

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: One-cell embryos expressing GFP::TAC-1 imaged using 3D time-lapse DIC and fluorescent microscopy (GFP). Centrosomes (blue and red dots – z-projections) are shown superimposed onto single plane DIC images. Pronuclei are highlighted (blue disc: female pronucleus; red disc: male pronucleus; black crosses: centers – z-projections). Time 0 s is defined as pronuclear meeting; an image stack was captured every 6 seconds. Scale bar: 10 μ m.

File Name: Supplementary Movie 2

Description: Pronuclear migration and centration in *zyg-12(ct350) goa1/gpa-16(RNAi)* embryos. One-cell *zyg-12(ct350) goa-1/gpa-16(RNAi)* embryos expressing GFP::TAC-1 imaged using 3D time-lapse DIC and fluorescent microscopy (GFP). Centrosomes (blue and red dots – z-projections) are shown superimposed onto single plane DIC images. Pronuclei are highlighted (blue disc: female pronucleus; red disc: male pronucleus; black crosses: centers – z-projections). Time 0 s is defined as half-centration time; an image stack was captured every 12 seconds. Scale bar: 10 μ m.

File Name: Supplementary Movie 3

Description: Pronuclear migration and centration in *goa-1/gpa16(RNAi)* embryos. One-cell *goa-1/gpa-16(RNAi)* embryos expressing GFP::TAC-1 imaged using 3D timelapse DIC and fluorescent microscopy (GFP). Centrosomes (blue and red dots – zprojections) are shown superimposed onto single plane DIC images. Pronuclei are highlighted (blue disc: female pronucleus; red disc: male pronucleus; black crosses: centers – z-projections). Time 0 s is defined as pronuclear meeting; an image stack was captured every 6. Scale bar: 10 μ m.

File Name: Supplementary Movie 4

Description: Pronuclear migration and centration in *top-2(it7) goa1/gpa-16(RNAi)*. One-cell *top-2(it7) goa-1/gpa-16(RNAi)* embryos expressing GFP::TAC-1 imaged using 3D time-lapse DIC and fluorescent microscopy (GFP). Centrosomes (blue and red dots – z-projections) are shown superimposed onto single plane DIC images. Pronuclei are highlighted (blue disc: female pronucleus; red disc: male pronucleus; black crosses: centers – z-projections). Time 0 s is defined as pronuclear meeting; an image stack was captured every 6. Scale bar: 10 μ m

File Name: Supplementary Data 1

Description: Pronuclear and centrosome positions as a function of time for GFP::TAC-1, as well as embryos expressing this fusion protein and treated as follows: *goa-1/gpa-16(RNAi)*, *zyg12(ct350) goa-1/gpa-16(RNAi)*, *top-2(it7) goa-1/gpa-16(RNAi)* and *gpr-1/2(RNAi)*. Positions are expressed in μ m units. The origin of the x- and y-axes is the anterior pole of the embryo, whereas the origin of the z-axis is the first image of each stack. The x-axis is directed from the anterior to the posterior pole and is parallel to the images planes. The zaxis is perpendicular to the images planes.