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JOURNAL ARTICLE

The testis as a major source of circulating inhibins in the male equine fetus during the second half of gestation

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Immunolocalization of the inhibin (a) and inhibin/activin (beta3A and betaB) subunit proteins in equine fetal testes was investigated to determine the ability of the fetal testis to produce inhibins at 120, 150, 200, and 250 days of gestation. In addition, concentrations of immunoreactive (ir)-inhibin, inhibin pro-aC, and inhibin A in both the maternal and fetal circulation were measured. It was found that plasma concentrations of ir-inhibin, inhibin pro-alphaC, and inhibin A were much higher ($P < .05$) in the fetal than in the maternal circulation at any stage of gestation examined. Similarly, while fetal testicular homogenate contained increased amounts of inhibins, the inhibins were undetectable in homogenates of maternal ovaries and placentae. At 120 days of gestation, all 3 subunit proteins were localized to the interstitial cells, while the immunoreactivity for the inhibin/activin 3B subunit protein was also observed in Sertoli cells. The intensity of immunoreactivity for the 3 subunit proteins in interstitial cells increased as pregnancy advanced to day 200, and, at this stage, immunoreactivity for the inhibin alpha subunit protein was observed in the fetal testes in a pattern consistent with localization in Sertoli cells. Thus, the inhibin/activin betaA subunit protein was confined to interstitial cells during the gestational periods examined. We conclude that equine fetal testes secrete large amounts of inhibins, including dimeric inhibin A and possibly other dimeric forms, such as inhibin B and activins, into the fetal circulation. These results suggest that these proteins may play some important roles in the development of fetal testes during gestation.

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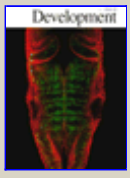

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