spastin OE column 1	Patronin KD column 1	WT larvae
Denticles/cell		1.9 ± 1.0	1.3 ± 0.5	1.3 ± 0.5	2.3 ± 0.6	2.7 ± 1.0	2.5 ± 0.7	5.2 ± 2.5
min,max denticles		1,6	1,4	1,5	1,5	1,9	1,5	1,17
Cell length (μm) for cells with N denticles	**all**	8.9 ± 2.8	5.8 ± 1.9	6.4±2.4	9.57 ± 2.4	10.9 ± 3.7	10.8 ± 3.6	28.2 ± 11.5
	1	7.17 ± 2.0	5.24 ± 1.5	5.6±1.8	6.4 ± 1.5	8.2 ± 2.5	8.4 ± 2.3	16.9 ± 6.3
	2	9.37 ± 2.3	7.5 ± 1.8	8.1±2.2	9.0 ± 2.0	9.3 ± 2.8	9.6 ± 2.7	21.7 ± 7.5
	3	11.1 ± 2.2	10.2 ± 2.7	10.8±2.8	10.8 ± 1.9	11.6 ± 3.0	12.0 ± 3.5	21.9 ± 8.2
	4	11.9 ± 2.1	--	--	13.5 ± 2.6	13.6 ± 3.2	15.0 ± 5.4	25.5 ± 9.2
Min. cell length (μm)		2.2	1.9	1.6	3.6	3.8	3.8	4.6
Max. cell length (μm)		26.5	17.0	20.3	18.8	33.5	40.6	72.0
Denticle spacing (μm) for cells with N denticles	**all**	3.4 ± 1.2	3.3 ± 1.1	3.3±1.2	3.7 ± 1.2	3.6 ± 1.4	4.1 ± 1.5	4.7 ± 2.0
	2	4.0 ± 1.2	3.3 ± 1.1	3.3 ± 1.2	4.3 ± 1.2	4.3 ± 1.5	4.9 ± 1.6	8.7 ± 3.0
	3	3.3 ± 1.0	3.0 ± 0.9	3.2 ± 1.1	3.3 ± 1.0	3.5 ± 1.3	3.8 ± 1.4	6.2 ± 5.6
	4	2.7 ± 0.9	--	--	3.1 ± 0.9	3.1 ± 1.2	3.4 ± 1.4	5.6 ± 2.2
Min. spacing (μm)		0.6	1.1	0.2	0.8	0.1	0.7	1.1
Max. spacing (μm)		9.9	7.4	9.6	7.6	9.8	12.2	16.5
Denticle-to-edge spacing (μm) for cells with N denticles	**all**	2.9 ± 1.3	2.4 ± 1.0	2.5 ± 1.3	2.3 ± 0.9	2.4 ± 1.5	2.3 ± 1.7	4.1 ± 2.8
	1	3.6 ± 1.4	2.6 ± 0.9	2.8 ± 1.1	3.2 ± 1.0	4.1 ± 2.2	4.2 ± 1.7	8.7 ± 3.7
	2	2.7 ± 1.2	2.1 ± 0.8	2.4 ± 1.0	2.4 ± 0.9	2.5 ± 1.4	2.4 ± 1.2	6.7 ± 2.9
	3	2.4 ± 1.0	2.2 ± 0.9	2.2 ± 1.0	2.1 ± 0.7	2.4 ± 1.3	2.2 ± 1.7	5.0 ± 2.5
	4	2.0 ± 0.9	--	--	2.2 ± 0.9	2.2 ± 1.2	2.6 ± 3.1	4.7 ± 2.2
Mean absolute error of spacing (μm)	**2**	0.68	0.58	0.68	0.52	0.83	0.75	0.96
	3	0.65	0.51	0.61	0.60	0.78	0.86	0.85
	4	0.64	--	--	0.65	0.79	0.93	0.77
Root mean squared error of spacing (μm)	**2**	0.87	0.74	0.90	0.68	1.06	1.05	1.27
	3	0.83	0.64	0.82	0.79	1.01	1.17	1.21
	4	0.79	--	--	0.80	1.03	1.32	1.03

Table S2. Number of animals, denticles, and cells analyzed for each genotype.

		Genotype						
		WT embryos	***ms(3)k81***	**CycE OE**	**WT embryos column 1**	**Spastin OE column 1**	**Patronin KD column 1**	**WT larvae**
Animals		12	10	13	12	36	29	18
Total cells for genotype		3092	1704	3120	497	1103	1054	2150
Total denticles for genotype		5833	2130	4071	1158	2951	2598	11062
Cells/animal, min:max		190-370	62-245	35-350	30-70	25842	20-60	30-240
Denticles/animal, min:max		360-700	90-300	50-460	60-150	25-165	45-140	180-1160
Cells with *N* denticles	**1**	1284	1310	2274	27	71	76	21
	2	1140	364	750	297	456	480	157
	3	476	28	89	156	407	436	379
	4	130	2	5	16	119	54	452
	5	51	0	2	1	35	7	395
	6	11	0	0	0	12	0	278
	7	0	0	0	0	1	0	164
	8	0	0	0	0	1	0	97
	9	0	0	0	0	1	0	75
	10	0	0	0	0	0	0	51
	11	0	0	0	0	0	0	21
	12	0	0	0	0	0	0	20
	13	0	0	0	0	0	0	18
	14	0	0	0	0	0	0	13
	15	0	0	0	0	0	0	4
	16	0	0	0	0	0	0	2
	17	0	0	0	0	0	0	3

Table S3. Best-fit linear regression data for each genotype.

Cells with N denticles		Genotype: WT embryos	*ms(3)k81*	CycE OE	WT embryos column 1	Spastin OE column 1	Patronin KD column 1	WT larvae
2	*Equation*	y = 0.36x + 0.63	y = 0.43x + 0.031	y = 0.38x + 0.29	y = 0.47x + 0.10	y = 0.39x + 0.66	y = 0.42x + 0.86	y = 0.37x + 0.63
	R^2	0.48	0.52	0.48	0.66	0.52	0.54	0.82
3	*Equation*	y = 0.24x + 0.64	y = 0.26x + 0.30	y = 0.30x + 0.062	y = 0.30x + 0.03	y = 0.28x + 0.22	y = 0.19x + 1.5	y = 0.27x + 0.23
	R^2	0.28	0.53	0.55	0.34	0.42	0.25	0.78
4	*Equation*	y = 0.21x + 0.21	--	--	y = 0.18x + 0.70	y = 0.22x + 0.12	y = 0.069x + 2.4	y = 0.22x + 0.094
	R^2	0.23	--	--	0.24	0.31	0.074	0.79
5	*Equation*	y = 0.15x + 0.32	--	--	--	y = 0.18x + 0.19	y = 0.20x - 0.13	y = 0.18x + 0.07
	R^2	0.21	--	--	--	0.24	0.28	0.78
6	*Equation*	y = 0.093x + 0.80	--	--	--	y = 0.14*x + 0.17	--	y = 0.14x + 0.19
	R^2	0.02	--	--	--	0.25	--	0.76
7	*Equation*	--	--	--	--	--	--	y = 0.13x + 0.18
	R^2	--	--	--	--	--	--	0.73
8	*Equation*	--	--	--	--	--	--	y = 0.11x + 0.25
	R^2	--	--	--	--	--	--	0.62
9	*Equation*	--	--	--	--	--	--	y = 0.090x + 0.42
	R^2	--	--	--	--	--	--	0.56
10	*Equation*	--	--	--	--	--	--	y = 0.08x + 0.59
	R^2	--	--	--	--	--	--	0.5
11	*Equation*	--	--	--	--	--	--	y = 0.072x + 0.53
	R^2	--	--	--	--	--	--	0.41
12	*Equation*	--	--	--	--	--	--	y = 0.064x + 0.55
	R^2	--	--	--	--	--	--	0.41
13	*Equation*	--	--	--	--	--	--	y = 0.057x + 0.73
	R^2	--	--	--	--	--	--	0.28
14	*Equation*	--	--	--	--	--	--	y = 0.058x + 0.51
	R^2	--	--	--	--	--	--	0.24

Table S4. Summary of Monte Carlo simulations. Models that meet the cutoff criteria are indicated in red.

Cells analyzed	Random model is acceptable (≥95% pass) (YES/no)	# of Monte Carlo simulations consistent with *in vivo* distribution ($p \geq 0.05$) (out of 10,000)	Fraction that pass (% with $p \geq 0.05$)	Fraction that fail (% with $p < 0.05$)
All cells	no	0	0	100
1 denticle	no	0	0	100
2 denticles	no	0	0	100
3 denticles	no	0	0	100
4 denticles	no	5136	51.36	48.64

Table S5. Summary of statistical modeling outcomes for 40 combinations of alpha and sigma in all genotypes. Models that meet the cutoff criteria are indicated in red; the best-fit model tested is indicated in bold with an asterisk.

Genotype	Model σ =	Model α =	Model is acceptable (≥94% pass) (YES/no)	# of simulations consistent with *in vivo* distribution (p ≥ 0.05) (out of 10,000)	Fraction that pass (% with p ≥ 0.05)	Fraction that fail (% with p < 0.05)
WT embryos	D/5	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	4699	46.99	53.01
		0.7	no	238	2.38	97.62
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	**YES***	**9413**	**94.13**	**5.87**
		0.7	no	2167	21.67	78.33
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	21	0.21	99.79
		0.7	no	851	8.51	91.49
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
ms(3)k81	D/5	0.5	no	0	0	100
		0.6	no	6991	69.91	30.09
		0.667	no	9320	93.2	6.8
		0.7	no	5561	55.61	44.39
		0.75	no	189	1.89	98.11
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	8878	88.78	11.22

		0.667	YES	9908	99.08	0.92
		0.7	no	7423	74.23	25.77
		0.75	no	179	1.79	98.21
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	8731	87.31	12.69
		0.667	**YES***	**9967**	**99.67**	**0.33**
		0.7	no	7544	75.44	24.56
		0.75	no	83	0.83	99.17
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	6783	67.83	32.17
		0.667	YES	9957	99.57	0.43
		0.7	no	6813	68.13	31.87
		0.75	no	12	0.12	99.88
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	3831	38.31	61.69
		0.667	YES	9931	99.31	0.69
		0.7	no	5812	58.12	41.88
		0.75	no	1	0.01	99.99
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
CycE OE	**D/5**	0.5	no	0	0	100
		0.6	no	2	0.02	99.98
		0.667	no	7761	77.61	22.39
		0.7	no	4559	45.59	54.41
		0.75	no	21	0.21	99.79
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	YES	9629	96.29	3.71
		0.7	YES	9498	94.98	5.02
		0.75	no	534	5.34	94.66
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	YES	9484	94.84	5.16
		0.7	**YES***	**9992**	**99.92**	**0.08**
		0.75	no	1499	14.99	85.01
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	6166	61.66	38.34
		0.7	YES	9918	99.18	0.82
		0.75	no	929	9.29	90.71
		0.8	no	0	0	100
		0.9	no	0	0	100

		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	1241	12.41	87.59
		0.7	no	8531	85.31	14.69
		0.75	no	233	2.33	97.67
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
WT embryos, column 1 only	**D/5**	0.5	no	1493	14.93	85.07
		0.6	no	6738	67.38	32.62
		0.667	no	12	0.12	99.88
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	2885	28.85	71.15
		0.6	**YES***	**9547**	**95.47**	**4.53**
		0.667	no	32	0.32	99.68
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	1826	18.26	81.74
		0.6	YES	9419	94.19	5.81
		0.667	no	4	0.04	99.96
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	216	2.16	97.84
		0.6	no	8617	86.17	13.83
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	4	0.04	99.96
		0.6	no	7278	72.78	27.22
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
Spastin OE, column 1	**D/5**	0.5	no	0	0	100
		0.6	**YES***	**9969**	**99.69**	**0.31**
		0.667	no	4800	48	52
		0.7	no	30	0.3	99.7
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	4623	46.23	53.77
		0.667	no	2664	26.64	73.36

		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	1	0.01	99.99
		0.667	no	133	1.33	98.67
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
Patronin KD, column 1	**D/5**	0.5	no	8466	84.66	15.34
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	**0.5**	**YES***	**9898**	**98.98**	**1.02**
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	9061	90.61	9.39
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	1308	13.08	86.92
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100

	D/9	0.5	no	2	0.02	99.98
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
WT larvae	**D/5**	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	4822	48.22	51.78
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	**YES***	**9568**	**95.68**	**4.32**
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	9056	90.56	9.44
		0.9	no	0	0	100
		1	no	0	0	100

Table S6. Summary of statistical modeling outcomes in embryos and larvae for cells with 2-11 denticles. Models that meet the cutoff criteria are indicated in red.

Genotype	Model		Model is acceptable (≥95% pass) (YES/no)	# of simulations consistent with *in vivo* distribution (p ≥ 0.05) (out of 1,000)	Fraction that pass (% with p ≥ 0.05)	Fraction that fail (% with p < 0.05)
	σ =	**α =**				
	D/5	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	104	10.4	89.6
		0.7	no	6	0.6	99.4
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	942	94.2	5.8
		0.7	no	505	50.5	49.5
		0.75	no	1	0.1	99.9
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
WT embryos, N = 2		0.667	YES	997	99.7	0.3
		0.7	no	905	90.5	9.5
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	YES	988	98.8	1.2
		0.7	no	928	92.8	7.2
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	911	91.1	8.9
		0.7	no	886	88.6	11.4
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/5	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	240	24	76
		0.7	no	890	89	11
WT embryos, N = 3		0.75	no	316	31.6	68.4
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	856	85.6	14.4
		0.7	YES	1000	100	0

		0.75	no	585	58.5	41.5
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	261	26.1	73.9
		0.7	no	833	83.3	16.7
		0.75	no	501	50.1	49.9
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	83	8.3	91.7
		0.75	no	179	17.9	82.1
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	6	0.6	99.4
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
WT embryos, N = 4	**D/5**	0.5	no	0	0	100
		0.6	no	50	5	95
		0.667	no	569	56.9	43.1
		0.7	no	830	83	17
		0.75	YES	990	99	1
		0.8	no	931	93.1	6.9
		0.9	no	25	2.5	97.5
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	1	0.1	99.9
		0.667	no	40	4	96
		0.7	no	130	13	87
		0.75	no	570	57	43
		0.8	no	381	38.1	61.9
		0.9	no	0	0	100
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	1	0.1	99.9
		0.75	no	32	3.2	96.8
		0.8	no	8	0.8	99.2
		0.9	no	0	0	100
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
	D/9	0.5	no	0	0	100

		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	0	0	100
		1	no	0	0	100
WT larvae, N = 2	**D/5**	0.5	no	0	0	100
		0.6	no	23	2.3	97.7
		0.667	no	432	43.2	56.8
		0.7	no	734	73.4	26.6
		0.75	YES	956	95.6	4.4
		0.8	no	907	90.7	9.3
		0.9	no	197	19.7	80.3
		1	no	3	0.3	99.7
	D/6	0.5	no	0	0	100
		0.6	no	26	2.6	97.4
		0.667	no	536	53.6	46.4
		0.7	no	879	87.9	12.1
		0.75	YES	996	99.6	0.4
		0.8	YES	978	97.8	2.2
		0.9	no	330	33	67
		1	no	2	0.2	99.8
	D/7	0.5	no	0	0	100
		0.6	no	24	2.4	97.6
		0.667	no	658	65.8	34.2
		0.7	no	943	94.3	5.7
		0.75	YES	999	99.9	0.1
		0.8	YES	994	99.4	0.6
		0.9	no	382	38.2	61.8
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	10	1	99
		0.667	no	692	69.2	30.8
		0.7	YES	959	95.9	4.1
		0.75	YES	1000	100	0
		0.8	YES	999	99.9	0.1
		0.9	no	415	41.5	58.5
		1	no	1	0.1	99.9
	D/9	0.5	no	0	0	100
		0.6	no	9	0.9	99.1
		0.667	no	731	73.1	26.9
		0.7	YES	975	97.5	2.5
		0.75	YES	1000	100	0
		0.8	YES	999	99.9	0.1
		0.9	no	457	45.7	54.3
		1	no	0	0	100
WT larvae, N = 3	**D/5**	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	5	0.5	99.5
		0.7	no	121	12.1	87.9
		0.75	no	645	64.5	35.5
		0.8	no	332	33.2	66.8
		0.9	no	1	0.1	99.9
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	21	2.1	97.9
		0.7	no	339	33.9	66.1
		0.75	YES	978	97.8	2.2

		0.8	YES	968	96.8	3.2
		0.9	no	43	4.3	95.7
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	32	3.2	96.8
		0.7	no	520	52	48
		0.75	YES	997	99.7	0.3
		0.8	YES	1000	100	0
		0.9	no	313	31.3	68.7
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	9	0.9	99.1
		0.7	no	569	56.9	43.1
		0.75	YES	999	99.9	0.1
		0.8	YES	1000	100	0
		0.9	no	587	58.7	41.3
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	2	0.2	99.8
		0.7	no	522	52.2	47.8
		0.75	YES	1000	100	0
		0.8	YES	1000	100	0
		0.9	no	716	71.6	28.4
		1	no	0	0	100
WT larvae, N = 4	**D/5**	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	36	3.6	96.4
		0.8	no	65	6.5	93.5
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	10	1	99
		0.75	no	721	72.1	27.9
		0.8	YES	985	98.5	1.5
		0.9	no	81	8.1	91.9
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	7	0.7	99.3
		0.75	no	938	93.8	6.2
		0.8	YES	1000	100	0
		0.9	no	768	76.8	23.2
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	2	0.2	99.8
		0.75	no	847	84.7	15.3
		0.8	YES	1000	100	0
		0.9	YES	984	98.4	1.6
		1	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100

		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	677	67.7	32.3
		0.8	YES	1000	100	0
		0.9	YES	995	99.5	0.5
		1	no	0	0	100
WT larvae, N = 5	**D/5**	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	19	1.9	98.1
		0.9	no	0	0	100
		1	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	29	2.9	97.1
		0.8	no	661	66.1	33.9
		0.9	no	477	47.7	52.3
		1	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	186	18.6	81.4
		0.8	YES	969	96.9	3.1
		0.9	YES	952	95.2	4.8
		1	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	417	41.7	58.3
		0.8	YES	994	99.4	0.6
		0.9	YES	1000	100	0
		1	no	2	0.2	99.8
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	414	41.4	58.6
		0.8	YES	995	99.5	0.5
		0.9	YES	1000	100	0
		1	no	14	1.4	98.6
WT larvae, N = 6	**D/5**	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	34	3.4	96.6
		1	no	0	0	100
		1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100

	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/6	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	18	1.8	98.2
	0.9	YES	953	95.3	4.7
	1	no	139	13.9	86.1
	1.1	no	0	0	100
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/7	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	109	10.9	89.1
	0.9	YES	999	99.9	0.1
	1	no	665	66.5	33.5
	1.1	no	0	0	100
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/8	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	244	24.4	75.6
	0.9	YES	1000	100	0
	1	no	927	92.7	7.3
	1.1	no	0	0	100
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/9	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100

		0.75	no	0	0	100
		0.8	no	281	28.1	71.9
		0.9	YES	1000	100	0
		1	YES	992	99.2	0.8
		1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
WT larvae, N = 7	**D/5**	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	4	0.4	99.6
		0.75	no	108	10.8	89.2
		0.8	no	600	60	40
		0.9	no	718	71.8	28.2
		1	no	70	7	93
		1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	3	0.3	99.7
		0.7	no	90	9	91
		0.75	no	628	62.8	37.2
		0.8	YES	977	97.7	2.3
		0.9	YES	1000	100	0
		1	no	805	80.5	19.5
		1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	8	0.8	99.2
		0.7	no	210	21	79
		0.75	no	873	87.3	12.7
		0.8	YES	998	99.8	0.2
		0.9	YES	1000	100	0
		1	YES	970	97	3
		1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100

		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
		0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	7	0.7	99.3
		0.7	no	182	18.2	81.8
		0.75	no	905	90.5	9.5
		0.8	YES	1000	100	0
		0.9	YES	1000	100	0
		1	YES	994	99.4	0.6
	D/8	1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
		0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	84	8.4	91.6
		0.75	no	857	85.7	14.3
		0.8	YES	999	99.9	0.1
		0.9	YES	1000	100	0
		1	YES	1000	100	0
	D/9	1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
		0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	19	1.9	98.1
		1	no	105	10.5	89.5
		1	no	10	0.1	99.9
WT larvae, N = 8	**D/5**	1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100

D/6	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	2	0.2	99.8
	0.9	no	315	31.5	68.5
	1	no	901	90.1	9.9
	1.1	no	30	0.3	99.7
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/7	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	10	1	99
	0.9	no	677	67.7	32.3
	1	YES	999	99.9	0.1
	1.1	no	200	2	98
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/8	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	22	2.2	97.8
	0.9	no	846	84.6	15.4
	1	YES	1000	100	0
	1.1	no	590	5.9	94.1
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/9	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	24	2.4	97.6
	0.9	no	921	92.1	7.9
	1	YES	1000	100	0

		1.1	no	1410	14.1	85.9
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
WT larvae, N = 9	**D/5**	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	4	0.4	99.6
		1	no	195	19.5	80.5
		1.1	no	130	1.3	98.7
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	64	6.4	93.6
		1	no	752	75.2	24.8
		1.1	no	1680	16.8	83.2
		1.2	no	40	0.4	99.6
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	1	0.1	99.9
		0.9	no	172	17.2	82.8
		1	no	921	92.1	7.9
		1.1	no	5420	54.2	45.8
		1.2	no	410	4.1	95.9
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100

		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/8	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	200	20	80
		1	YES	965	96.5	3.5
		1.1	no	8720	87.2	12.8
		1.2	no	2360	23.6	76.4
		1.3	no	30	0.3	99.7
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/9	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	124	12.4	87.6
		1	YES	965	96.5	3.5
		1.1	YES	9850	98.5	1.5
		1.2	no	5450	54.5	45.5
		1.3	no	80	0.8	99.2
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
WT larvae, N = 10	D/5	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	0	0	100
		0.8	no	0	0	100
		0.9	no	2	0.2	99.8
		1	no	13	1.3	98.7
		1.1	no	0	0	100
		1.2	no	0	0	100
		1.3	no	0	0	100
		1.4	no	0	0	100
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100

	0.75	no	0	0	100
	0.8	no	0	0	100
	0.9	no	50	5	95
	1	no	396	39.6	60.4
	1.1	no	20	0.2	99.8
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/7	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	3	0.3	99.7
	0.9	no	293	29.3	70.7
	1	no	885	88.5	11.5
	1.1	no	570	5.7	94.3
	1.2	no	0	0	100
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/8	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	19	1.9	98.1
	0.9	no	644	64.4	35.6
	1	YES	989	98.9	1.1
	1.1	no	1530	15.3	84.7
	1.2	no	10	0.1	99.9
	1.3	no	0	0	100
	1.4	no	0	0	100
	1.5	no	0	0	100
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/9	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	0	0	100
	0.75	no	0	0	100
	0.8	no	54	5.4	94.6
	0.9	no	843	84.3	15.7
	1	YES	998	99.8	0.2
	1.1	no	3300	33	67
	1.2	no	50	0.5	99.5
	1.3	no	0	0	100
	1.4	no	0	0	100

		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
WT larvae, N = 11	D/5	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	0	0	100
		0.7	no	0	0	100
		0.75	no	1	0.1	99.9
		0.8	no	11	1.1	98.9
		0.9	no	111	11.1	88.9
		1	no	445	44.5	55.5
		1.1	no	5050	50.5	49.5
		1.2	no	2400	24	76
		1.3	no	620	6.2	93.8
		1.4	no	30	0.3	99.7
		1.5	no	0	0	100
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/6	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	1	0.1	99.9
		0.7	no	1	0.1	99.9
		0.75	no	24	2.4	97.6
		0.8	no	60	6	94
		0.9	no	428	42.8	57.2
		1	no	868	86.8	13.2
		1.1	no	9340	93.4	6.6
		1.2	no	7090	70.9	29.1
		1.3	no	2980	29.8	70.2
		1.4	no	530	5.3	94.7
		1.5	no	30	0.3	99.7
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/7	0.5	no	0	0	100
		0.6	no	0	0	100
		0.667	no	3	0.3	99.7
		0.7	no	10	1	99
		0.75	no	44	4.4	95.6
		0.8	no	185	18.5	81.5
		0.9	no	654	65.4	34.6
		1	YES	952	95.2	4.8
		1.1	YES	9990	99.9	0.1
		1.2	no	9360	93.6	6.4
		1.3	no	5630	56.3	43.7
		1.4	no	1630	16.3	83.7
		1.5	no	70	0.7	99.3
		1.6	no	0	0	100
		1.7	no	0	0	100
		1.8	no	0	0	100
		1.9	no	0	0	100
		2	no	0	0	100
	D/8	0.5	no	0	0	100

	0.6	no	0	0	100
	0.667	no	2	0.2	99.8
	0.7	no	10	1	99
	0.75	no	60	6	94
	0.8	no	245	24.5	75.5
	0.9	no	791	79.1	20.9
	1	YES	986	98.6	1.4
	1.1	YES	10000	100	0
	1.2	YES	9850	98.5	1.5
	1.3	no	7480	74.8	25.2
	1.4	no	1940	19.4	80.6
	1.5	no	60	0.6	99.4
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100
D/9	0.5	no	0	0	100
	0.6	no	0	0	100
	0.667	no	0	0	100
	0.7	no	4	0.4	99.6
	0.75	no	66	6.6	93.4
	0.8	no	283	28.3	71.7
	0.9	no	859	85.9	14.1
	1	YES	998	99.8	0.2
	1.1	YES	10000	100	0
	1.2	YES	9860	98.6	1.4
	1.3	no	7710	77.1	22.9
	1.4	no	2100	21	79
	1.5	no	20	0.2	99.8
	1.6	no	0	0	100
	1.7	no	0	0	100
	1.8	no	0	0	100
	1.9	no	0	0	100
	2	no	0	0	100