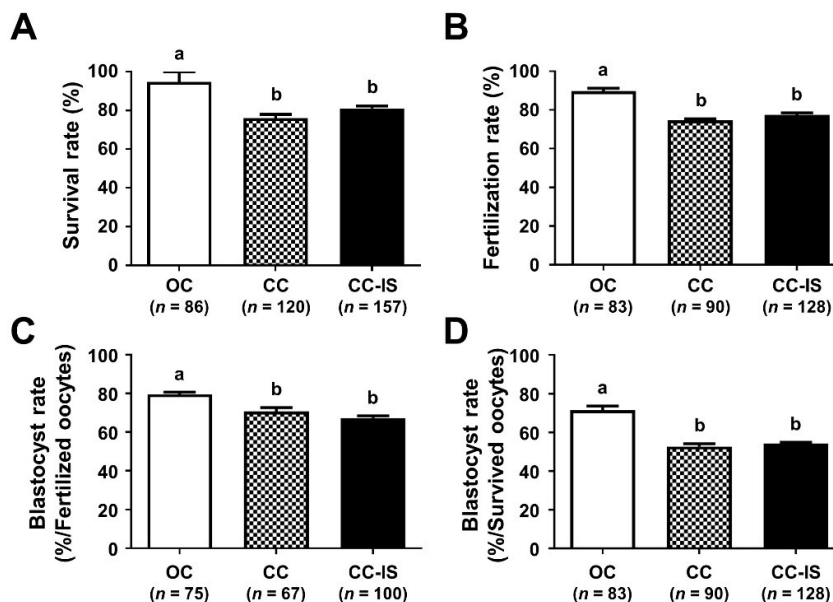
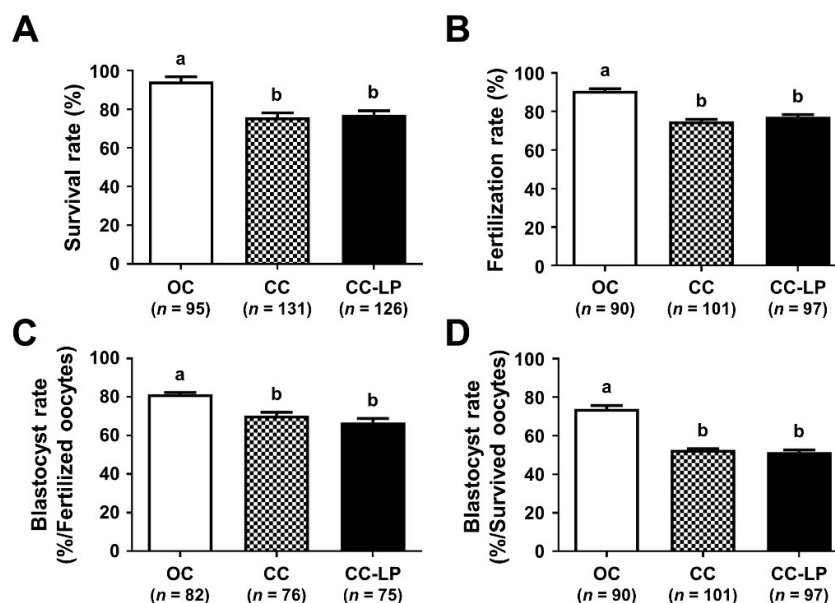


## Supplementary Material



**Figure S1.** Comparison of the survival and development rates of vitrified/warmed (VW) oocytes with increased sucrose concentration. Comparison of the survival (A), fertilization (B), and blastocyst formation rates (C–D) of VW oocytes. Blastocyst formation rates [the number of blastocysts/the number of fertilized oocytes (C) and /the number of survived oocytes (D)]. Different superscript letters (a,b) indicate  $p < 0.05$ . The number of experiments = 4 (28–40 oocytes per each group in each experiment). OC, open carrier system; CC, closed carrier system with standard sucrose concentration (0.5 M); CC-IS, increased sucrose concentration (1.0 M).



**Figure S2.** Comparison of the survival and development rates of vitrified/warmed (VW) oocytes with increased viscosity by L-proline supplementation. Comparison of the survival (A), fertilization (B), and blastocyst formation rates (C–D) of VW oocytes. Blastocyst formation rates [the number of blastocysts/the number of fertilized oocytes (C) and /the number of survived oocytes (D)]. Different superscript letters (a,b) indicate  $p < 0.05$ . The number of experiments = 4 (22–31 oocytes per each group in each experiment). OC, open carrier system; CC, closed carrier system without L-proline; CC-LP, L-proline supplementation as a cryoprotective agent.