

Supplemental Information

**Simultaneous Regulation of Cytokinetic Furrow and
Nucleus Positions by Cortical Tension Contributes
to Proper DNA Segregation during Late Mitosis**

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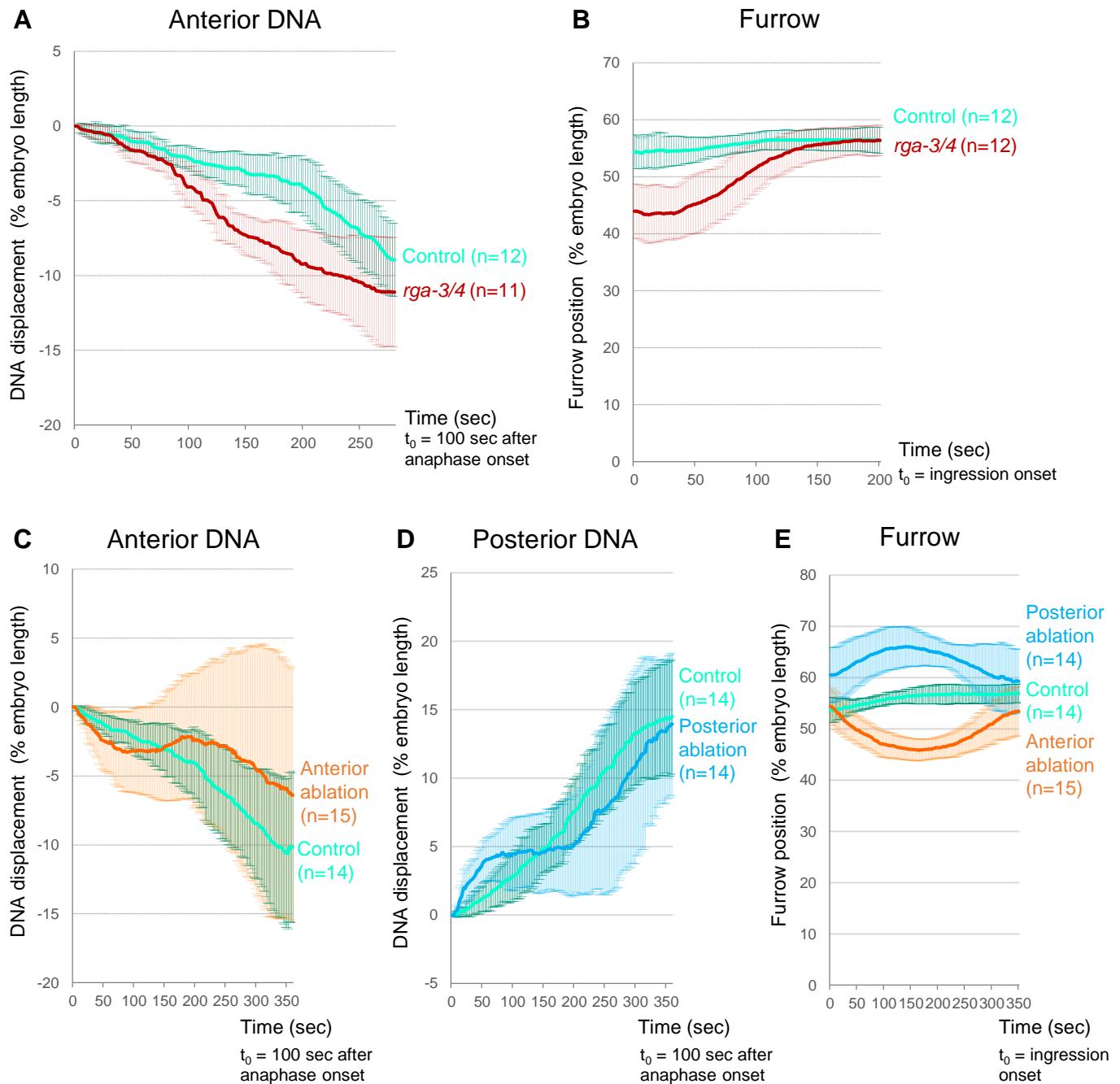


Figure S1. Correction of DNA segregation defects involves both nuclear and furrow displacement. Related to Figure 2. **A.** Average displacement of the anterior nucleus in control and *rga-3/4*(RNAi) embryos. **B.** Average furrow tip position in control and *rga-3/4*(RNAi) embryos. **C-D.** Average displacement of the anterior (C) and posterior (D) nuclei in control embryos and in embryos in which the anterior (C) or posterior (D) centrosome was ablated during early anaphase. **E.** Average furrow tip position in control embryos and in embryos in which the anterior or posterior centrosome was ablated during early anaphase. In A-E, only embryos with corrected DNA segregation defects were analysed. Error bars represent standard deviation.

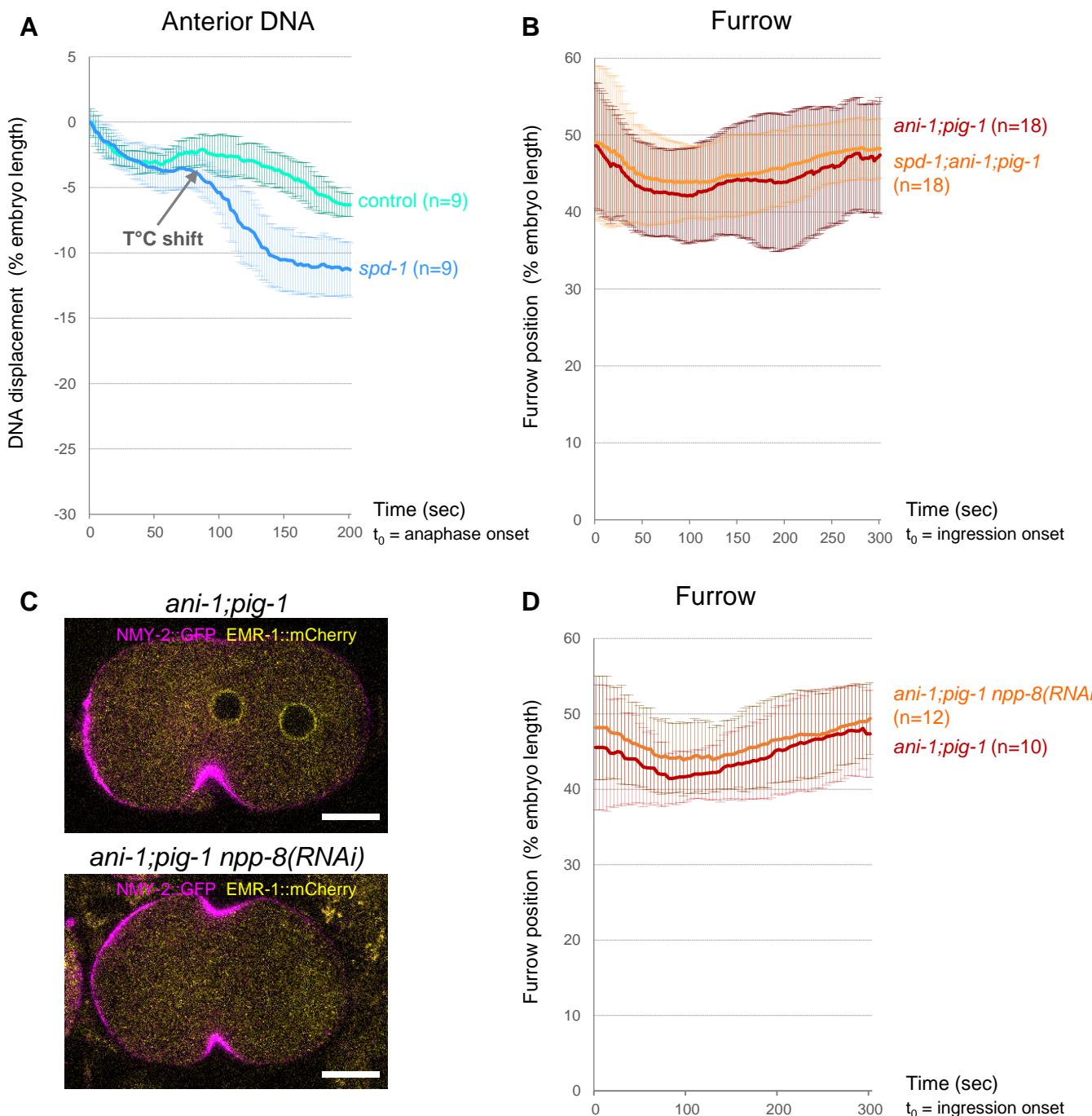


Figure S2. Central spindle and nuclear envelop formation are not required for furrow displacement. Related to Figure 7. **A.** Average displacement of the anterior nucleus in control and *spd-1(oj5)* embryos. In *spd-1(oj5)* embryos, anterior nucleus displacement is accelerated upon temperature shift, indicating efficient central spindle disruption. **B.** Average furrow tip position in *ani-1(RNAi);pig-1(gm344)* and *spd-1(oj5);ani-1(RNAi);pig-1(gm344)* embryos. Only embryos with corrected DNA segregation defects were analysed. All displayed cortical blebbing on the anterior side of the furrow. Rescue efficiency was similar for *ani-1(RNAi);pig-1(gm344)* and *spd-1(oj5);ani-1(RNAi);pig-1(gm344)* embryos (75% and 73% rescue, respectively). **C.** *ani-1(RNAi);pig-1(gm344)* and *ani-1(RNAi);pig-1(gm344) npp-8(RNAi)* embryos expressing NMY-2::GFP (magenta) and EMR-1::mCherry (yellow). No nuclear envelope reformation is observed when *npp-8* is depleted. Scale bar: 10 μ m. **D.** Average furrow tip position in *ani-1(RNAi);pig-1(gm344)* and *ani-1(RNAi);pig-1(gm344) npp-8(RNAi)* embryos. Only embryos with corrected DNA segregation defects were analysed. *ani-1(RNAi);pig-1(gm344)* and *ani-1(RNAi);pig-1(gm344) npp-8(RNAi)* embryos present similar frequencies of cortical blebbing on the anterior side of the furrow (90% and 83% of rescued embryos, respectively) and similar rescue efficiency (91% and 100% rescue, respectively). Error bars represent standard deviation. See also video S10.

Figure	Strains used	RNAi	Incubation Conditions	Recording Temperature
Figure 1A Video S1-2	FL160 FL188	1 mM IPTG, L4440/ani-1	20°C, 30-40h	23°C (Cherry Temp)
Figure 1B Video S3	FL201 FL202	1 mM IPTG, L4440/ani-1	20°C, 30-40h	23°C (Cherry Temp)
Video S4	FL212 FL216	1 mM IPTG, L4440/ani-1	15°C, 15-20h	15°C, shift at 24°C at anaphase onset (Cherry Temp)
Figure 1C Video S5	ANA071 FL256	1 mM IPTG, L4440/ani-1	20°C, 30-40h	23°C (Cherry Temp)
Figure 1D Video S6	FL160	3 mM IPTG, L4440/rga-3/4	25°C, 48h	23°C (Cherry Temp)
Figure 1E-F Video S7	FL235	OP50	20°C, 24h	20°C (Cherry Temp)
Figure 2A-D	FL160 FL188	1 mM IPTG, L4440/ani-1	20°C, 30-40h	23°C (Cherry Temp)
Figure 3A	FL212 FL216 FL217 FL218	1 mM IPTG, L4440/ani-1	15°C, 15-20h	15°C, shift at 24°C at anaphase onset (Cherry Temp)
Figure 3B	FL160 FL207	1 mM IPTG, L4440	15°C, 15-20h	15°C, shift at 24°C at anaphase onset (Cherry Temp)
Figure 3C	FL188 FL208	1 mM IPTG, ani-1	15°C, 15-20h	15°C, shift at 24°C at anaphase onset (Cherry Temp)
Figure 4A	OD56 FL221	1 mM IPTG, L4440	15°C, 20-25h	18°C, shift at 25.5°C 220 sec after anaphase onset (Cherry Temp)
Figure 4B	FL214 FL213	1 mM IPTG, ani-1	15°C, 20-25h	18°C, shift at 25.5°C 220 sec after anaphase onset (Cherry Temp)
Figure 4C	OD56 FL221 FL226 FL232	1 mM IPTG, L4440	15°C, 20-25h	18°C, shift at 25.5°C 220 sec after anaphase onset (Cherry Temp)
Figure 4D	FL214 FL213 FL229 FL230	1 mM IPTG, ani-1	15°C, 20-25h	18°C, shift at 25.5°C 220 sec after anaphase onset (Cherry Temp)
Figure 4E-F Video S8	FL220 FL233	1 mM IPTG, ani-1	15°C, 20-25h	18°C, shift at 25.5°C 220 sec after anaphase onset (Cherry Temp)
Figure 5A	FL160 FL188	1 mM IPTG, L4440/ani-1	20°C, 30-40h	23°C (Cherry Temp)
Figure 5B-C Video S9	FL160 FL188	1 mM IPTG, L4440/ani-1	20°C, 20-25h	Room temperature (~19-21°C)
Figure 6A,C-D	FL188	1 mM IPTG, ani-1	20°C, 30-40h	23°C (Cherry Temp)
Figure 7A-B Video S11	FL188	1 mM IPTG, ani-1	20°C, 30-40h	23°C (Cherry Temp)
Figure 7C, Video S12	FL227 FL228	1 mM IPTG, L4440/ani-1	20°C, 30-40h	23°C (Cherry Temp)
Figure 7D	FL227 FL225	1 mM IPTG, ani-1	15°C, 20-25h	18°C, shift at 25°C at anaphase onset (Cherry Temp)
Figure S1A-B	FL160	3 mM IPTG, L4440/rga-3/4	25°C, 48h	23°C (Cherry Temp)
Figure S1C-E	FL235	OP50	20°C, 24h	20°C (Cherry Temp)
Figure S2A	FL160 FL209	OP50	15°C, 24h	15°C, shift at 25°C 60 sec after anaphase onset (Cherry Temp)
Figure S2B Video S10A	FL188 FL223	1 mM IPTG, ani-1	15°C, 15-20h	15°C, shift at 25°C 60 sec after anaphase onset (Cherry Temp)
Figure S2C	FL202	1 mM IPTG, ani-1+L4440/ ani-1+npp-8	20°C, 30-40h	23°C (Cherry Temp)
Figure S2D Video S10B	FL188	1 mM IPTG, ani-1+L4440/ ani-1+npp-8	20°C, 30-40h	23°C (Cherry Temp)

Table S1. RNAi and temperature conditions used for each experiment. Related to STAR Methods