

Immature rat ovaries become revascularized rapidly after autotransplantation and show a gonadotropin-dependent increase in angiogenic factor gene expression

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When the ovaries of 23-day-old juvenile rats are transplanted to an ectopic site, they recover within 1 week the ability to control gonadotropin secretion via steroid negative feedback. Vascular corrosion casting followed by scanning electron microscopy revealed that the transplanted ovary becomes profusely revascularized within 48 h after transplantation. Vascular ingrowth was accompanied by a 40- to 60-fold increase in expression of the genes encoding two angiogenic factors, vascular endothelial growth factor (VEGF) and transforming growth factor- β 1 (TGF β 1), as assessed by RNA blot hybridization of the corresponding mRNAs. Although TGF β 3 mRNA levels also increased, no changes in the levels of mRNAs encoding other putative angiogenic factors, such as TGF α , basic fibroblast growth factor, and TGF β 2, were observed. Hybridization histochemistry demonstrated that in intact ovaries, VEGF mRNA is mainly expressed in granulosa cells of the cumulus oophorus and thecal cells of large an