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Supplemental Data

Homozygous Mutations in *WEE2* Cause Fertilization Failure and Female Infertility

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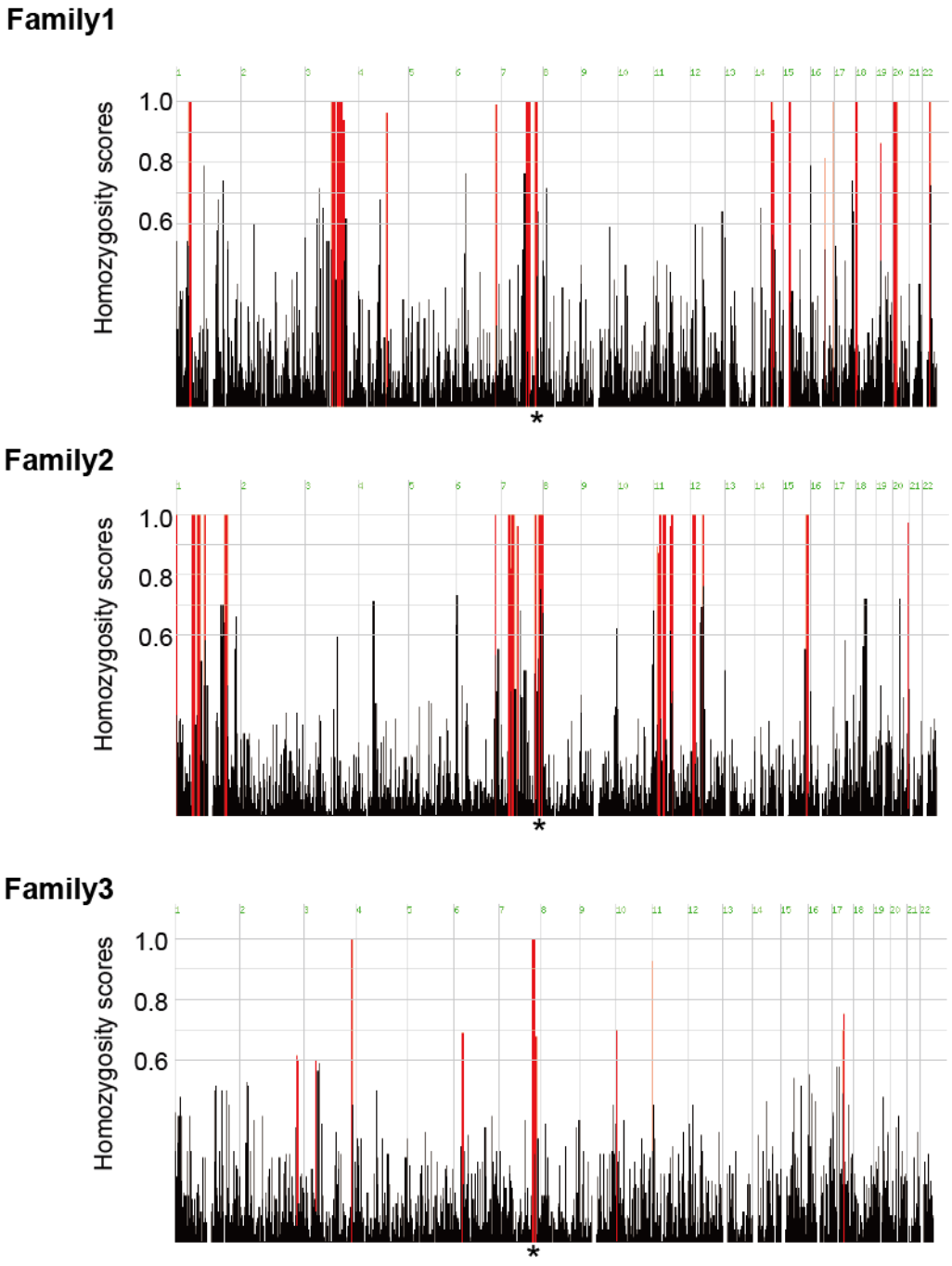

Figure S1. Homozygosity mapping of affected individuals

Homozygosity mapping of the affected individuals in consanguineous Families 1, 2, and 3. Homozygous regions harboring the strongest signal are indicated in red. The asterisk (*) indicates the area where *WEE2* is located.

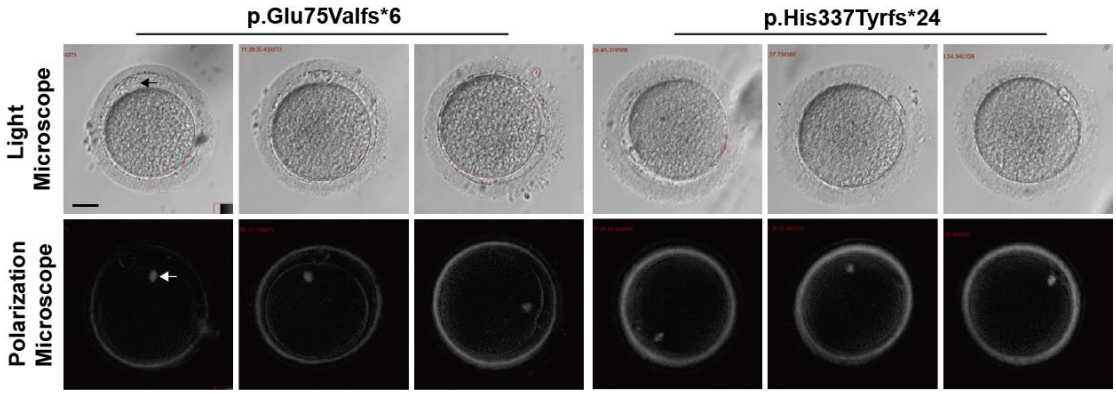

Figure S2. Morphology of retrieved affected individuals' oocytes in Families 3 and 4 before ICSI

Light microscope images indicate the overall morphology of affected individuals' oocytes. Polarization microscope images indicate the existence of spindles. The black arrow points to the first polar body. The white arrow points to the spindle. Scale bar = 40 μm.

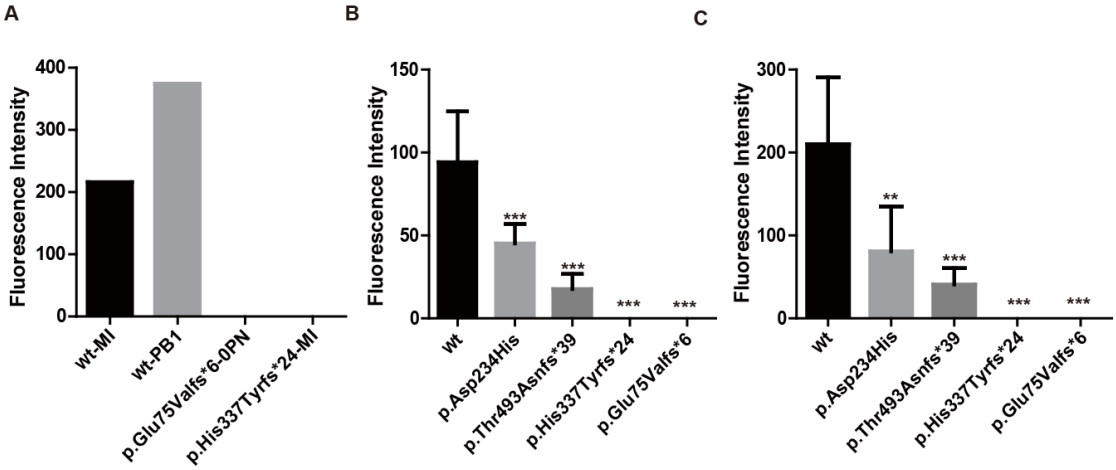

Figure S3. Quantitation of immunofluorescence results corresponding to Figure 2B-D

(A) Quantitation of immunofluorescence results in human oocytes. For each genotype, one human oocyte was quantitated. (B) Quantitation of immunofluorescence results in HeLa cells. For each group, at least 15 cells were analyzed. (C) Quantitation of

immunofluorescence results in mouse oocytes. For each group, at least 5 oocytes were analyzed. Data are the mean ± SEM of three independent experiments. **indicates $p < 0.01$; ***indicates $p < 0.001$.

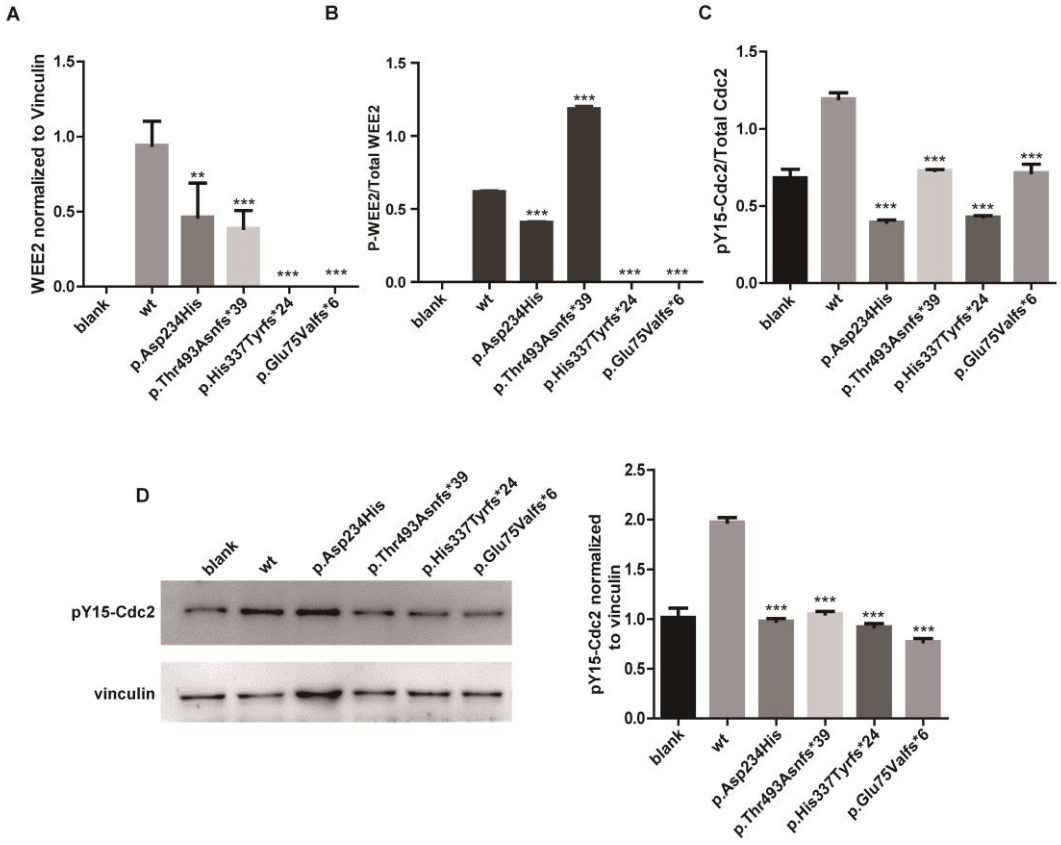

Figure S4. Quantitation of western blotting results corresponding to Figure 3A-C

(A) Quantitation of wild type (wt) and mutant WEE2 level in HeLa cells. Quantitation was by measuring the band intensity ratio of WEE2 to vinculin. (B) Quantitation of wt and mutant WEE2 phosphorylation level in HeLa cells. Quantitation was by measuring the band intensity ratio of phosphorylated WEE2 to total immunoprecipitated WEE2. (C) Quantitation of pY15-Cdc2 level affected by wt or mutant WEE2 in HeLa cells . Quantitation was by measuring the band intensity ratio of pY15-Cdc2 to total Cdc2. (D) Western blotting analysis (left) and quantitation (right) of pY15-Cdc2 level affected by wt or mutant WEE2 in mouse MII oocytes.

Data are the mean ± SEM of three independent experiments **indicates p <0.01; ***indicates p < 0.001.

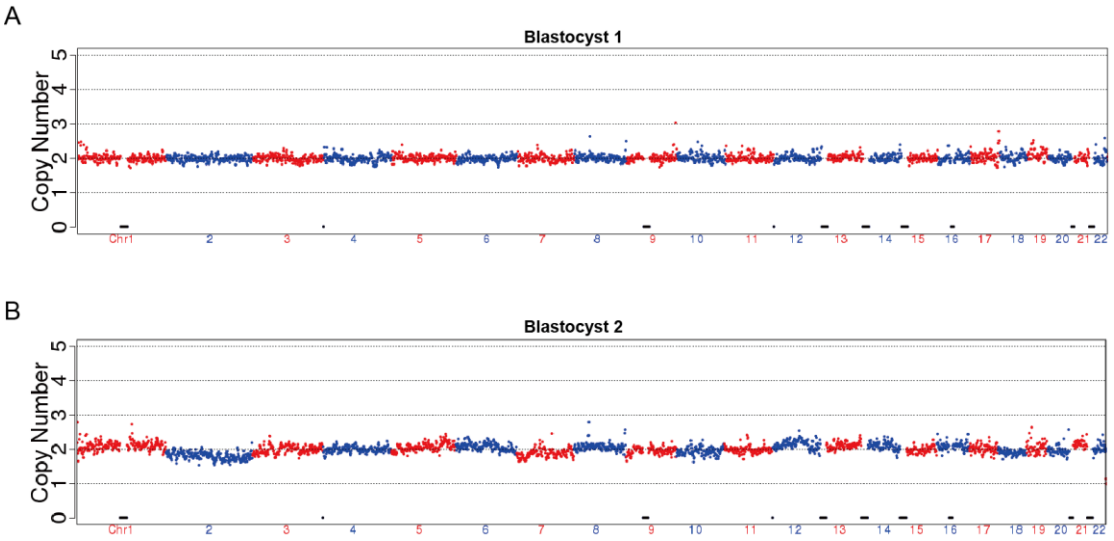

Figure S5. Preimplantation genetic screening of two blastocysts

Trophectoderm cells were aspirated into a biopsy pipette from the two blastocyst embryos, and chromosomal copy numbers were determined by next generation sequencing. The x-axis shows the chromosome numbers, and the y-axis shows the copy numbers of chromosomes.