

The gene encoding nerve growth factor is expressed in the immature rat ovary:

Effect of denervation and hormonal treatment

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The rat ovary is innervated by sympathetic nerve fibers. Since the development and survival of peripheral sympathetic neurons innervating nonreproductive organs have been shown to depend on the production of nerve growth factor (NGF) by the innervated tissues, the present experiments were undertaken to determine if the immature rat ovary has the capability of synthesizing NGF. Blot hybridization of ovarian polyadenylated RNA (A⁺-RNA) to a NGF cRNA probe revealed the presence of a 1.3- to 1.4-kilobase (kb) mRNA species similar to mature NGF mRNA detected in mouse submaxillary gland, a source rich in NGF. Quantitation of NGF protein by a sensitive and specific two-site enzyme immunoassay demonstrated the presence of NGF in juvenile ovaries at levels comparable to those found in other sympathetically innervated tissues. Neither denervation of the ovary nor treatment with gonadotropins (hCG and FSH) or somatomammotropins (PRL and GH) affected the levels of NGF mRNA. However, denervation si