**Whole Ovine Ovaries as a Model for Human: Perfusion with Cryoprotectants** *In Vivo* **and** *In Vitro*

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These experiments were performed to test the perfusion of ovine as a model for human ovaries by cryoprotectants *in vivo* at high temperature when the permeability of capillaries is high and when blood is insensibly replaced by the solution of cryoprotectants. By our hypothetical supposition, ovaries could be saturated by cryoprotectants before their surgical removal. The objective was to examine the effectiveness of perfusion of ovine ovaries with vascular pedicle *in vivo* and *in vitro*. *Arteria ovarica* was cannuled and ovaries were perfused by Leibovitz L-15 medium + 100 IU/mL heparin + 5% bovine calf serum + 6% dimethyl sulfoxide + 6% ethylene glycol + 0.15M sucrose + Indian ink *in vivo* and *in vitro*. In the first and second cycle of experiments, ovaries (𝑛 = 13 and 𝑛 = 23) were perfused *in vivo* and *in vitro*, respectively, during 60 min with the rate of perfusion 50 mL/h (0.8 mL/min). It was establishedwith *in vivo* perfusion that only about 10% of ovarian tissueswere perfused due to an appearance ofmultiple anastomoses when the perfusion medium goes from *arteria ovarica* to *arteria uterina* without inflow into the ovaries. It was concluded that *in vitro* perfusion of ovine intact ovaries with vascular pedicle by freezingmediumismore effective than thismanipulation performed *in vivo*.