

# Developmental expression of activin/inhibin alpha- and beta(A)-subunit genes in the gonads of male and female chick embryos (2001)

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## **Abstract**

The expression of inhibin  $\alpha$ - and  $\beta$ A-subunits was investigated in gonads of male and female chick embryos during the last week of their 21-day incubation period. Fertilized Hisex brown laying hen eggs were incubated at  $37.8 \pm 0.2^\circ$  and 60% relative humidity in an automatic forced-draft incubator with constant lighting. Embryos were killed after 14, 18, and 21 days of incubation, sexed by macroscopical inspection of the gonadal phenotype, and further dissected to obtain the gonads. Total RNA was isolated using the ultraspec RNA method. The expression of  $\alpha$ - and  $\beta$ A-subunits was evaluated by competitive RT-PCR. Significant differences were found within and between sexes in the expression of the  $\alpha$ - and  $\beta$ A-subunits. The level of the  $\alpha$ -subunit in the testis was about 23-fold higher than that in the ovary at all ages. Testicular content of inhibin  $\alpha$  mRNA levels was similar at days 14 and 18 but declined significantly at day 21 of incubation, whereas no significant differences were observed between the three age groups in the ovary. Testicular and ovarian inhibin  $\beta$ A-subunit increased significantly from day 14 to day 18 followed by a significant decline before hatch. However, inhibin  $\beta$ A level at day 14 was significantly higher in the ovary than in the testis. At days 18 and 21, there were no differences in the levels of the inhibin  $\beta$ A in the sexes. The expression of inhibin  $\beta$ A-subunit in the ovary was significantly higher than that of the  $\alpha$ -subunit at all ages. In the testis, however, the expression of the  $\beta$ A-subunit was higher at days 18 and 21 than at day 14. The sex difference in gonadal inhibin subunits expression suggests differential roles of inhibin/activin in the development of the chicken gonads. The changing level of expression during incubation also suggests changing biological roles within sexes. Grant for foreign advanced doctoral researchers of the Catholic University of Leuven.