

Fig. S1. *zipt-7.1(lf)* mutant animals displayed a temperature sensitive sterile phenotype and

were not hypersensitive to growth inhibition caused by zinc deficiency. (A) Wild type or

zipt-7.1(ok971) mutant hermaphrodites were analyzed for self-fertility at 15, 20 and 25C.

Hermaphrodites that generated no hatched progeny were defined as sterile, whereas those that generated less than 30 progeny were defined as low fertility. Values are percent of

hermaphrodites in the population (n=57-98). The *zipt-7.1* fertility defect was significantly less severe when animals were cultured at 25C compared to 20C or 15C. (***: $P < 0.001$, ****: $P < 0.0001$, chi-squared test).

(B) L1 stage wild type or *zipt-7.1(ok971)* mutant animals were

cultured for three days on medium containing the zinc chelator TPEN, and the length of

individuals was measured as an indication of growth rate. Values are mean \pm SD (n=18-23). *zipt-*

7.1(ok971) mutant animals were not significantly more sensitive to TPEN compared to the wild

type, but were slightly resistant at higher concentrations. *zipt-7.1(lf)* mutants were slightly

smaller than wild type in standard medium (0 TPEN), which likely accounts for the slight

difference in size at 5 μ M TPEN (*: $P < 0.05$; ****: $P < 0.0001$, Student's t test).

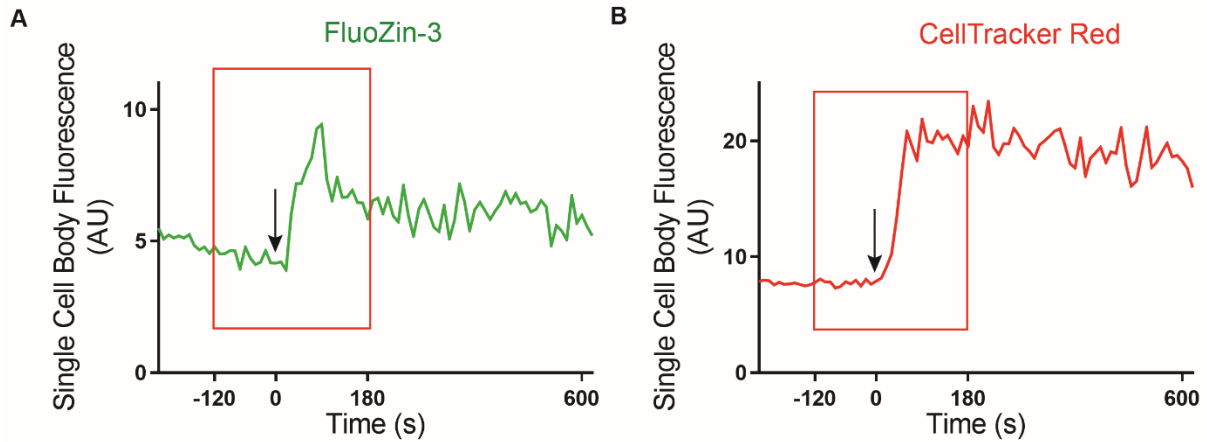


Fig. S2. Measurement of fluorescence changes during sperm activation. (A) A single sperm cell was visualized every 10 seconds with fluorescence microscopy to reveal the zinc dye FluoZin-3. The arrow indicates time 0, defined as the last time point before pseudopod extension was observed. Values are quantification in arbitrary units (AU) of the FluoZin-3 fluorescence intensity in the cell body region of the sperm after subtracting the background. This sperm is displayed in Fig.1B, C, and the red box indicates the time interval displayed in Fig.1B, C. (B) A single sperm cell was visualized every 10 seconds with fluorescence microscopy to reveal CellTracker Red. The arrow indicates time 0, defined as the last time point before pseudopod extension was observed. Values are quantification in arbitrary units (AU) of the CellTracker Red fluorescence intensity in the cell body region of the sperm after subtracting the background. This sperm is displayed in Fig. 2A, B, and the red box indicates the time interval displayed in Fig. 2A, B.