

**Supplementary Table S1** Pregnancy outcomes and human oocyte trait quality assignment for weighted correlation network analysis.

| Sample#        | Age | YNG/AMA <sup>a</sup> | Maturation% <sup>b</sup> | Fertilization% <sup>c</sup> | GQ Blastocyst% <sup>d</sup> | Blastocyst% <sup>e</sup> | Births <sup>f</sup> |
|----------------|-----|----------------------|--------------------------|-----------------------------|-----------------------------|--------------------------|---------------------|
| AMA GV/MII - 1 | 40  | 1                    | 1                        | 0                           | 1                           | 1                        | 2                   |
| AMA GV/MII - 2 | 43  | 1                    | 0                        | 0                           | 0                           | 0                        | 0                   |
| AMA GV/MII - 3 | 40  | 1                    | 1                        | 0                           | 0                           | 0                        | 0                   |
| AMA GV/MII - 4 | 42  | 1                    | 1                        | 1                           | 1                           | 1                        | 0                   |
| AMA GV/MII - 5 | 43  | 1                    | 1                        | 1                           | NA                          | NA                       | 0                   |
| YNG GV/MII - 1 | 27  | 0                    | 0                        | 1                           | 0                           | 0                        | 3                   |
| YNG GV/MII - 2 | 29  | 0                    | 0                        | 1                           | 0                           | 1                        | 2                   |
| YNG GV/MII - 3 | 29  | 0                    | 0                        | 0                           | 1                           | 0                        | 2                   |
| YNG GV/MII - 4 | 29  | 0                    | 1                        | 1                           | 1                           | 1                        | 1                   |
| YNG GV/MII - 5 | 20  | 0                    | 0                        | 0                           | 0                           | 0                        | 0                   |

GV, germinal vesicle; MII, metaphase II.

A–E represent categorical values based on raw data. a: maternal age categorization - young (YNG, < 30 years) = 0, advanced maternal age (AMA, ≥40 years) = 1; b: poor (<60%) = 0, moderate (65–72%) = 1, good (>80%) = 2; c: poor (≤75%) = 0, good (>75%) = 1; d: overall good quality blastocyst rate, poor (≤50%) = 0, good (>50%) = 1; e: overall blastocyst development rate of any grade, poor (≤70%) = 0, good (>70%) = 1. F represents the number of births from oocytes obtained during this cycle.