Description of Additional Supplementary Files

File Name: Supplementary Information
Description: Supplementary Figures and Supplementary Table

File Name: Peer Review File

File Name: Supplementary Movie 1
Description: DMSO-treated embryos compact normally at the 8-cell stage. DMSOtreated
embryos were filmed from the 4-8 cell stage to the 8-16 cell stage. Time interval = 25 minutes
per frame. Scale bar = 15µm.

File Name: Supplementary Movie 2
Description: U73122 treatment prevents compaction at the 8-cell stage. U73122-
treated embryos were filmed from the 4-8 cell stage to the 8-16 cell stage. Embryos failed to compact
at the 8-cell stage. Note that U73122 treatment did not affect cytokinesis. Time interval = 25 minutes
per frame. Scale bar = 15µm.

File Name: Supplementary Movie 3
Description: Ruby mRNA injected embryo compacts at the 8-cell stage. 2-cell stage
embryos were injected with Ruby mRNA (as a control) and filmed from the 4-8 cell stage to the 8-16
cell stage. The red channel shows Ruby protein. A maximum projection is shown. Time interval = 20
minutes per frame. Scale bar = 15µm.

File Name: Supplementary Movie 4
Description: PLC-DN mRNA injected embryo fails to compact at the 8-cell stage. 2-
cell stage embryos were injected with PLC-DN mRNA and filmed from the 4-8 cell stage to the 8-16
cell stage. Embryos failed to compact at the 8-cell stage but cytokinesis was not affected. The red
channel shows PLC-DN protein. A maximum projection is shown. Time interval = 20 minutes per
frame. Scale bar = 15µm.

File Name: Supplementary Movie 5
Description: Local illumination with blue light triggers rapid membrane recruitment
of the PKC kinase domain. 2-cell stage embryos were injected with CIB1-Zsgreen-CAAX and
CRY2-mCherry-PKC-KD. A defined region in the cell-contact free surface was illuminated with
458nm
wavelength. The illuminated blastomere was filmed for 10 minutes to monitor the change of CRY2-
mCherry-PKC-KD localisation. Time interval = 20 seconds per frame. Scale bar = 15µm.