



**SUPPLEMENTARY FIG. S2.** Typical fluorescence image showing spindles and nuclei in the cytoplasm and first polar body of MII oocyte: for fluorescence staining of spindles, the MII oocyte was fixed in 4% formaldehyde/PBS for 30 min at room temperature. The oocyte was then permeabilized and blocked in 1×PBS containing 0.5% Triton X-100 and 3% bovine serum albumin (blocking solution) for 1 h at room temperature, followed by an overnight incubation with a 1:200 diluted monoclonal anti- $\alpha$ -tubulin antibody (Sigma) in the blocking solution at 4°C. Samples were then washed for 1 h in the blocking solution and incubated with a 1:200 diluted AlexaFluor<sup>®</sup> 488 rabbit anti-mouse IgG secondary antibody (Invitrogen) for 1 h at room temperature. Samples were further washed for 1 h in the blocking solution, and nuclei were stained for 20 min with Hoechst 333232 (1 μg/mL). After washing three times in 1×PBS, fluorescence images were taken using a Zeiss Axio Observer.Z1 fluorescence microscope to determine the distribution of spindle/nuclei in the oocyte. PBS, phosphate-buffered saline.