

Table S1. Time-course analysis of MSP signaling

Genotype*	Meiotic maturation rates (maturation per gonad arm per hour)				
	1-day adult	2-day adult	3-day adult	4-day adult	5-day adult
<i>fog-2(q71)</i>	0.07±0.07 (n=18)	0.17±0.13 (n=18)	0.22±0.20 (n=18)	0.20±0.20 (n=18)	0.21±0.16 (n=19)
Wild type	2.23±0.67 [†] (n=30)	2.87±0.57 [†] (n=30)	1.38±0.83 [†] (n=30)	0.82±0.54 [†] (n=28)	0.30±0.30 [‡] (n=26)
Wild type mated on day 3	N. A.	N. A.	N. A.	2.32±0.82 ^{†,§} (n=37)	1.68±0.73 ^{†,§} (n=42)
<i>fog-2(q71)</i> mated	1.80±0.41 ^{†,¶} (n=32)	2.63±0.58 ^{†,**} (n=30)	2.71±0.73 ^{†,§} (n=30)	2.47±0.95 ^{†,§} (n=29)	1.51±0.87 ^{†,§} (n=26)
<i>tra-3(e2333)</i>	1.77±0.38 ^{†,¶} (n=34)	2.40±0.54 ^{†,¶} (n=25)	2.30±0.63 ^{†,§} (n=28)	1.22±0.40 ^{†,§} (n=24)	0.56±0.43 ^{†,§,¶} (n=19)
<i>spe-9(eb19)</i>	1.17±0.73 ^{†,§} (n=18)	1.98±0.69 ^{†,**} (n=18)	2.17±0.50 ^{†,§} (n=14)	2.35±0.53 ^{†,§} (n=12)	1.73±0.64 ^{†,§} (n=16)
<i>spe-8(hc50)</i>	1.73±0.67 ^{†,‡,¶} (n=20)	1.35±0.82 ^{†,§} (n=20)	0.99±0.60 ^{†,**} (n=30)	0.64±0.55 ^{†,**,††} (n=28)	0.94±0.66 ^{†,§} (n=21)
<i>spe-8(hc50)</i> mated	N. D.	N. D.	N. D.	N. D.	2.27±0.90 ^{†,§} (n=10)
<i>spe-27(it110)</i>	1.54±0.84 ^{†,¶} (n=20)	1.01±0.43 ^{†,‡,¶} (n=20)	1.27±0.68 ^{†,§,§} (n=30)	1.05±0.58 ^{†,**} (n=30)	0.90±0.62 ^{†,§} (n=32)

Maturation rates were measured in 5-hour intervals at various times after mid-L4 stage. Standard deviations are shown. Statistical significance was assessed using Student's *t*-test.

N. A., not applicable; N. D., not done.

*Genotypes analyzed: *fog-2(q71)* produce no sperm; *tra-3(e2333)* produce approximately 50% more sperm (Hodgkin and Barnes, 1991); *spe-9(eb19)* are defective in fertilization; *spe-8(hc50)* and *spe-27(it110)* produce non-motile spermatids lacking a pseudopod (Singson et al., 1998).

[†]*P*<0.001, ^{††}*P*<0.01, and [‡]*P*>0.5, compared with *fog-2(q71)* female values at the same time point.

[§]*P*<0.001, [¶]*P*<0.01, ^{‡‡}*P*<0.05, ^{**}*P*>0.2, and ^{§§}*P*>0.5, compared with wild-type hermaphrodite values at the same time point.

Summary of meiotic maturation time-course measurements. (1) Meiotic maturation rates are fine-tuned to the number of spermatozoa present (compare *fog-2(q71)*, wild type and *tra-3(e2333)*). (2) Spermatozoa must signal continuously because rates remain high in the fertilization-defective *spe-9* mutant (*spe-9(eb19)*). (3) Spermatids produce a long-acting signal, which persists after the *spe-8* and *spe-27* spermatids are swept from the gonad arm (*spe-8(hc50)*, *spe-8(hc50)* mated and *spe-27(it110)*). Thus, a block to spermiogenesis short circuits the sperm-sensing mechanism.

References

- Hodgkin, J. and Barnes, T. M. (1991). More is not better: brood size and population growth in a self-fertilizing nematode. *Proc. R. Soc. Lond. B Biol. Sci.* **246**, 19-24.
- Singson, A., Mercer, K. B. and L'Hernault, S. W. (1998). The *C. elegans spe-9* gene encodes a sperm transmembrane protein that contains EGF-like repeats and is required for fertilization. *Cell* **93**, 71-79.